

DESIGN EDUCATION IN 21ST CENTURY INDIA

A Humanistic Foundation Design Education

Submitted in partial fulfilment of the requirements
of the degree of

Doctor of Philosophy

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I dedicate this work to

Mohan Bhandari

You inspired me to work with the next generation of design students.

You gave me the confidence to question my 'self'.

And seeking answers led me to this Ph.D. journey.

Approval Sheet

This thesis entitled
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A Human-Centred Foundation Design Education

by **Indrani De Parker** is approved for the degree of **Doctor of Philosophy**.

Examiners

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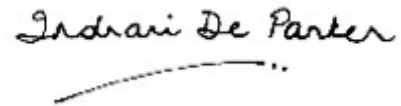
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Abstract

Foundation Design Education is a basic or introductory course in modern design education to introduce fundamentals of design to students. It comprises the first year of a four-year, all-exclusive design educational programme after a high-school education. It includes introduction to basic skills, theories, design-thinking processes, human needs, and much more. The downside, however, is the focus on skills, which, outweighs all else in the current Foundation Design Education courses. This study proposes that an emphasis on understanding the Self for the designer and the Self-Other relationship in Foundation Design Education could highly enrich the design education. Central to the study is the humanistic concern that needs to be woven into the fabric of Foundation Design Education.

In context to this research, humanistic concern would involve qualities of integrity, respect, compassion and values that reflect a belief in human dignity and science. It is a belief that human needs and values are of prime importance and projects an emphasis on agency of human beings, individually and collectively in a holistic manner.

The Self is recognised in the disciplines of Psychology, Sociology & Philosophy. It is however, recognised that there is an apparent omission of the Self for the designer in the Design discipline. The study begins by attempting to examine the explicit acknowledgement of the Self and the Self-Other in disciplines other than design, and attempts to draw parallels in design education. It seeks to adapt ideas of the Self and the Self-Other as understood in disciplines such as Philosophy, Psychology, Sociology, and attempts to define the notion of the Self for the designer and formulate a theoretical framework of the Self-Other relationship for the designer.

A literature review of the Self and Other in disciplines other than Design along with examples of the Self-Other relationships, as understood by other disciplines such as Philosophy, Sociology and Psychology, are presented to develop a theory of how such an understanding may benefit the design education.

The study also attempts to understand Foundation Design Education as developed and practiced in some of the institutions for modern design education globally, such as the Staatliches Bauhaus Design School (Bauhaus) and Hochschule für Gestaltung (HfG) School of

Design, Ulm. From the study of the Foundation Program at Bauhaus, it was found that there was certainly a concern for the New Man in a new technological society, a humanistic concern.

Being a humanist for the Self, means holding a compassion-based value system and recognizing common humanity with all of humanity, nature, environment and the planet. It also reflects the acknowledgment of personal biases.

At the HfG, Ulm, the principles of standardisation and mass production steered the teaching towards exploring a scientific approach, integrating systemic and objective methods of collecting and processing data in order to inform of the design solution. A new scientific humanism, which synthesised science and design, recognised the pluralism of methods and methodological perspectives needed by the designer in addressing the new problems of industrial culture. There is an attempt to tease out the nature of the Self and the Self-Other relationship from texts by the Bauhaus and Ulm educators in the West and the Eames' India Report in the Indian context.

The Self-Other relationship, in context to humanism, suggests that by developing a more nuanced understanding of the relationships between humans, society, industry, technology and even the non-human worlds, we become acutely aware of our all-too-human nature. When we try to make a leap to embody other human perspectives we need to safeguard from false empathy. It could be an imposition of our personal biases and understanding of other entities, instead allowing for the space and the possibility to imagine other types of intelligence that are completely different from our own.

This is followed by a study of the Foundation Design Education courses as practiced in a few design institutions of India (National Institute of Design, National Institute of Fashion Technology, Pearl Academy, IILM School of Design, and Institute of Apparel Management). The study found many similarities with the Bauhaus and Ulm responses. Assignment outcomes were similar to Bauhaus and HfG, Ulm outcomes. The study, however, found no reference of the notion of the Self for the designer and the Self-Other relationship in the various Foundation Design Education courses of India and in interactions with design educators. The study involved extensive engagements with experienced design educators and design participants in the various design education conferences. Excerpts from these interactions with design

educators have been used to argue that such a lacuna exists, and establishes the importance of understanding the Self and the Self-Other relationship in Foundation Design Courses.

A series of interviews were subsequently conducted to discern humanistic abilities that students needed to develop for a Foundation Design Education. Some of the abilities that emerged from this investigation were – ability to engage in holistic thinking; ability to make a positive change; ability to respond to real problems; ability research and imagine the future; ability to engage in the process of introspection of the self and a process of extrospection with the other. Introspection is one of the most obvious components of our unique human consciousness and sentience. Navigating knowledge, accuracy of the information at our disposal, biases, and sensitising the self. Extrospection is how the Self understands and empathise with the external environment around and the Other.

The key concerns expressed by design educators in the interviews underlined the importance of a set of abilities that are critical for these students. These abilities are sought to be developed through assignments, where assignments are considered not the end but the means to an end. Developing a process-oriented thinking that applies these abilities is critical. A process that keeps the human central and follows a systematic, investigative path of identifying, examining, discerning, extracting and translating insights.

In order to address this, the thesis proposes to seek an understanding of these aspects more clearly. The thesis proposes that an understanding of the notion of Self for the designer and the Self-Other relationship can possibly lead to problem-solving methods that are more humanistic in their response to the contemporary issues. A notion of the Self sensitises the designer in a holistic manner, reinforcing the ability to observe, empathise and facilitate preferred changes that pervade preconceived existing perspectives by exploration of sustainable solutions in the ecosystems.

The thesis proposes that a suitably modulated Foundation Design Education can enrich the programme. One such modulation was carried out in an engineering institute where a new B.Tech. programme, Computer Science and Design, was being introduced for the first time. The courses are designed keeping the Self and the Self-Other relationship central. These courses are documented and the learnings of students are recorded. At the end of each course, students reflect upon and articulate the abilities they believe they developed in the assignments. They

also reflect upon the Self as a designer, that helped in shaping the processes of problem solving and developing sensitivity to others.

In conclusion, the study suggests that a better understanding of the notion of the Self and the Self-Other relationship in Foundation Design Education can possibly lead to design processes and methods that are responsive to the problems, issues and needs of present times.

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Abbreviations & Terms

NID: NATIONAL INSTITUTE OF DESIGN, AHMEDABAD

IDC, IITB: INDUSTRIAL DESIGN CENTRE, INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

IIIT-D: INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY, NEW DELHI

HCD: HUMAN-CENTRED DESIGN

CSD: COMPUTER SCIENCE & DESIGN

DDV: DESIGN DRAWING & VISUALISATION

VDC: VISUAL DESIGN & COMMUNICATION

DPP: DESIGN PROCESSES & PERSPECTIVES

HCI: HUMAN-COMPUTER INTERACTION

FNP: FINAL PROJECT

ABS: ABILITIES SUGGESTED

CO: COURSE OBJECTIVES

ND: NOT DATED

Chapter 1

Introduction to The Thesis:

A Humanistic Foundation Design Education

1.1 Background

The spirit of inquiry for the study emerges from an intellectual curiosity for an evolving education in design, and a conviction that Foundation Design Education plays a crucial role in the learning experience of design students. The focus of the research, as mentioned, is on Foundation Design Education. The foundation year is a critical phase in design education. Students of this programme learn to acknowledge all preconceived biases from traditional education and open the mind to new concepts, insights, observations, knowledge and different methods of learning.

Foundation Design Education, as the name implies, is a foundational course in modern design education that introduces students to the fundamentals or basics of design. Typically, it comprises the first-year of a four-year, all-exclusive design education programme after a high-school education. It covers basic skills, theories, concepts, tools, development of abilities, problem-solving processes, human needs, societal needs, environmental needs, industrial needs and much more.

The genesis of Foundation Design Education in the West was at the Bauhaus in 1919 and continued at the HfG, Ulm School of Design, both in Germany. The genesis of Foundation

Design Education in India was at the National Institute of Design (NID), India's first and premier design institute which was set up in 1961.

In the early years after independence from British colonial rule in 1947, the first Prime Minister Jawaharlal Nehru, worked towards revitalizing the country economically, socially and culturally. He embraced modernism as the best way to project the nation's modern image.

In the early years after independence from British colonial rule in 1947, the first Prime Minister Jawaharlal Nehru, worked towards revitalizing the country economically, socially and culturally. He embraced modernism as the best way to project the nation's modern image. Almost all the literature on the Nehru's vision of independent India, and the nation building project of the period immediately after, focuses on his emphasis on introducing western science and technology, modernizing agriculture and related to this, the establishment of institutions of higher education in the natural sciences, technology and management. An equally important aspect of Nehru's nation building ideas was the rejuvenation of small, rural and cottage industries as well as handicrafts; part of the initiatives taken in this direction was the move to introduce institutions for design education. (Sheth, 2012, p.1).

In 1955 Pupul Jayaker, the noted writer on Indian craft traditions and the founder of the Indian Handlooms and Handicrafts Export Council (HHEC) met the renowned American designer Charles Eames at the Museum of Modern Art in New York. The Museum had organised a unique exhibition titled The Textiles and Ornamental Arts of India. This would be the beginning of a lifelong dialogue between these two eminent individuals (Sheth, 2012). And this was the beginning of a lasting Western influence on design education in India.

During the same time, the Government of India was considering establishing an institute of design, under the advice of Pupul Jayaker and other like-minded people. The 1950s were a decade of rapid industrialization in India and clearly, the need for such an institute grew stronger. In 1957 the Government of India requested the Ford Foundation to invite Charles and Ray Eames to visit India. Charles and Ray Eames travelled to all parts of the country, meeting and talking to writers, craftspeople, architects, scientists, industrialists, educators and philosophers. They took hundreds of photographs of their travels.

It was a conscious and considered act of the Indian nation state to introduce design education. On April 7, 1958, the Eameses presented the India Report to the Government of India. The Eames Report defined the underlying spirit that would lead to the founding of NID and beginning of design education in India. The Report recommended a problem-solving design consciousness that linked learning with actual experience and suggested that the designer could be a bridge between tradition and modernity. The Report called upon future designers to re-examine the alternatives of growth available to the country at that time. The relevance of the Report in context to the thesis is discussed later in detail.

Based on the recommendations made in the India Report, the Government of India, with the assistance of the Ford Foundation and the Sarabhai family, established the National Institute of Industrial Design, as it was originally called, as an autonomous all-India body in September 1961 at Ahmedabad. Gautam Sarabhai and his sister Gira Sarabhai, played a major role in the establishment and early years of NID. Gautam Sarabhai sidestepped the accepted wisdom and conventional method of education. He revived the philosophy of the Bauhaus design movement, which was learning by doing. This unique curriculum and revolutionary educational philosophy remain part of NID to the present day.

However, much was borrowed from the philosophy of HfG Ulm School of Design too, which was to build a new and markedly closer relationship between design, science and technology. This was the first manifestation of the Ulm model, which has lost none of its relevance even today. The first Foundation Design Education at NID drew upon both the Bauhaus and Ulm models for assignments and pedagogy. The concept of 'model approach' that blended inputs from both the models was adapted. It was this Basic Course that Kumar Vyas understood deeply at Ulm and introduced to the new batch of Product Design students when the three-year Postgraduate course was offered to graduate engineers at NID in 1967. This batch was given admission with the understanding that they would be offered faculty positions. Mohan Bhandari, who was part of this pioneering batch, was assigned to conceptualize and execute the Basic Courses when NID began the five and half year Professional Educational Programme. The Basic Courses at NID was officially referred to as the 'Foundation Programme' and all, undergraduate students admitted were required to go through the Foundation Programme. Bhandari, conceived, developed and coordinated the indigenously evolved Foundation

Programme at the NID (1975-1983), now recognised as the significant turning point in the history of design education at the NID.

The influence of both Bauhaus and Ulm are apparent even today in Foundation Design Education in India. The western influence on Indian design education is discussed in length and expanded upon in Annexure 2

As a prelude to the research, a study of the Foundation Design Education courses as practiced in a few design institutions of India was conducted (National Institute of Design, National Institute of Fashion Technology, Pearl Academy, IILM School of Design, and Institute of Apparel Management) and compiled into posters of A0 size (Annexure 1).



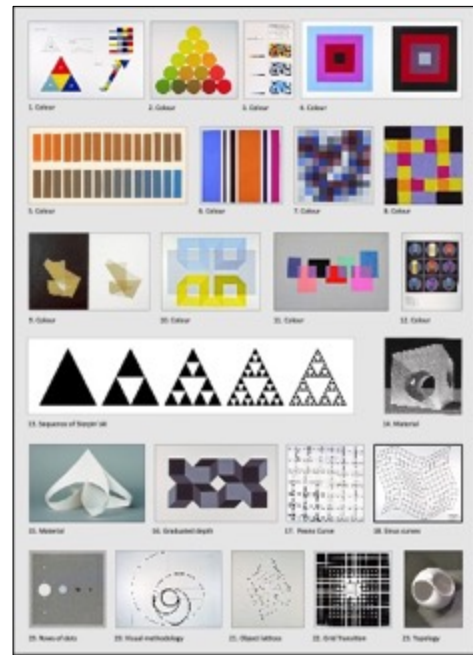
Figure 1.1
Compilation of courses across five design schools in India

A visual comparison establishes these similarities. An expert evaluation was done based on the researcher's experience in teaching courses in Foundation Design Education. It also establishes the emphasis on developing skills. While developing such visual skills are important, in today's scenario, it is equally important to integrate these skills with humanistic concerns.

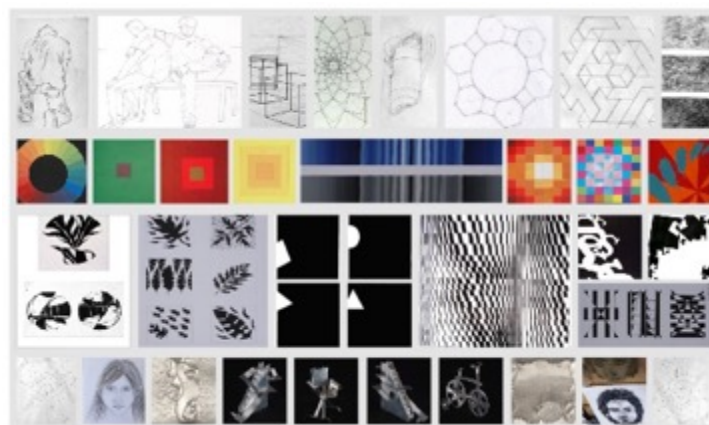
The study also finds many similarities with the Bauhaus and Ulm responses. Assignment outcomes are found to be similar to Bauhaus and HfG, Ulm outcomes. These reflect the western influence on Indian Foundation Design Education are discussed in detail in Annexure 2.



Foundation Work at the Bauhaus



Foundation Work at the HfG, Ulm



Foundation Work at the Design Schools in India Today

Figure 1.2

Samples of Foundation Design Courses at Bauhaus, Ulm and in Design Schools in India Today

As mentioned earlier, it is observed that the focus of Foundation Design Education on skills, outweighs all else in the current scenario of how the course is practiced in India (Trivedi, 1989; Ranjan, 2003). One of the earliest instances of this was identified in 1989 by Trivedi, who touched on the lacuna in design education¹. Trivedi, claimed that there was a major shortcoming in design education wherein, by and large, design educators failed to follow a minimum accepted level of the state of knowledge. According to him, “more re-inventing the wheel” occurs in design education, and questions how many design educators would be aware of the state of knowledge established in the HfG, Ulm in the fields such as Semiotics, Cybernetics, etc.

The idea Trivedi discusses is essentially that design educators must continue to practice design even while teaching. They must fundamentally understand what design in today’s world is, to be able to impart that knowledge to students. Trivedi believed that nothing is easier in teaching design than to conduct set exercises developed decades ago. The inference made is design education is not merely about development of skills, design is a holistic problem-solving process that requires deep engagement from both students and teachers. He further describes it as a process which is self-renewing and self-adjusting, according to the differing social and temporal contexts. It is important in today’s context to be able to first understand design in a holistic manner, and then respond to design education with an integrated approach.

There have been many discourses on design education and a common consensus on how it must evolve (Prior, Shen, & Karamanoglu, 2007; Furniss, 2015; Assadourian, 2017). The social, economic and technological dynamics of the world are evolving and constantly changing the complexity levels. Design practices have attempted to keep up but it is critical to rethink educational practices for design to better respond to contemporary challenges. Foundation Design Education should train students with skills, knowledge and abilities to respond to problems, issues and challenges of present times through process-oriented critical thinking with humanistic approaches. The thesis examines Foundation Design Education through the humanistic lens.

¹ Readings from Ulm: Selected articles from the Journal of the Ulm School of Design (Hochschule Für Gestaltung, Ulm), Industrial Design Centre, Mumbai, India.

In context to this research, humanistic concern would involve qualities of integrity, respect, compassion and values that reflect a belief in human dignity and science. It is a belief that human needs and values are of prime importance and projects an emphasis on agency of human beings, individually and collectively in a holistic manner.

Being a humanist for the Self, means holding a compassion-based value system and recognizing common humanity with all of humanity, nature, environment and the planet. It also reflects the acknowledgment of personal biases.

By evolving a further fine-tuned realisation of the nexuses existing between humans, society, industry, technology and even the non-human worlds, the Self-Other relationship, with regards to humanism, there is an internal creation of an acute awareness in us about our all-too-human nature. In our efforts to permeate our ideology onto the perspective of others, we ought to exercise abstinence from false empathy. It may entail overwhelming others with our personal biases and perspectives of various entities, rather than providing space and opportunity for the growth and evolution of intelligence divergent from our own.

To discern humanistic abilities that students needed to develop for a Foundation Design Education, a series of interviews were conducted with design educators. Some of the abilities that emerged from this investigation were – ability to engage in holistic thinking; ability to make a positive change; ability to respond to real problems; ability research and imagine the future; ability to engage in the process of introspection of the Self and a process of extrospection with the Other. Introspection is one of the most obvious components of our unique human consciousness and sentience. Navigating knowledge, accuracy of the information at our disposal, biases, and sensitising the self. Extrospection is how the Self understands and empathise with the external environment around and the Other.

The key concerns expressed by design educators in the interviews underlined the importance of a set of abilities that are critical for these students. These abilities are sought to be developed through assignments, where assignments are considered not the end but the means to an end. Developing a process-oriented thinking that applies these abilities is critical. A process that keeps the human central and follows a systematic, investigative path of identifying, examining, discerning, extracting and translating insights.

In order to address this, the thesis proposes to seek an understanding of these aspects more clearly. The thesis proposes that an understanding of the notion of Self for the designer and the Self-Other relationship, can possibly lead to problem-solving methods that are more humanistic in their response to the contemporary issues. A notion of the Self that sensitises the designer in a holistic manner, reinforcing the ability to observe, empathise and facilitate preferred changes that pervade preconceived existing perspectives by exploration of sustainable solutions in the ecosystems.

The notion of the Self is recognised in the disciplines of Psychology, Sociology & Philosophy. It is however, observed, that there is an apparent omission of the Self for the designer in the discipline of Design. The research attempts to examine the explicit acknowledgement of the Self and the Self-Other in disciplines other than design, and attempts to draw parallels in design education. It seeks to adapt ideas of the Self and the Self-Other as understood in disciplines such as Philosophy, Psychology, Sociology, and attempts to define the notion of the Self for the designer and formulate a theoretical framework of the Self-Other relationship for the designer.

A literature review of the Self and Other in disciplines other than design along with examples of the Self-Other relationships, as understood by other disciplines such as Philosophy, Sociology and Psychology, are examined to develop a theory of how such an understanding may benefit the design education. This is discussed further in detail in Chapter 2.

1.2 Delineating Design: A Humanistic Approach

Humanistic, humanism and humanist are terms relating to an approach which studies the whole person, and the uniqueness of each individual and their interaction with other individuals in the environment. Essentially, these terms refer to the same approach in Psychology. Humanism refers to a modern life stance rooted in rational thinking, providing a way of understanding our place in life in naturalistic terms rather than in supernatural or theistic terms (Gogineni, Ramanadha, et. al., 2004). The concept of Humanism first entered the vocabulary of intellectual discourse in the West during the Renaissance period, where early humanists interpreted religious teachings in what they consider to be a more humanist approach. Humanism

progressed from this early start and assisted by the progress of science, was able to adopt to a secular form freed from religion. Today, secular humanism stands in sharp contrast to religion which is based on the existence to God. Its principal concern is the advancement of humanity and differs from science only to the extent that it attempts to construct an ethical code that is conducive to human and environmental welfare (Gunasekara, 2008).

The meaning of the term humanism has evolved over time and can have slightly different meanings in different contexts. For example, in Psychology, humanism and humanist are terms referring to an approach which studies the whole person, and the uniqueness of each individual. While in Philosophy the term generally implies ideas that involve only humans and human perspectives rather than any divine entity. In Sociology, it concerns itself with human welfare, values and conduct in the environment including the non-human species.

To be human, is the designer's first responsibility. The notion of what it means to be human in the 21st century no longer reflects the ideas of 18th-century. To be human today is to include the perspectives of people who continue to struggle to be considered fully human – women, children, underprivileged persons, differently abled persons, LGBT, geriatrics, etc. To be human today is to acknowledge that man is not the centre of the universe. As designers we need to expand our understanding of what it means to be human in the current context to include communities, industries, nature, environment and the planet. Along these lines, Maldonado had argued for an approach to design education that emphasised social consciousness and responsibility as early as 1955 when he was appointed the director of the HfG, Ulm (Raizman, 2003). Maldonado moved the curriculum of the school away from the experimentation with materials and visual practice towards a stronger involvement with social theory, reducing the emphasis upon studio work while concentrating upon redefining the role of design and the designer in a global context that was critical of materialism and commercialism.

The definition of design has numerous variations: Finding the right physical components of a physical structure (Alexander, 1963); A goal-directed problem-solving activity (Archer, 1965); The performing of a very complicated act of faith (Jones, 1966); The optimum solution to the sum of the true needs of a particular set of circumstances (Matchett, 1968); The imaginative jump from present facts to future possibilities (Page, 1966); A creative activity, it involves bringing into being something new and useful that has not existed previously (Reswick, 1965).

For Herbert Simon, design is an improvement of what is. Simon suggests, “Everyone designs who devises courses of action aimed at changing existing situations into preferred ones” (1969, p. 111). According to Krippendorff (2005), this definition is a good start but needs to be elaborated. He suggests [that] “...there’s no point of designing courses of actions unless design brings forth what would not come naturally” (2005, p. 24). In other words, suggesting that all ‘courses of action’ are man-made. Krippendorff points out that design “proposes realisable artefacts to others” (2005, p. 24). But he acknowledges that artefacts are not necessarily good for everyone. Krippendorff elaborates that artefacts aid not just individuals but influence also those they live with. Design must support the lives of communities; most importantly, it should not even minimally impair the lives of others. In effect, he suggests that, design cannot avoid ethical questions, thus advocating a humanistic approach to delineating design.

Schön (1983) introduced the idea of design as a reflective practice wherein designers reflect upon the actions taken with the sole objective to improve design processes. While this may seem counter the science of design, where the practice of design is the focus of a scientific inquiry, several design researchers have argued that reflective practice and a science of design can co-exist in harmony (Cross, 2001), establishing the importance of the humanism in design.

Responding to the casting of design as a science and to the inability of systems engineers to apply scientific methods to address social problems, Horst Rittel and Melvin Webber proposed the concept of *Wicked Problems*. These are complex problems that cannot be accurately modelled or addressed using approaches of science and engineering (Rittel, Webber, 1973) because of the conflicting perspectives of the stakeholders². For example, policymaking on complex societal issues related to sustainability (Fiorino, 1990) would entail stakeholders of diverse backgrounds each with a different and often conflicting needs and perceptions.

Ritter and Webber argued for design opportunities to provide complementary knowledge to the contributions made by scientists and engineers through methods unique to design and design processes, thus promoting the importance of humanistic approach to complex problems.

² A stakeholder is defined as someone involved in, affected by, knowledgeable of, or having relevant expertise or experience on the issue at stake.

Richard Buchanan (1992) linked design thinking to wicked problems. As a design theorist and academician, he argued that the iterative process in design thinking is effective in addressing ill-defined and often intangible problems—reframing the problem in human-centric ways, ideating along with the stakeholders, adopting a hands-on approach in prototyping, testing, and validating, etc.

The evolving definition of design as an initiator of change in man-made things implies there are numerous objectives that must be achieved before the final solution can be completed, or even started. Design that responds to a problem is to bring about effective changes in the world at large. Designers must be able to predict the ultimate effects of their proposed design, as well as specify actions that are needed to bring about these effects (Jones, 1966). According to Jones, design appears to be less concerned with the product itself and more concerned with the changes that manufacturers, distributors, users, and society as a whole, are expected to make in order to adapt to and benefit from the new design. Jones, reminds every one of the humanistic concerns would involve qualities of integrity, respect, compassion and values that reflect a belief in human dignity and science.

Design interventions have always been human-centred. The presence and recognition of the Other has always been central in the practice of design, as design seeks to understand the outer world and intervene in it. In today's context of design, what is needed by a person is not the only question. Design today responds to the bigger issues, which requires approaching a problem or issue as holistically as possible (Joshi, 2011). The response is by engaging in a process-oriented divergent thinking, wherein designers need to be trained with multiple abilities. These abilities can enable them to look beyond what had been specified in the design brief, and attempt to understand the problem thoroughly and exhaustively before solving it. This entails a belief that human needs and values are of prime importance and projects an emphasis on agency of human beings, individually and collectively in a holistic manner. In context to humanism, it suggests a more nuanced understanding of the relationships between humans, society, industry, technology and even the non-human worlds.

Design is a multifaceted and versatile term, which over the years, has gathered many dimensions and definitions within its folds. Design is often described as a responsible and creative activity (Ranjan, 2003; Balaram, 2010). Design, at the core, attempts to understand and

empathise with human needs in order to respond with recommendations that can resolve these needs. By its very nature, the process of design deals with extremely complex interrelationships of issues and concerns of the user, the environment and the well-being of society in social, technological and economic realms. The designer, therefore, within the fertile ground of generating scenarios and specifications, needs to be trained or develop abilities to offer suggestions within the framework of professional services to a wide range of clientele. The complexity will vary with a change in context. The real challenge, however, lies within the complexities in the social, economic or psychological dimensions of users along with the communities involved. In today's context, design has evolved from being an individual initiative to that of being a team effort. Members are drawn from diverse disciplines, depending on the nature of the task and our current understanding of the same (Ranjan, 2003; Balaram, 2010; Archer, 1965; Jones, 1970; Cross, 2000). To be human, is the designer's first responsibility. As mentioned earlier, to be human today, includes concerns for communities, industries, nature, environment and the planet.

Tony Fry's *Design Futuring* (2018) suggests rethinking futuring³ in relation to the Self, community, culture and ethics. Design Futuring defines the re-directive practice⁴ as a critical new paradigm for design – a way of engaging design and sustainability as they are implicated in and essential to our very survival – broad, accessible and timely. Fry's *Becoming Human by Design* (2012), makes a case for ontological design as an evolutionary agency. He posits the relation between the formation of the world of human fabrication and the making of mankind itself as indivisible. Fry considers the nature of adaptation for humans, arguing that it will depend on an ability to think and design in new ways, stressing upon the importance of a humanism in design.

More recently, at the 19th CII - NID India Design Summit (2019), at Goa, India, according to Praveen Nahar, Director, National Institute of Design (NID), Ahmedabad, "The field of design

³ Futuring is the field of using a systematic process for thinking about, picturing possible outcomes, and planning for the future. Futurists are people who actively view the present world as a window on possible future outcomes. They watch trends and try to envision what might happen. Design Futuring is a broad research approach that includes a suite of methods to consider possible, preferable or avoidable futures and about alternative futures.

⁴ "For 'design, redirective practice has three areas of focus: adaption in face of what has to change to counter the unsustainable; the elimination of what threatens sustainment by designing 'things' away; and prefiguration, which is designing in order to redirectively deal with what is coming" (Design Philosophy Politics 1:07 forthcoming).

is expanding its scope to include not only tangible outputs, but also strategic roles, policy making and good governance.”⁵

Such a framework for the field of design will need a Foundation Design Education that is holistic and humanistic in its approach. The impetus to formulate a Foundation Design Education for a pluralistic discourse such as design, comes from growing critical reflections on modern dominant paradigms, vis-à-vis the demands of a larger developmental context and existence of multiple realities.

Though there have been design educators who have voiced concerns (Trivedi, 1989; Norman, 2011) over the continuity of age-old design pedagogy methods in the current socio-cultural scenario, there has been no initiative to implement such a project. Countries all over the world are facing crises in their healthcare, education, and transportation systems. For example, there are energy and conservation issues; issues related to the treatment of refugees; design of security systems that allow for rigorous screening without being oppressive and degrading to all those involved, including the screeners and the people being screened, etc. The environment is another very critical issue, as is design for the impact of global change. The Sustainable Development Goals (SDG) of the UN (2015), are universally accepted as the most critical and complex of problems faced by humanity and the planet. Designers claim that design can respond to such complex problems (Ranjan, 2003) but the magnitude of these issues need a Foundation Design Education that can develop the abilities to respond effectively. Design educators who continue to conform to traditional skills and crafts will continue their accomplishments, as that would continue to nurture fine craftspeople. The world will always need these skills. This form of design will continue to play an essential part in our lives, producing wonderful, emotionally-satisfying products for even our most basic everyday lives. There is nothing wrong with this except the issues of environmental damage and natural resource depletion. But design today is much more than a craft with technically trained people producing beautiful objects. In today’s context, these skills are limiting and can respond to a very narrow range of design actions. This component of design may remain as part of our lives, but design today is much more than mere creation of objects for giving pleasure. Design can

⁵ Keynote speech, 19th CII - NID India Design Summit (2019), Goa, India

be the foundation for an entire university, teaching system thinking, bridging across all the specialized departments of a modern university (Norman 2011).

Clearly, a more nuanced understanding of the relationships between human, technology, society, nature, environment and the planet, generates a critical awareness of human nature. To empower future designers, educators must encourage students to explore and learn more of technology, social sciences, nature, and the complexities of the world, of economic, political and environmental issues. Design education needs to be humanistic in its approach and ideology. The next several decades will see transformation of design to a field that promises a new mode of thinking, a humanistic approach to the solution of complex problems, an approach that moves us from the tyranny of technology to the empowerment of people. Human-centred design of the future places people first in addressing the major problems of society. Humanistic approach to design places all components of life central. The paradigm shift from product-centred to human-centred to life-centred research and design can suggest moving beyond the technological determinism that traditionally formed the fundamental basis of the industrial era conceptions of human-machine interactions. This entails exploring human spaces derived from narratives, conversations, experiences, etc along with their interactions in the environment. (Krippendorff, 2004).

From an academic perspective, modern design is different from most other disciplines in academia. Designers work as creators (and most often, co-creators), makers and doers making design as a discipline unique within the university system of education. Design builds upon the knowledge of all the specialised fields within the university, to engage, research, construct, develop, build, and shape issues, micro to macro, of the world. It combines technology with human actions. Design is practical application of the knowledge from the entire university.

Design, however, as a practical field of doing and making, is obligated to work within the existing specifications of laws, rules, regulations, customs of the real world of politics, business, and now more recently, the concerns for the environment, natural resources and the planet.

A common factor accepted, however, by all is design processes or methods—a systematic process-oriented problem solving, that is a critical part of design practice and design education (Ranjan, 2003; Balaram, 2010; Archer, 1965; Jones, 1970; Cross, 2001).

A more recent term is Design Thinking. This term describes problem solving and rationalizes why designers need to be included in a project or process. The thesis, reflects application of design processes that involves grounding – investigation to gain multiple perspectives on a problem; empathy – aligning with the stakeholders; ideation – generation of many possible different solutions; iteration – cyclical process of refining concept with increasing fidelity; and reflection – effect of the solution on the community and the environment. According to Schön (1983), in complexities of the processes, there is a tendency for design action to result in consequences other than those intended.

With the present acceptance of design being all-encompassing, Foundation Design Education can be envisaged as an all-inclusive entity, not only in the sphere of its application but also in its theory as pervasive of all cognitive aspects of the arts, sciences and technology. However, design schools have traditionally adhered to a model that builds programs based on a foundation year with a well-defined introduction to the basics of material, form, and colour. Unfortunately, this curriculum leaves little room to explore cross-disciplinary and technology-based learning, or even to understand and apply design in the context of the larger world.⁶ This dated replicable model needs to evolve to reflect design's enhanced role as a catalyst for innovation and creativity.

That being said, are the courses in Foundation Design Education embedded in the central ideology of humanistic concerns? Do the courses in Foundation Design Education develop abilities in students which sensitise them to people; make them aware of issues of people; enable them to work with people and not for people? Do the courses in Foundation Design Education develop a compassion-based value system and recognizing common humanity with all of humanity, nature, environment and the planet.

In other words, does a Foundation Design Education acknowledge the Self for the designer and does it develop a deep understanding of the Self-Other relationship?

⁶Although university is meant to be a place of educational exploration, paths, particularly for architects and designers, tend to be extremely prescribed. In "Notes from the Dean," originally published in the *Metropolis Magazine*, Executive Dean, Joel Towers describes how the *Parsons New School for Design* is pioneering a new design program that is more reflective of modern design approaches: "The world has changed; the role of design has changed. And the way that designers are taught to engage with the world must change, too." <https://www.archdaily.com/445647/the-dean-of-parsons-design-education-must-change>

It is apparent that in design education, an adequate attention is not given to the recognition of the notion of the Self for the designer in the teaching and learning process. The notion of the Self in design practice and education is not present significantly, as it is primarily the Other who is recognised in design. No significant literature has been found during the literature review. This notion has remained unrecognised or is not viewed in relation with the Other and its importance in developing the abilities in a student. This gap in design education has remained and the present work is an attempt to fill this gap. The current Foundation Design Education in design schools in India has insufficient recognition of the presence of the sense of Self for the designer. Moreover, it is important to understand the notion of the Self in order to understand the relationship of Self and the Other.

The concept of Self seems simple enough when we refer to it in a universal context and in English language. However, when an attempt to analyse is indicated, the question of what constitutes the concept of our “selves,” runs into difficulties and gets the impression that there is an ambiguity (Glaserfeld, 1979). The Self as the experiencer, enters into specific relations to other experiencers and actors, and adopts specific patterns or roles that eventually come to be considered characteristic parts of what we call our “selves.”

Introducing the notion of the Self for the designer and developing the abilities to understand the Self-Other relationship offers ample opportunities to re-examine the question of alterity and to arrive at a more adequate formulation of the way in which the Self relates to the Other in design processes. It is proposed that an emphasis on understanding the Self and the Self-Other relationship in foundation courses can enrich design education.

As mentioned earlier, an explicit acknowledgment of the Self and the Self-Other relationship exists in disciplines other than design. The thesis seeks to borrow ideas of the Self and the Other as understood in disciplines such as Philosophy Sociology, Psychology and, scrutinize such claims to create a theoretical framework for the notion of the Self for the designer.

The thesis proposes that a better understanding of the Self for the designer and the Self-Other relationship could possibly lead to problem solving-methods or processes that are more responsive to contemporary issues. Introducing these notions early in design education would enrich the Foundation Design Education, familiarising students to the notion of the humanist Self for the designer.

1.3 Motivation for the Research

The motivation for this research emerges from an intellectual curiosity for a Foundation Design Education that is relevant to current needs of humans. The researcher's experience of almost two decades as an educator and evaluator for the Foundation Design Education course, and later as a researcher, witnessed from close quarters the curriculum, the works, the learnings of students, and the pedagogy of the Foundation Design Education courses since 1999. The researcher's teaching experience comes from five design schools of Delhi-NCR and Haryana, and academic evaluation across another five design schools⁷. This experience made it possible for the researcher to observe and interact with students and teachers of the Foundation Design Education course from close proximity. The genesis of Foundation Design Education in India was at the National Institute of Design (NID), India's first and premier design institute which was set up in 1961. Having gone through the five and half year Professional Educational Programme (PEP) in the early 80's, the researcher's teaching of Foundation Design courses in design schools followed the NID model. This raised questions on the relevance of assignments conducted and sustained over decades. In 2016, the researcher was offered an opportunity to teach a new programme in Computer Science and Design at an engineering college. This raised a number of questions for her: Would the NID model of Foundation Design Education be a fit in a technical institution? What would the challenges be? What should a Foundation Design Education course for a technical institute or an engineering college consist of?

1.4 Aim and Scope of the Study

Foundation Design Education, despite its distinctiveness, has received little scholarly attention. Design and design education have constantly evolved as a response to the changing socio-cultural needs of the society. Foundation Design Education, however, has not evolved much (Trivedi, 1989). The objective of this research is three-fold with reference to the requirements of Foundation Design Education courses that responds to the contemporary needs and importance of comprehending the Self in order to understand the Self-Other relationship. How

⁷ Researcher's resume can be seen at the end of the thesis document on page 405.

has design responded to social changes/transitions over the years? What are the abilities that foundation design students need to develop in order to respond to the multiple needs of the society? Why is it important to shape the notion of the Self for the designer?

The investigation examines the transforming landscape of design as a backdrop to analyse the current foundation design curriculum. It also examines the objectives of an existing foundation design curriculum that identifies the abilities that students develop, and the lacunae in the abilities developed by current foundation design students with the recognition of the Self in relation to the Other. It attempts to understand how the notions of the Self, the Other and the relationship between these two enrich the Foundation Design Courses.

The objective is to design a pedagogy in Foundation Design Education that prepares students to envision solutions through novel interactions and relationships, in order to meet real and perceived needs and respond with a certain intention by engaging in a well-planned research and deeply thought-out inquiry. The project implemented is a pedagogy that prepares students to understand and empathise with others by first developing an understanding, and then getting sensitised to the notion of the Self for the designer. The attributes of the Self, lie in the abilities that are developed during the courses in Foundation Design Education.

It is proposed that an emphasis on understanding the notion of the Self for the designer and the Self-Other relationship in foundation courses can enrich design education. Positioning the Self and the Self-Other relationship central to Foundation Design Education can make the programme more humanistic or human centred.

The research questions used in the study are as follows:

Research Question 1

How has the definition of design evolved over time?

- How has the design education been able to keep up with the change, specifically the Foundation Design Education? (This will be answered through a review of literature, historical study of modern design education, and through a documentation of the works of foundation design students.)

Research Question 2

What is the current Foundation Design Education and how does it respond to the current needs?

– Based on the evolving meaning of design, what are the significant gaps or lacunae in the current Foundation Design Education and how can this lacunae be addressed? (This will be answered through published interviews and interactions with design educators and practitioners at various forums that establish lacunae in the Foundation Design Education. This will be supported by examining the texts pertaining to Self and the Self-Other relationship as understood by other disciplines, such as Philosophy, Sociology, and Psychology, where it will be established that there is an omission of the Self in Design. The response to the lacunae will be in form of an attempt to develop a framework for a humanistic approach to Foundation Design Education by basing it on established theories in allied disciplines.)

Research Question 3

What critical abilities do students of a Foundation Design Education need to develop in order to empower them to respond to the multiple needs of the society?

– How will the inclusion of the Self in a Foundation Design Education sensitise students in a holistic manner and make the programme more human centred? (This will be answered through a review of literature of the Self in disciplines other than design; through interviews of design educators from NID and IDC; and through insights from students of a pilot project conducted at the Indraprastha Institute of Information Technology, Delhi [IIIT].)

Research Question 4

How will an introspection of the Self for the designer lead to a better understanding of the Self-Other relationship, which in turn will lead to design processes that are more responsive to the contemporary challenges in the society, industry and environment?

– How can the Self-Other relationship in design be made central to the courses in a more humanistic Foundation Design Education? (This will be answered through the results of a pilot project conducted at IIIT.)

1.5 Contribution Made Through the Thesis

- Establishing the importance of acknowledging the notion of the Self for the designer and developing the Self-Other relationship in Foundation Design Education.
- Integrating the notion of the Self for the designer and the Self-Other relationship into the pedagogy of Foundation Design Education through a pilot programme implemented at IIIT.
- A proposal for a model to shape a holistic Self for the designer that can be adapted for a Foundation Design Education in any discipline as a way forward.

1.6 Studies and Experiments Conducted

The foundation courses in design occur in a complex arena with many influencers such as history, culture, attitudes, values, roles, physical space, interaction between and among learners and learned, etc. So many factors and aspects are involved in this activity that it seems hard to quantify and isolate, since these factors are qualitative and complex. Most of the empirical materials gathered are mainly analysed qualitatively.

The rationale for using a qualitative approach in this research was to explore and describe the thoughts of design educators on the appropriateness of the Foundation Design Education today. The study also uses qualitative methods for the analysis of the data gathered from conducting a Foundation Design Curriculum implemented through a pilot project. Descriptive approach is undertaken in the research as a widely-used approach in education. Its value is based on the premise that observation, analysis, and description offer insights that are rich in content. The most common descriptive research method is the survey, which includes questionnaire and personal interviews (Koh & Owen, 2000). It is through the qualitative method that the abilities

and the notion of the Self can be identified and described.

A qualitative approach has been used to investigate the vast gathering of data, and for analysis. The investigation explores the research questions through various studies as mentioned here:

- **STUDY OF CONTEMPORARY FOUNDATION DESIGN EDUCATION IN INDIA:**
The investigation examines the curriculum of the premier design institute, NID, extensively, as an example to identify the objectives of the courses and abilities that students of Foundation Design Education develop in the present times through the stated objectives.

Since the commencement of the research in 2010, the investigation brings up-to-date the visual documentation of existing Foundation Design Education in India. This is done through the works of design students across five design schools in India: National Institute of Design (NID), Ahmedabad; National Institute of Design (NIFT), Delhi; Pearl Academy, Delhi; IILM School of Design, Gurgaon; and Institute of Apparel Management (IAM), Gurgaon. Visual documentation of representative works of students was also conducted from five more design schools during the end-term jury evaluation (School of Design [SOD], Rohtak; Sushant School of Design [SSD], Gurgaon; UPES School of Design, Dehradun; and School of Planning and Architecture [SPA], New Delhi). These are not shown in the study, but the researcher's experience in Foundation Design Education is taken into consideration. From the study of documented Foundation Design Courses at the five schools, it was found that most of the courses were common and generally followed the pattern of NID. This documentation also involves a visual representation where works of students from the foundation courses of the five design schools are shown visually mixed up. The fact that the trained eye of an experienced design educator can't discern much between the work of different schools, reflects a similarity to the curriculum of NID (Annexure 1). No further analysis was made other than the observation that most design schools continue to follow a similar curriculum as NID. This was sufficient to continue using the curriculum of NID as an exemplar to proceed with the study.

The investigation examines the curriculum of a premier design institute, the NID extensively, as an example to identify the objectives of the courses and abilities that

students of a Foundation Design Education develop in the present times through the stated objectives.

The study attempts to question what is relevant and what is not in a Foundation Design Education for contemporary India—what needs to be retained, what can be modified, and what can be introduced or included. (Responds to Research Question 1).

- **A HISTORICAL STUDY OF THE SELF-OTHER RELATIONSHIP IN MODERN DESIGN EDUCATION:**

The study attempts to question what is relevant and what is not in Foundation Design Education in contemporary India. For example, what needs to be retained, what can be modified and what can be introduced or included? (Responds to Research Question 1.)

The study began by trying to understand Foundation Design Education as developed and practiced in some of the institutions for modern design education (Bauhaus and Ulm) from texts in books and publications. From the study of the foundation programme at the Bauhaus, it was found that there was certainly a concern for the New Man in a new technological society, a humanistic concern. At the HfG of Ulm, the principles of standardisation and mass production steered the teaching towards exploring a scientific approach, integrating systemic and objective methods of collecting and processing data in order to inform of the design solution. A new scientific humanism, which synthesized science and design, recognized the pluralism of methods and methodological perspectives needed by the designer in addressing the new problems of industrial culture.

The study attempts to tease out the nature of Self and Self-Other relationship in design education in the past from texts by the Bauhaus and Ulm educators and from the Eames' India Report. (Responds to Research Question 1.)

- **IDENTIFICATION OF THE GAP IN CONTEMPORARY FOUNDATION DESIGN EDUCATION:**

The study involves extensive engagements with experienced design educators and other design participants in various design education conferences and seminars. Excerpts from these interactions with design educators have been used to argue that such a lacuna exists and the importance of understanding the Self and the Self-Other relationship in

Foundation Design Courses. (Responds to Research Question 2.)

- **IMPLICIT RECOGNITION OF THE SELF AND OTHER IN OTHER DISCIPLINES:**

A literature study of the examples of the Self and the Self-Other relationship, as understood by other disciplines such as philosophy, sociology, and arts, is studied. It appears that the Self and the Self-Other relationship is given significant importance and discoursed extensively in many disciplines. It recognises the omission of the Self in design education. The study helps justify the need to introduce the notion of the Self and the Self-Other relationship in Foundation Design Education.

The study attempts to help develop a theory of how such an understanding of the Self for the designer may benefit design education. (Responds to Research Question 2.)

- **CRITICAL ABILITIES THAT NEED TO BE DEVELOPED BY FOUNDATION DESIGN STUDENTS:**

Through an analysis of interviews of design educators, the inquiry investigated abilities that the courses in Foundation Design Education needed to develop in students of foundation design. The notion of the Self and the Self-Other relationship emerges from the voices of concern of design educators, as abilities are identified as critical for Foundation Design Education.

A series of interviews are conducted to discern abilities students need to develop for a Foundation Design Education that are humanistic in nature. The key concerns, as expressed by design educators during the interviews, underlined the importance of a set of abilities that are critical for these students. These abilities are sought to be developed through assignments, where assignments are not the end but the means to an end.

The study attempts to identify crucial abilities that enable development of a human centred, process-oriented thinking for problem solving. (Responds to Research Question 2.)

- **MODULATED FOUNDATION DESIGN EDUCATION: A PILOT PROJECT**

Implementation of a foundation design curriculum in a Computer Science & Design

programme has at least three implications in terms of content and process of education. One, it allows for a framework of knowledge in a design school to be adapted to non-design academia, which in turn need to address an amendment to pre-existing pedagogic structures. Two, it concedes that the framework of knowledge needs to broaden to include societal aspirations and needs (human agency), besides an understanding of technology (means of production), and that the latter should be able to adequately respond to the former. Three, such a framework of knowledge implies educational processes that are inter-contextual, inter-disciplinary, and encourage the cognitive fusion of intellect, imagination and empathy. This, in turn, compels an interrogation and re-imagining of academic processes, structures, curriculum and pedagogy, for enriching the existing design discipline, as well as the engineering. It also includes a study of the limitations and challenges, along with an analysis of the components for implementation that augments opportunities for a holistic education in engineering and technology, through the introduction of Foundation Design Education in a Computer Science & Design programme.

The study attempts to construct a Foundation Design Education which is relevant and responds to contemporary challenges in society, industry and environment. (Responds to Research Question 3.)

- SHAPING THE NOTION OF THE SELF FOR THE DESIGNER

It presents a proposal for future studies, for a model that can be adapted for a Foundation Design Education in any discipline. An all-inclusive model which can form a basis of design assignments, which would both address a set of course objectives and develop abilities that form a sound holistic foundation for students of design. A Foundation Design Course that sensitises the Self for the designer, helps students to be aware and develop an understanding of the Self-Other relationship, and enables them to respond to contemporary issues.

The study attempts to construct an all-inclusive Six S model for a Foundation Design Education to shape a holistic Self for the designer. (Responds to the Way Forward.)

1.7 Organisation of Chapters

Chapter 1

Introduction to The Thesis: A Humanistic Foundation Design Education

The first chapter introduces the background of the study. The introduction begins with the motivation behind the research and goes on to discourse design as a humanistic response to problems and issues. It begins with an examination of definitions of design. A clear understanding of the meaning of design helps to inform the direction and content of design education that is relevant to today's need. The evolving change in design suggested a strong need to re-examine design education. The study outlines the scope of the investigation and the aim of the research. It states research questions and briefly describes the numerous studies and experiments. The study proposes that an emphasis on understanding the Self and the Self-Other relationship in foundation courses can enrich the design education.

Chapter 2

The Self Recognised in The Disciplines of Psychology, Sociology & Philosophy: Recognition of the Omission of the Self for the Designer in the Design Discipline

The second chapter reviews literature of the Self in disciplines other than design. Examples of the Self and the Self-Other relationship, as understood by other disciplines such as Philosophy, Sociology and Psychology, are presented to develop a theory of how such an understanding may benefit the design education. An attempt is made to develop a theoretical framework that is understood by discipline of Psychology.

Chapter 3

Humanistic Concerns in Design Education: The New Man at the Bauhaus, HfG, Ulm, and the India Report

The third chapter surveys the existing literature on modern design education. The study commences endeavouring to understand Foundation Design Education as expounded and applied in certain institutions for modern design education globally, such as Bauhaus and Ulm. A study of the foundation programme at Bauhaus brought forth, a definite concern being

expressed for the New Man in a new technological society, a humanistic concern. At the HfG, Ulm, the principles of standardisation and mass production guided the education process towards exploring a scientific approach, integrating systemic and objective methods of collecting and processing data in order to inform of the design solution. A new scientific humanism, synthesizing design with science, recognized the pluralism of methods and methodological perspectives required by the designer to effectively communicate with new and unique challenges presented by the industrial culture.

There is an attempt in this chapter to tease out the nature of Self and the Self-Other relationship from texts by the Bauhaus and Ulm educators and the India Report.

Chapter 4

Concerns in A Design Education in India: Gaps Identified in the Contemporary Foundation Design Education

The fourth chapter describes the extensive engagements made with experienced design educators and other design participants in various design education conferences. Excerpts from these interactions with design educators have been used to argue that such a lacuna exists and the importance of understanding the Self and the Self-Other relationship in Foundation courses. While the Other is clearly recognized in design, the recognition of the Self for the designer can add value to design interventions. This chapter argues why notion of the Self for the designer is an important factor in Foundation Design Education.

Chapter 5

Design Educators Speak: Abilities Identified for a Contemporary Foundation Design Education

The fifth chapter discourses series of interviews conducted to discern abilities that students need to develop for a Foundation Design Education that is a humanistic in nature. The key concerns, as expressed by design educators during the interviews, underlined the importance of a set of abilities that are critical for these students. These abilities are sought to be developed through assignments, where assignments are not the end but the means to an end. Developing a

humanistic, process-oriented thinking for problem solving, enabled by these abilities is what is crucial.

Chapter 6

A Pilot Project in Contemporary Foundation Design Education: Introducing the Notion of the Self for the Designer and the Self-Other Relationship in Design Education

The sixth chapter proposes that an appropriately balanced Foundation Design Education can help enhance the programme. An endeavour towards the same was undertaken at an engineering institute, with the introduction of a new program, Computer Science and Design, for the first time. The course content was structured ensuring that the core-focus was on the Self and the Self-Other relationship. The course progress was documented and the subsequent learnings of the students were recorded. At the culmination of each course, the students were encouraged to reflect upon and articulate the abilities, which they felt they had inculcated in the course of each assignment.

Chapter 7

Conclusion and The Way Forward: The Six S Model to Shape a Holistic Self for the Designer

The seventh and last chapter concludes the thesis with a suggestion of a way forward. The thesis seeks to understand aspects of the notion of the Self for the designer more clearly. It proposes that a better understanding of the Self and the Self-Other relationship could possibly lead to problem-solving methods that are more humanistic in their response to contemporary issues. This chapter proposes a direction for future work.

In conclusion, the study suggests that a better understanding of the notion of the Self and the Self-Other relationship in Foundation Design Education can lead to design processes and methods that are responsive to problems and issues of present times.

As a suggestion for the Way Forward, the study attempts to construct an all-inclusive Six S Model – Shape the Self for the Designer – in Foundation Design Education to sensitise and

shape a holistic Self for the designer. The Six S of the Self model is only a suggestion for the way forward.

Chapter 2

The Self Recognised in the Disciplines of Psychology, Sociology & Philosophy: Recognition of the Omission of the Self for the Designer in Design Discipline

2.1 Introduction

Introducing the notion of the Self for the designer and developing the abilities to understand the Self-Other relationship offers ample opportunities to re-examine the question of alterity, and to arrive at a more adequate formulation of the way in which the Self relates to the Other in design processes. It is proposed that an emphasis on understanding the Self and the Self-Other relationship in the Foundation Design courses can enrich design education.

This chapter examines the explicit acknowledgment of the Self and the Self-Other in disciplines other than design, and attempts to draw parallels in design education. It seeks to scrutinize ideas of the Self and Self-Other relationship as defined in disciplines such as Philosophy, Psychology, Sociology, and attempt to develop a theoretical framework for the notion of the Self for the designer and the Self-Other relationship that can be defined in design. It also examines if such a study could enrich the Foundation Design courses in design education by placing the Self for the designer and the Self-Other relation central in Foundation Design Education.

Fields such as Philosophy, Psychology, Sociology and the arts have traditionally been rooted in understanding the Self and the Self-Other relationship implicitly in any investigation or interaction. However, since there are no mentions of it in Design Education, it is proposed that an inclusion of the Self in the Foundation Design Education would make the programme more humanistic. Examples of the Self and the Self-Other relationship as understood by other disciplines such as philosophy, psychology and sociology are explored to develop a theory of how such an understanding may benefit design education. This chapter examines the concept of Self in various disciplines and draws parallels to design.

The Self is a person's essential being that distinguishes them from others, especially considered as the object of introspection or reflexive action. According to the Merriam-Webster dictionary, the Self is the entire person of an individual, the union of elements (such as body, emotions, thoughts, and sensations) that constitute the individuality and identity of a person. Individuality is the state or quality of being an individual; a person separate from other persons and possessing his or her own needs, goals, and desires.

Philosophy, Psychology and Sociology share an interest in self-concept, but they use slightly different ways to explore it. Broadly, the divide can be thought of in these terms:

- Sociology/social psychology focuses on how self-concept develops, specifically within the context of an individual's social environment (Gecas, 1982).
- Psychology focuses on how self-concept impacts people (Gecas, 1982).
- Philosophy focuses the Self at the most basic level and questions "Who am I? and What am I? (Descartes 1641: 80)

There are other differences between the three, including Psychology's general focus on the individual versus Sociology's focus on the group, community, or society; however, this difference in focus has led to two diverse research streams. Both have resulted in great insights and interesting findings, and they sometimes overlap, but this divide can still be seen in the literature today.

In a world where design today is considered all-encompassing, it is essential that the designer develop the ability to engage with inputs from diverse disciplines. The designer today needs to

be able to be the Other. To facilitate this, the designer would need to enable the Self to connect effectively as one, to the Other. But the notion of the Self for the designer is not explicit, when we look at modern design practices and education. It is the notion of the Other that is explicit, as design has often been regarded as the action that looks for identification of problems or opportunities and finds solutions as responses. The Other is introduced to the student of Foundation Design Education in courses like the Environmental Exposure and Design Process (Bhandari, 1982; Ranjan, 2007). At the same time, the Self for the designer is not recognised or given attention in either design practice or in design education. Yet it does not mean that the Self is not present.

2.2 The Self in Psychology

The theory of Self in psychology draws attention to the set of personal perceptions an individual has, and the perceptions of the relationships they have with others as well as with their other aspects of life. The psychology of Self is the study of either the cognitive or affective representation of one's identity or the subject of experience (James, 1891).

According to James, in modern psychology, one of the earliest formulations of the Self, has been derived from the distinction between the Self as I, the subjective knower, and the Self as Me, the object that is known (1891).

In the contemporary understandings of the Self in psychology, the Self is positioned as playing an integral part in human cognition, affect, motivation, and social identity. It may be the case that we can now usefully attempt to ground the experience of Self in a neural process with cognitive consequences, which will give us insight into the elements, of which the complex multiple situated selves of modern identity are composed (Sedikides, Spence, 2007). This has been discussed in detail later in the Section 2.5 The Self and Empathy, where the psychological approaches to Self and the differences between a cognitive and affective approach to Self-Other relationship is discussed.

2.2.1 Humanistic Psychology

In Psychology, humanism and humanist are terms referring to an approach which studies the whole person, and the uniqueness of each individual. This humanistic approach in Psychology developed as a rebellion against what some psychologists saw as the limitations of the behaviourist⁸ and psychodynamic⁹ psychology.

The humanistic approach is thus often called the Third Force in Psychology, after behaviourism and psychoanalysis (Maslow, 1968). Humanistic psychology expanded its influence throughout the 1970s and 1980s. Its impact can be understood in terms of three major areas:

- 1) It offered a new set of values for approaching an understanding of human nature and the human condition.
- 2) It offered an expanded horizon of methods of inquiry in the study of human behaviour.
- 3) It offered a broader range of more effective methods in the professional practice of psychotherapy.

Design can borrow from the first two. Humanistic psychology begins with the existential assumptions that people have free will. Personal agency is the humanistic term for the exercise of free will. Personal agency refers to the choices we make in life, the paths we go down, and their consequences. It describes the Self as responsible and accountable.

Humanistic psychology assumes that people are basically good and have an innate need to make themselves and the world better. The humanistic approach emphasizes the personal worth of the individual, the centrality of human values, and the creative, active nature of human beings. It describes the Self as optimistic with a focus on noble human capacity to respond to problems and issues of concern.

⁸ Behaviourism refers to a psychological approach which emphasizes scientific and objective methods of investigation. The approach is only concerned with observable stimulus-response behaviours, and states all behaviours are learned through interaction with the environment. Humanism rejected the assumptions of the behaviourist perspective which is characterized as deterministic, focused on reinforcement of stimulus-response behaviour and is heavily dependent on animal research.

⁹ The psychodynamic approach includes all the theories in psychology that see human functioning based upon the interaction of drives and forces within the person, particularly unconscious, and between the different structures of the personality. Humanistic psychology also rejected the psychodynamic approach because it is also deterministic, with unconscious irrational and instinctive forces determining human thought and behaviour. Both behaviourism and psychoanalysis are regarded as dehumanizing by humanistic psychologists.

Humanistic psychology also assumes that people are motivated to self-actualize. Self-actualization concerns psychological growth, fulfilment and satisfaction in life. Both Rogers¹⁰ and Maslow¹¹ regarded personal growth and fulfilment in life as a basic human motive. This means that each person, in different ways, seeks to grow psychologically and continuously enhance themselves. Both Rogers and Maslow, however, describe different ways of how self-actualization can be achieved. One describes the notion of the Self and the other describes the Self-Other relationship.

Finally, humanistic psychology presupposes that subjective, conscious experiences of an individual are most important. Humanistic psychologists argue that objective reality is less important than a person's subjective perception and understanding of the world. Sometimes, the humanistic approach is called phenomenological. This means that personality is studied from the point of view of the individual's subjective experience. Thus, it can be said that it is as important for a designer to be subjective as well as objective.

For Rogers, the focus of Psychology is not behaviour (e.g., B.F. Skinner's contribution to the Behavioural Theory of Personality, a theory that states that our learning is shaped by positive and negative reinforcement, punishment, modelling, and observation), or the unconscious (e.g., in Freud's psychoanalytic theory of personality, the unconscious mind is a reservoir of feelings, thoughts, urges, and memories that are outside of our conscious awareness), or thinking (e.g., Wilhelm Wundt, who viewed psychology as a scientific study of conscious experience, and he believed that the goal of psychology was to identify components of consciousness and how those components combined to result in our conscious experience. Wundt used introspection—he called it internal perception—a process by which someone examines their own conscious experience as objectively as possible, making the human mind like any other aspect of nature

¹⁰ Carl Rogers used the term *self-actualization* to describe something distinct from the concept developed by Maslow: the actualization of the individual's sense of the Self. Rogers' theory of self-actualization is the ongoing process of maintaining and enhancing the individual's self-concept through reflection, reinterpretation of experience, allowing the individual to recover, develop, change, and grow. Self-actualization is a subset of the overall organismic actualising tendency, and begins with the infant learning to differentiate what is *self* and what is *other* within its *total perceptual field*, as their full self-awareness gradually crystallizes. Interactions with significant others are key to the process of self-actualization. As a result of interaction with the environment, and particularly as a result of the evaluational interaction with others, the structure of the Self is formed: an organized, fluid but consistent conceptual pattern of perceptions of characteristics and relationships of the *I* or the *me*, together with the values attached to these concepts.

¹¹ Abraham Maslow's thoughts on *Motivation and Personality* (1954) started a philosophical revolution, out of which grew humanistic psychology. This changed the view of human nature from a negative point of view—man is a conditioned or tension-reducing organism—to a more positive view in which man is motivated to realize his full potential, which is reflected in his hierarchy of needs and in his theory of self-actualization. Self-actualization is at the top of Maslow's Hierarchy of Needs, and is described as becoming “fully human...matured or self-actualization.”

that a scientist observed.), but how individuals perceive and interpret events. Rogers is therefore important because he redirected psychology towards the study of the Self.

2.2.2 Self-Actualisation

A concept derived from humanistic psychological theory and, specifically, from the theory created by Abraham Maslow, self-actualization, according to Maslow, represents growth of an individual toward fulfilment of the highest needs, for those who seek meaning in life, in particular. Carl Rogers, on a parallel, created a theory implicating [a] growth potential whose aim was to integrate congruently the Real Self and the Ideal Self, thereby cultivating the emergence of the fully-functioning person. Perhaps, describing the Whole Man of the 20th century (Olson, 2013).



Figure 2.1
Maslow's Hierarchy of Needs

It was Maslow (1943, 1954), however, who created a psychological hierarchy of needs, the fulfilment of which theoretically leads to a culmination of fulfilment of being values, or the needs that are on the highest level of this hierarchy, representing meaning. Maslow's hierarchy reflects a linear pattern of growth depicted in a direct pyramidal order of ascension. Moreover,

he states that self-actualizing individuals are able to resolve dichotomies such as that reflected in the ultimate contrary of free-will and determinism. He also contends that self-actualizers are highly creative, psychologically robust individuals. It is argued herein that a dialectical transcendence of ascension toward self-actualization better describes this type of self-actualization.

This term, first coined by Kurt Goldstein, is being used here in a much more specific and limited fashion. It refers to the desire for self-fulfilment, namely, to the tendency for him to become actualized in what he is potentially. This tendency might be phrased as the desire to become more and more what one is, to become everything that one is capable of becoming (Maslow, 1987). Self-actualisation is a word made up of two parts in which one refers to the Other in a specific way. To make something actual or to actualise something means to do something that only exists latently. Actualisation will then mean that the existence on one level of understanding may, through certain processes, come into existence on another level of understanding. For example, in context to the design of a product for the Other, the relationship between a product which is real and the visualisation of the same product which is latent or potential. The product exists on both levels but with different qualities. The process necessary to actualise something potential, such as making the imagined product into a tangible material product, is actualisation (Kvalsund, 2003).

The need for self-actualisation, according to Maslow (1943, p.382), [even] “if all these needs are satisfied, we may still often (if not always) expect that a new discontent and restlessness will soon develop, unless the individual is doing what he is fitted for.” Further stating, “A musician must make music, an artist must paint, a poet must write, if he is to be ultimately happy. What a man can be, he must be. This need we may call self-actualization” (Maslow, 1987).

These needs will take different forms that will differ from one to another. As explained by Maslow, “In one individual it may take the form of the desire to be an ideal mother, in another it may be expressed athletically, and in still another it may be expressed in painting pictures or in inventions. It is not necessarily a creative urge although in people who have any capacities for creation it will take this form” (1987, p.133).

Maslow's 5-stage model for hierarchy of needs is as follows (Maslow, 1987):

1. **Physiological needs**—These are biological requirements for human survival, such as air, food, drink, shelter, clothing, warmth, sex, and sleep. If these needs are not satisfied, the human body cannot function optimally. Maslow considered physiological needs the most important as all the other needs become secondary until these needs are met.

2. **Safety needs**—Protection from elements, security, order, law, stability, and the freedom from fear. Every individual requires security and protection from physical and emotional harm. A safe work environment, income stability, job security, etc. are a few examples of safety or security needs of an employee.

3. **Love and belongingness needs**—After physiological and safety needs have been fulfilled, the third level of human needs is social and involves feelings of belongingness. The need for interpersonal relationships motivates behaviour. Examples include friendship, intimacy, trust, and acceptance, receiving and giving affection and love, and affiliating, being part of a group (family, friends, work).

4. **Esteem needs**—Maslow classified these into two categories: (i) Esteem for oneself (dignity, achievement, mastery, independence) and (ii) The desire for reputation or respect from others (e.g., status, prestige). Maslow indicated that the need for respect or reputation is most important for children and adolescents and precedes real self-esteem or dignity.

5. **Self-actualization needs**—These needs include realizing personal potential, self-fulfilment, seeking personal growth and peak experiences. A desire “to become everything one is capable of becoming” (Maslow, 1943, p.382).

Erikson (1959) created a theory of psychosocial dichotomies represented as *trust versus mistrust* and *autonomy versus shame and doubt*, as examples. In terms of Erikson's final stage of development, that of *ego integrity versus despair*, the successful resolution of this stage corresponds with a sense of life's meaning. It is clear that a self-actualized person might be in a danger of dying, but nevertheless may find a meaning in life. This means that lower-level needs might be unfulfilled even in situations represented by *being values*, such as a sense of meaning in life. Note, however, that Maslow asserted that one's needs may be only partially fulfilled at any given moment.

Mahatma Gandhi, Viktor Frankl, and Nelson Mandela may serve as examples of people who each personify a reality self-actualization. At the risk of his life, Gandhi utilized civil disobedience for purposes of freedom. Frankl was a Holocaust survivor who never relinquished his grasp of life's meaning. And Mandela maintained an attitude of meaning in life even while he was imprisoned. The safety needs of these individuals may have been threatened, but it may be understood that many people whose safety needs are compromised may be cognizant of being valuable. They may find life to be meaningful explicitly because of situations of danger to their lives, situations represented by the dichotomy of life and death, in particular.

As indicated, Maslow identified self-actualizing people as individuals who are highly creative, who have peak experiences, and who are able to resolve the dichotomies inherent in opposite contraries such as those constituted by *freedom and determinism*, *the conscious and the unconscious*, as well as *intentionality and a lack of intentionality*. Creativity, a hallmark of a self-actualizing person, may be perceived to reside within a dialectical relationship. While most dichotomies cannot be explicitly understood as resolvable, the above dichotomies can be seen to be resolved through creative activity.

The dichotomy of free will and determinism, because it relies on both freely willed and causal activity, is resolved by art in terms of both the artist's self-expression and the receiver of artistic expression, in that both of these individuals may be understood to utilize conscious and unconscious aspects of themselves in order for artistic expression and reception to ensue. The conscious-and-unconscious parallel the free-will-and-determinism dichotomy, in that conscious action might be considered to be freely willed and unconscious action may be considered to rely largely on causality.

Another dichotomy that explicates the artistic process is a resolution of subject and object. The term *subject*, indicating *the artist* may be indicative of *the Self*, and the term *object* may describe *the Other* or *the audience*.

Through design, there is a connect between the Self and the Other, a relationship or communication between the two. This is accomplished by the designer through an interaction with the Other that allows for free expression or a communication within the designer's Self, which may culminate in a communicative process. Design may culminate in dialogue between the Self and the Other, or self-dialogue and self-realization within the Self for the designer.

2.2.3 Self-Concept

Self-concept (also called self-construction, self-identity, self-perspective, or self-structure) is a collection of beliefs about oneself. Generally, self-concept embodies the answer to Who am I? (David, 2009). The term Self Concept is a general term used to refer to how someone thinks about, evaluates, or perceives themselves. To be aware of oneself is to have a concept of oneself. According to Baumeister (1999, p.247), [this implies] “the individual’s belief about himself or herself, including the person’s attributes and who and what the self is.” The self-concept is an important term for both social and humanistic psychology. The self-concept refers to the way people see themselves and think about themselves. From a developmental perspective, the concept of Self evolves in a social context where significant others give feedback about actions. The self-concept involves the existential Self, which is the realization of being a separate entity, and the categorical Self, which is the ability to put the Self into categories, such as age, gender, skill, or size. Self-Concept is related to several other self-constructs, such as self-esteem/worth (how much value you place on yourself), self-image (the view you have of the Self), self-efficacy, self-awareness and the ideal Self (what you wish you were really like) (Rogers, 1959)¹².

One’s self-concept includes one’s Self schemas, and interacts with self-knowledge, self-esteem, and the social Self to shape the Self as whole. It includes the past, present, and future selves, where future selves represent individuals’ aspiration of what they might become, what they would like to become, or even what they are afraid of becoming.

There are many theories about what exactly self-concept is and how it develops. Generally, theorists agree on the following points:

- On the broadest level, self-concept is the overall idea we have about who we are and includes cognitive and affective judgments about ourselves;
- Self-Concept is multi-dimensional, incorporating our views of ourselves in terms of several different aspects (e.g., social, religious, spiritual, physical, emotional);
- Self-Concept is learned, not inherent;

¹² <https://www.simplypsychology.org/self-concept.html>

- Self-Concept is influenced by biological and environmental factors, but social interaction plays a big role as well;
- Self-Concept develops through childhood and early adulthood when it is more easily changed or updated;
- Self-Concept can be changed in later years, but it is more of an uphill battle since people have established ideas about who they are;
- Self-Concept does not always align with reality. When it does, our self-concept is *congruent*. When it doesn't, our self-concept is *incongruent* (Cherry, 2018B; Gecas, 1982).

Self-Concept is an overarching idea we have about who we are—physically, emotionally, socially, spiritually, and in terms of any other aspects that make up who we are (Neill, 2005). We form and regulate¹³ our self-concept as we grow, based on the knowledge we have about ourselves. It is multi-dimensional, and can be broken down into these individual aspects. The perception of one's Self for the designer therefore can be defined as one's self-concept, self-knowledge, self-esteem and the social-self. The Self-Other relationship can begin only after developing Self-Concept. This thesis postulates that since Self-Concept is learned, not inherent, so too must the concept of Self-Other be learnt. This emphasises the value of teaching the concept of Self-Other as this is not something designers are born with.

2.2.4 The Self Theory

The Self Theory emphasises on the set of perceptions that individuals have for themselves and the perceptions of the relationships they have with others and the other aspects of life. Carl Rogers has contributed significantly towards the self-theory. Rogers believed that for a person to achieve self-actualization, they must be in a state of congruence. This means that self-actualization occurs when a person's Ideal Self (i.e., who they would like to be) is congruent

¹³ Andrea Bell from GoodTherapy.org has a straightforward definition of self-regulation: It's "control [of oneself] by oneself" (2016).

with their actual behaviour (self-image). The Self Theory comprises four factors that are explained below:¹⁴



Figure 2.2
Four Factors in Carl Roger's Self Theory

1. **Self-Image:** Self-Image means what an individual thinks about himself. Everybody has certain beliefs about themselves, such as who or what they are. These beliefs form the self-image and identity of a person.

According to Erikson (1959), identity is formed through a lifelong development, usually unconscious to the individual and his society, i.e., an individual forms perception about himself unconsciously, according to the social circumstances.

2. **Ideal-Self:** The ideal-self means the way an individual would like to be. It is very much different from the self-image, as it shows the ideal position perceived by an individual, whereas the self-image is the reality that an individual perceives. Thus, there could be a gap between these two.

The ideal-self acts as a stimulus to motivate individuals to undertake those activities that are in compliance with the characteristics of their ideal-self.

3. **Looking-Glass Self:** The looking-glass Self means an individual's perception of how others are perceiving his qualities or feeling about him. Simply, it is the perception of other's perception, i.e., perceiving what others perceive about yourself and not see what actually you are.

¹⁴ <https://businessjargons.com/?s=Self+theory+>

4. Real-Self: The real-self is what others show you with respect to your self-image. An individual's self-image is confirmed when others respond to him and share their beliefs or perception, about what they actually feel about him.

This is taken as feedback from the environment that helps an individual to adjust his self-image accordingly and be in line with the cues he has received.

Thus, according to Carl Rogers, the self-theory is composed of several perceptions of *I* or *me* and the perception of relationships of *I* and *me* to others.

Self-Theory is reductionistic, that is, it brackets off the *real* reality and leaves it in metaphysical realms. Existentialism views both subjective and external reality as contained in existence. Rogers' theory is deterministic to the extent that it is built on causal constructs. The non-deterministic, holistic, and teleological assumptions of the existentialists may help strengthen self-theories. For example, the term existential self would combine self-as-doer and self-as-object, making such constructs as self-concept, self-structure, individual, and organism unnecessary. The individual's experience or perception would not have to be caused by a self-definition, but would be for the purpose of something, i.e., his intentions or goals (Johnson, 1967).

Looking-Glass Self, may help to understand and improve in developing the Self-Other relationship for the designer. It provides an easy starting point – building on other's perception of your Self to Other's perceptions in general. This emphasises the importance of understanding the Self in developing the Self-Other relationship as the Other's perception can be considered a part of the Self and vice versa.

2.2.5 The Subjective and The Objective Self: Biased & Unbiased Self

A simple definition of subjectivity, can concern the phenomenal quality of human experiences, which involves the mental phenomena including thoughts, memories, feelings, and so on. Subjectivity has an additional quality experienced by their owner, accessible to him or her from the unique first-person perspective—namely, the “what it is like” character, which cannot be shared with anybody else (Nagel 1974). At a more complex level, subjectivity encompasses,

not just a certain quality, but rather the totality of human mental life as an open unity of subjective experience. According to Kozyreva (2017, 24), experience in this sense refers to everything that is lived by a subject in the world, everything that happens in his or her field of awareness. Such an experience cannot be restricted to the present moment, but also includes in itself the past and possible future—the unity of history and becoming of one’s life. Moreover, essential to the phenomenological idea of subjective experience is its situated, embodied, intentional and intersubjective character—its relation to the interpersonal world of shared meaning.

Two basic principles define subjectivity in its phenomenological understanding. First, heterogeneity of subjective experience and second, is the principle of unity of subjective experience. Kozyreva explains, heterogeneity with – the mentioned feature of subjective experience as not bound exclusively to the “I think” or cognitive dimension, but including all experiential diversity, such as affectivity, embodiment, and intersubjectivity. Kozyreva explains unity of subjective experience with – the ownership of experience can be regarded as crucial in order to understand why the mental sphere is not a collection of random experiences and why it manifests itself in a coherent and unified way.

It appears that in the phenomenological convention, subjectivity designates not merely the “what-it-is-like” character of experiences, but rather the multidimensional unity of one’s experience as a whole. And since the phenomenological notion of subjectivity refers to the totality of experience and not just to its quality, the principle of unity clearly plays a crucial role for the very definition of subjective experience. The phenomenological approach to the unity of consciousness traditionally emphasizes the role of the self and of pre-reflective self-awareness as central to the understanding of the unified character of experience (Zahavi 2005, 2011). This implies that the self is not taken as an abstract ego, which unites separate experiential parts in the whole, but rather as an experiential dimension. According to this perspective, the unified character of subjective experience is closely related to the minimal sense of “mineness” and “is constituted by first-personal character” (Zahavi 2011, p.329).

Bias, on the other hand, is any process at any stage of inference which tends to produce results or conclusions that differ systematically from the truth (Sackett, 1979). Biases by their very nature are aspects of ourselves that we are not consciously aware of most of the time. They are essentially short-cuts used by our brains to make snap judgements or decisions when employing

our rational thinking is not required. For the most part, our biases have served us well. As hunter-gatherers in the wild, faster decisions would keep us alive but in our modern lives these biases can sometimes work against us without our knowledge. The main problem of having biases as designers is that when a bias is triggered, it is in place of rational thinking and we are not aware of it, which can hinder problem solving (e.g., confirmation bias interfering with our ability to judge whether one has arrived at the correct solution). Furthermore, it is important for designers to be aware of the biases that do exist in people so that when they are analysing the Self-Other relation, they can make more accurate assessments of people, biases, and all.

Designers often engage in giving precedence or being prescriptive. For designers, however, there is a thin line between giving precedence, often being prescriptive and value to subjectivity as discoursed by phenomenology, and bias. How do we reconcile the contradiction? For designers which side weighs heavier? How do you reconcile this? This is a complex situation and perhaps there is no simple answer other than being aware of the notion of the self for the designer.

2.2.6 The Self as an/Other

According to Stawarska, (1998) the notion of the ‘picture itself’ allows us to conceptualize alterity as the radical withdrawal of the Other. The imaginary subject is necessarily divided between itself and itself as another, and due to that internal split, can grasp the alterity of another person. According to Rogers,

To be with another in this [empathic] way means that for the time being, you lay aside your own views and values in order to enter another's world without prejudice. In some sense, it means that you lay aside yourself; this can only be done by persons who are secure enough in themselves, that they know they will not get lost in what may turn out to be the strange or bizarre world of the Other, and that they can comfortably return to their own world when they wish.

Perhaps, this description makes clear that being empathic is a complex, demanding, and strong, yet subtle and gentle, way of being (1959).

According to The New Fontana Dictionary of Modern Thought, the phrase Other and the Constitutive Other, in phenomenology, identify the other human being in his or her differences from the Self, as being a cumulative, constituting factor in the self-image of a person. It is an acknowledgement of the Other being real and is dissimilar to and different from the Self. The Constitutive Other is the relation between the basic nature of the person and the body of the person. According to Hegel and Miller (1977), the difference is an inner difference within the Self. The otherness here refers to the difference between the social identity of the Other and the identity of the Self of the Other. In design, therefore, it is imperative that to be able to understand the Self-Other relationship, the designer needs to first understand the notion of the Self for the designer.

2.3 The Self in Sociology

Unlike Psychology, which focuses on the individual characteristics or personalities of different individuals, sociologists focus on social identities. Social identities reflect the way individuals and groups internalise established social categories within their societies, such as their cultural (or ethnic) identities, gender identities, class identities, and so on (Zevallos, 2011). These social categories shape ideas about who we think we are, how we want to be seen by others, and the groups to which we belong.

The theory of the Looking Glass Self was derived by Horton (1902, 189). Identity, according to him, is created out of the tension between natural impulses that the individual must actively develop and the social structures that he must actively appropriate. The given social structures are transformed through this process of appropriation, which is simultaneously a process of self-development, thereby leading to formation of distinct individualities.

Horton's approach was opposed by George Herbert Mead. His classic text, *Mind Self and Society*, established that social identities are created through our ongoing social interactions with other people and our subsequent self-reflection about who we think we are according to these social exchanges. Mead studied the Self, a person's distinct identity that is developed through social interaction. In order to engage in this process of Self, an individual has to be able to view their Self through the eyes of others. Mead's work shows that identities are produced

through agreement, disagreement, and negotiation with other people. He believed that people adjust their behaviour and self-image based upon their interactions and self-reflection about these interactions. This is also known as the *Looking Glass Self*. According to Mead (1934, p.140),

The Self, as that which can be an object to itself, is essentially a social structure, and it arises in social experience. After a Self has arisen, it in a certain sense provides for itself its social experiences, and so we can conceive of an absolutely solitary Self. But it is impossible to conceive of a Self, arising outside of social experience. When it has arisen, we can think of a person in solitary confinement for the rest of his life, but who still has himself as a companion, and is able to think and to converse with himself as he had communicated with others.

He goes on to connect the Self to the Other,

Selves can only exist in definite relationship to other selves. No hard-and-fast line can be drawn between our own selves and the selves of others, since our own selves exist and enter as such into our experience only in so far as the selves of others exist and enter as such into our experience also. The individual possesses a Self only in relation to the selves of the other members of his social group; and the structure of his Self, expresses or reflects the general behaviour pattern of this social group to which he belongs, just as does the structure of the Self of every other individual belonging to this social group. (Mead 1934, p.164)

The locus of society is not the mind, in the sense in which Horton uses the term, and the approach to it is not by introspection, though what goes on in the inner forum of our experience is essential to meaningful communication. Imagination is not a force that is separate from the empirical world; it is communication that is intersubjective. Mind is not a solipsistic capacity according to Horton (1902), but an inner experience created in conjunction with the outside world. The mind, according to Horton, lives in perpetual conversations and insists that society is mental because the human mind is social.

Horton (1902, p.130) also recognises [that] “we are constantly exposed to conflicts, the resolution of which makes up the core of the process of experience.” Conflicts, according to

him, are the result of differing attitudes and expectation in specific practical situations of action. They can be resolved if images used by the respective actors can be reduced to their common experiential content, synthesised to new concepts, and, finally applied to the situation at the root of the conflict. Accordingly, Horton terms the dynamic of conflict between individuals as hostile sympathy, because “this opposition is dependent upon the measure of community (differences) between one’s Self and the Other” (Horton 1902, p.131). This in design, can be referred to as *empathy*.

Design exercises to develop empathy often require the designer to observe the other and their interactions in their natural environment. These exercises were not based on any explicitly defined theory of self, but their effectiveness can be clearly explained through the lens of such theories. Observation of other’s interactions gives a picture of their social self, or the real-self, while directly interacting with the other gives a picture of the others’ looking glass selves, often in design it is best to cover both selves of the other to get a better understanding of them.

2.4 The Self in Philosophy

The first philosophical work properly written by Sartre, *The Transcendence of the Ego*, on the Self and Other was an investigation into the problem of Otherness, of Alterity or—to use Sartre's terminology, —of Transcendence. According to Stawarska (1998):

Sartre developed the notion of transcendence in a radical opposition to that of immanence i.e., of a uniform and homogenous sameness. His ultimate aim was to arrive at the notion of immanence purified of any transcendent elements and to use that notion as a clue for his definition of subjectivity. That is to say, to the question, What am I? Sartre would reply, “I am an immanence without transcendence. I am a pure stream of consciousness without any contents. I am an absolute transparency without opacity. I am no more than the temporal unity of my life—which means, a pure self-contained flow that no alien element can interrupt or contaminate. (para. 1)

According to Stawarska, the idea of pure self-transparent subjectivity has a long history behind it. It originated in the philosophy of René Descartes. He believed that the elaboration of the idea of the immanent subjectivity by Sartre needs therefore to be situated in the Cartesian tradition.

For Descartes, *I* am defined as a *thinking thing*, that is, as the unity of all the conscious acts. For thinking is all that of which we are conscious as operating in us, that is, all the *actions* and passions which belong to us as to their conscious subject. These conscious acts are part of us, that is to say, they are immanent to us. In that way *I*, the thinking thing, am defined primarily in terms of immanence. Stawarska argues:

Opposed to the field of immanence where subjectivity is situated, is the sphere of all that is other to me. The things that I am not—the surrounding world, the body, other people—are given to me in a mediated and indirect way. They never enjoy the direct givenness of the internal acts of thinking and can never be known in the way in which I know myself. The thing that I see—but am not—is always dubitable and might turn out to be an illusion, but the fact that I am the seeing subject or the subject who *seems to see* cannot be questioned. Thus, the otherness of the thing seen is a mark of its dubitability and so inferiority with respect to my immanent self. (para. 3)

2.4.1 Human Consciousness

According to the philosopher, René Descartes, the behavioural sign that indicated the presence of the mind was language. Descartes claimed [that] “thinking is one distinct function of the mind and thinking produces thoughts. Language is what expresses these thoughts and therefore we can say that language implies thinking. The thinking then in turn implies the mind” (Harris & Leahey, 1997, p. 13).

The relationship between learning and human behaviour¹⁵ connects to thinking about consciousness and how closely learning and thinking are related. The human brains are in a constant state of consciousness. Humans are constantly alert to what is going on around and are constantly observing. It would be impossible to measure the amount of information that the

¹⁵ There are three groups of behaviourists who each see the brain differently. They are the methodological behaviourists, the radical behaviourists and the mediation behaviourists. The methodological behaviourists believe that although consciousness exists but it is within each person's brain, and that it cannot be studied by science for it is unique to each person. The radical behaviourists believe that a person's conscious may control behaviour and that what is going on in the person's head will have an output directly related to the person's action. A mediation behaviourist, on the other hand, studies human learnings and finds that humans learn differently from other mammals and attempts to capture this through mediation. Animals respond to stimuli and human learn by responding to the environment while being able to control their responses (Moore, 2013).

brain absorbs, but its elastic potential, describes the great pursuit of knowledge. Human brains, unlike animals, have an incredible ability to reason, think, and pursue ideas. Human thoughts can be independent of their actions and have the ability to critically observe the world around.

In philosophy, the Cartesian Self, part of a thought experiment, is an individual's mind, separate from the body and the outside world, thinking about itself and its existence. It is distinguished from the Cartesian Other, anything other than the Cartesian Self.

Sartre dealt with the problem of alterity in his early works, in his first philosophical work entitled, *The Transcendence of the Ego*, which perpetuates the Cartesian tradition where the Self is defined primarily in terms of thinking, that is, self-consciousness and immanence.

According to the *Sandford Encyclopaedia of Philosophy*, consciousness is the state or quality of awareness or of being aware of an external object or something within oneself. It has been defined variously in terms of sentience, awareness, qualia, subjectivity, the ability to experience or to feel, wakefulness, having a sense of selfhood or soul, the fact that there is something that it is like to have or be it, and the executive control system of the mind.¹⁶ The mind holds the power of imagination, recognition, memory, appreciation, and is responsible for processing feelings and emotions, nurturing attitudes, and taking action.

There is, in certain schools of philosophy (phenomenology), a notion called human consciousness. This is regarded as different from the human brain¹⁷. Philosophy of Mind is a branch of philosophy that studies the nature of the mind (mental events, mental functions, mental properties and consciousness) and its relationship to the physical body. The central issue in Philosophy of Mind is the mind-body problem (the relationship of the mind to the body), and the challenge is to explain how a supposedly non-material mind can influence a material body and vice-versa. One prominent school of thought that attempted to resolve this problem was Dualism¹⁸ (Honderich, 1995).

¹⁶ According to the Oxford Dictionary, the mind is the set of cognitive faculties including consciousness, imagination, perception, thinking, judgement, language and memory which is housed in the brain. It is usually defined as the faculty of an entity's thoughts and consciousness.

¹⁷ According to the Oxford Dictionary, phenomenology is the branch of philosophy that deals with what you see, hear, feel, etc., in contrast to what may actually be real or true about the world. An approach that concentrates on the study of consciousness and the objects of direct experience. Phenomenology is a philosophy of experience. For phenomenology, the ultimate source of all meaning and value is the lived experience of human beings. All philosophical systems, scientific theories, or aesthetic judgments have the status of abstractions from the ebb and flow of the lived world. The task of the philosopher, according to phenomenology, is to describe the structures of experience, in particular consciousness, the imagination, relations with other persons, and the situatedness of the human subject in society and history.

¹⁸ According to the Oxford Companion to Philosophy.

2.4.2 Mind Body Dualism

Dualism is the position that mind and body are in some categorical way separate from each other, and that mental phenomena are, in some respects, non-physical in nature. It can be traced back to Plato, Aristotle, and the Sankhya and Yoga schools of Hindu philosophy, but it was most precisely formulated by René Descartes in the 17th century. Descartes was the first to clearly identify the mind with consciousness and self-awareness, and to distinguish this from the brain, which was the physical seat of intelligence.

The Self, according to René Descartes, is all that we really are, our identity, comes from the mind. As Descartes puts, “I think, therefore I am!” (Garber, 1998, 2003). Descartes believed in the mind-body dualism and claimed that mind is a nonphysical, and therefore, non-spatial, substance. Descartes clearly identified the mind with consciousness and self-awareness and distinguished this from the brain as the seat of intelligence (Robinson, 2003).

Immanuel Kant, like Descartes, thought that central parts of human knowledge exhibit characteristics of necessity and universality, (Board, 1978). Kant argues that the boundaries of substantive human knowledge stop at experience, and thus that we must be extraordinarily circumspect concerning any claim made about what reality is like independent of all possible human experience (Lear, 2019).

The notion of consciousness plays an important role in Kant’s philosophy. There are, however, several different senses of *consciousness* in play in Kant’s work. Among several of Kant’s most central notions and their differences from and relations to contemporary usage, we specifically look at *Self-Consciousness*. As Kant says, “consciousness is really the representation that another representation is in me” (translated from *Jäsche Logic*¹⁹, p. 33). Explaining the nature of consciousness is one of the most important and perplexing areas of philosophy, but the concept is notoriously ambiguous. Can consciousness be explained in terms of brain activity? What makes a mental state be a conscious mental state? The problem of consciousness is arguably the most central issue in current philosophy of mind.²⁰

¹⁹ Jäsche began his studies in Königsberg beginning WS 1791/92, attending Kant’s lectures on anthropology and metaphysics. After he became a professor himself, Jäsche received a large number of manuscripts from Kant, including letters which he referred to in his teachings.

²⁰ The two broad, traditional and competing theories of mind, are dualism and materialism (or physicalism). While there are many versions of each, the former generally holds that the conscious mind or a conscious mental state is non-physical in some sense, whereas the latter holds

“Kant believed that human beings are not directly aware of most of our representations. They are nevertheless, to some degree, conscious, because they allow differential discrimination of elements from the subject’s environment.” (McLear, n.d., sec. 2c) Kant believed that the process of making a representation clear, or fully conscious, requires [a] “higher-order representation of the relevant representation.” In other words, someone can have representations based on representations. “As Kant says, ‘consciousness is really the representation that another representation is in me’” (McLear, n.d., sec. 2c). Because this higher-order representation is one of another representations in the subject, Kant’s position here suggests that consciousness requires at least the capacity for self-consciousness. This position is reinforced by Kant’s famous claim in the Transcendental Deduction of the *Critique of Pure Reason*.²¹

The phrase “I think, therefore I am” (*Cogito ergo sum*²²) was opposed by Kant, and according to him, the *I think* must be able to accompany all my representations; for otherwise something would be represented in me that could not be thought at all, which is as much as to say that the representation would either be impossible or else at least would be nothing for me.

Kant might give the impression here of saying that for representation to be possible for a subject, the subject must possess the capacity for self-ascribing her representations. If so, then representation, and thus the capacity for conscious representation would depend on the capacity for self-consciousness. Because Kant ties the capacity for self-consciousness to spontaneity and

that, to put it crudely, the mind is the brain, or is caused by neural activity. It is against this general backdrop that many answers to the above questions are formulated and developed. There are also many familiar objections to both materialism and dualism. For example, it is often said that materialism cannot truly explain just how or why some brain states are conscious, and that there is an important *explanatory gap* between mind and matter. On the other hand, dualism faces the problem of explaining how a non-physical substance or mental state can causally interact with the physical body.

Some philosophers attempt to explain consciousness directly in neurophysiological or physical terms, while others offer cognitive theories of consciousness whereby conscious mental states are reduced to some kind of representational relation between mental states and the world. There are a number of such representational theories of consciousness currently on the market, including higher-order theories which hold that what makes a mental state conscious is that the subject is aware of it in some sense. The relationship between consciousness and science is also central in much current theorizing on this topic: How does the brain *bind together* various sensory inputs to produce a unified subjective experience? What are the neural correlates of consciousness? What can be learned from abnormal psychology which might help us to understand normal consciousness? To what extent are animal minds different from human minds? Could an appropriately programmed machine be conscious?

²¹ <https://www.iep.utm.edu/kandmind/> Retrieved July 2019

²² *Cogito, ergo sum* is a Latin philosophical proposition by René Descartes usually translated into English as “I think, therefore I am.” The phrase originally appeared in French as *je pense, donc je suis* in his Discourse on the Method, so as to reach a wider audience than Latin would have allowed.

restricts spontaneity to the class of rational beings, and not any non-rational animal (for example, dogs, cats, birds, etc.).

2.4.3 Inner Sense and Apperception

There is, however, little evidence to show that Kant endorses the self-ascription condition. Instead, he distinguishes between two distinct modes in which one is aware of oneself and one's representations—inner sense and apperception. Only the latter form of awareness seems to demand a capacity for self-ascription. According to Kant, the inner sense is, the means by which we are aware of alterations in our own state. Therefore, it includes all moods, feelings, and sensations, including such basic alterations as pleasure and pain, are the proper subject matter of inner sense. Thus, to be aware of something in inner sense is to be minimally, phenomenally conscious, at least in the case of awareness of sensations and feelings. To say a subject is aware of her own states via inner sense is to say that she has a temporally ordered series of mental states, and is phenomenally conscious of each, though she may not be conscious of the series as a whole. This could still count as a kind of self-awareness, as when an animal is aware of being in pain. But it is not an awareness of subject as a Self.

Hence, according to Kant, one may be aware of one's representations via inner sense, but one is not and cannot, through inner sense alone, be aware of oneself as the subject of those representations. That requires what Kant calls *apperception*.

The term *apperception* was used by Kant to denote the capacity for the awareness of some state or modification of one's Self as a state. For one capable of apperception, there is a difference between feeling pain, and thus having an inner sense of it, and apperceiving that one is in pain, and thus ascribing, or being able to ascribe, a certain property or state of mind to one's Self. (McLear, n.d., sec. 2c ii)

Kant's idea of the Self as a *transcendental unifying principle of consciousness* is certainly not *conscious* in the traditional sense. But neither is hidden from reflective awareness, if we know where to look for it. This transcendental Self (or ego) is not to be found as an entity in consciousness—it is the dynamic organizing principle that makes consciousness possible. One problem with this view of the Self is that there is nothing personal about it.

2.4.4 The Empirical Self or Ego

As an abstract organizing principle, it appears to be difficult to distinguish one transcendental Self from another. This resulted in Kant identifying another Self, the empirical Self (or ego), which includes all of those particular aspects of our selves that make us uniquely different people: bodies, memories, personalities, ways of thinking, emotional patterns, and so on. The obvious problem is that this model of consciousness leaves us with *two selves*, leading to some disquieting questions: How do these two selves relate to one another? Is one Self more primary or fundamental than the Other? Which Self is our *true* Self, our identity, our soul?

Human consciousness has been defined as awareness, sentience, a person's ability to experience and feel, but despite the important role it plays in our lives and making us who we are, we actually know very little about how consciousness works. This school that believes in human consciousness is cautioning the school that thinks there is no consciousness, separate from the brain and say, that the human brain, the rational human mind comprising neurons and neural activity that we call thinking, has limitations.

A quiet mind can sense what the thinking mind cannot. This debate brings us to an interesting point in our attempt to define what the Self is. Is it reasonable to propose that when the Self is conscious, it is in touch with others?

2.4.5 The Id, Ego, and Super-Ego

Sigmund Freud's view of the Self, on the other hand, leads to an analogous dualistic view of the Self, though the contours and content of his ideas are very different from Kant's. Freud was not, strictly speaking, a philosopher, but his views on the nature of the Self, have had a far-reaching impact on philosophical thinking, as well as virtually every other discipline in the humanities and social sciences. Naturally, his most dominant influence has been in the fields of Psychology and Psychoanalysis. Freud's view of the Self was multi-tiered, divided among the conscious, preconscious, and unconscious. He explains his psychological model in the following passage from his *An Outline of Psychoanalysis*.

Freud countered the traditional idea of the Self as a single entity by proposing that human beings were a *multiplicity of interacting systems and processes* (Watson, 1913). He offered two models for understanding this split of the unity of the Self: the topographical model and the structural model of personality.

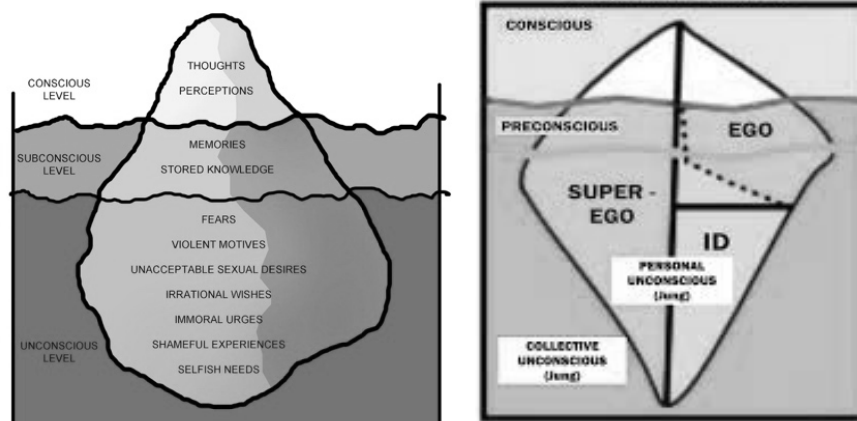


Figure 2.3
Freud's Model of Self: The Topographical Model and the Structural Model of Personality

In the topographical model, Freud demarcates mental life into psychic regions of the conscious, pre-conscious and unconscious. The conscious region of thinking includes the thoughts and feelings that are accessible to the person at any point in time. It is believed to constitute about 10% of the functioning of the individual. The preconscious holds thoughts and memories that are not immediately accessible to a person, but can be drawn upon when needed; constituting 20-30% of the mind. The largest part of the mind then is the unconscious, which houses repressed memories (often of childhood experiences), thoughts and desires of which the individual is unaware, but which influences the individual's thoughts and actions. According to Freud, the unconscious is accessible only through deep introspection or through other methods such as hypnosis and regression.

The structural theory of personality splits the Self into three components: the id, ego and super-ego. The id operates unconsciously, urging the satisfaction of instinctive and primary needs. It

operates largely in the unconscious realm, and since it is not in touch with the external world, it remains infantile throughout the person's life and does not change with time and experience. Sequestered from the external world, it is also not affected by the reality or the logic of the surroundings, and thus it operates on the pleasure principle, which postulates that every wish should be satisfied immediately regardless of consequence. Satisfaction of such a demand by the id leads to feeling pleasure, and denial of the demand creates tension.

According to Freud, a part of the id operates at the edges of the preconscious, and as this part is influenced by the external world, it develops into the ego. Ego development entails the renunciation of infantile self-love in favour of cultural and ethical ideals, transmitted to the child by the parents. The ego thus develops as a mediator between the unrealistic id and the external real world, operating in accordance to the reality principle. That is, it finds realistic ways of fulfilling the wishes of the id, through compromising or postponing the satisfaction of its desires so as to avoid the consequences such satisfaction may attract.

As the ego develops, so does a psychical agency to observe the ego and measure it by the ideals that are transmitted to the child. This agency, the super ego, incorporates the values and morals of society, and functions according to the morality principle. It encourages the fulfilment of a wish only if the actions are not in violation of any ethical or moral norms. The super ego is composed of two systems: the conscience and the ideal Self. The latter is constituted of messages received from the outside world on how a person ought to be, and it holds an imaginary picture of an ideal that the person aspires towards. The conscience judges the ego by comparison with the ideal Self, punishing it with feelings of guilt when the ego gives in to the id's desires while failing to meet the morality principles and standards of the ideal Self.

The ego thus is the mediator between the id and the super ego, reconciling the contradictory tendencies to the demands of the external reality. Failure to reconcile the two demands leads to anxiety or tension, which is often managed by unconscious defence mechanisms such as denial, projection or displacement. Design students must at the least be aware of these theories to be able to attempt to understand the Self for the designer and the Self-Other relationship.

2.4.6 Species-Being or Species-Essence

On another track, while much of Marxism deals with political and social theory, parts of it brush on the philosophy of the Self and can be adapted to help the development of a theory of Self for a designer. His philosophy was greatly influenced by the work of Ludwig Andreas von Feuerbach, believing that an inner Self existed separate from religion. Marx discussed *Gattungswesen*, which is generally translated as *species-being* or *species-essence*, a term he derived from Feuerbach's philosophy (Marx, 1932; Santilli, 1973). He saw being able to decide one's life and destiny as a key element of humanity's species-essence, a denial of which led to a state he called *Entfremdung*, meaning estrangement or alienation, a feeling that is not meant to be experienced by your species. He saw this as the case for working class labourers, as during the industrial revolution workers in an assembly line could be doing mindless repetitive tasks for hours every day, essentially being stripped off their free will during their working hours. Marx saw work (where an individual expressed their creativity and free will) as part of a human's species-essence and being denied that led to a feeling of alienation.

Attempting to extrapolate Marx's ideas to design education, a designer-essence is formulated that when adhered to gives a sense of fulfilment. The analogy works well as Marx already believed that meaningful work was part of the species-essence and making meaningful change is a design imperative. Furthermore, it can be argued that understanding the Self is a part of the designer-essence, a fundamental part of being a designer.

Finally, the importance of a theory of Self in Marxism is analysed. The most basic observation of Marxism is that there exists a systemic problem in society, but how exactly is this identified? Marx explains that societies exist in strata with an upper class controlling the means of production and a working class who provide labour. Again, the question arises why is this a problem? Or more importantly, how would Marx have identified this as a problem. The answer, it is proposed, lies in his understanding of the Self. Only through his understanding of the Self and human nature did Marx determine that classes in society were a fundamental problem. He had empathy for the working class and an indispensable skill for solving human problems.

2.4.7 Selflessness

In India, Mahatma Gandhi too shared the belief in empathy, but for all people as equals. Gandhi's philosophy had both western and eastern influences. He believed in the importance of selflessness or self-denial as described in the Bible, but drawing on moral teachings from the Bhagwat Gita he saw this not as self-denial but a higher form of self-fulfilment. The core of Gandhi's beliefs was *Satya* (truth) and *Ahimsa* (non-violence). He advocated *Satyagraha*, or holding on to the truth. He believed that people needed to hold on to truth without impatience and without the use of force to enlighten one's opponents. In *Satyagraha* there is no defeat of an antagonist, merely their purification to a higher state. Furthermore, in Gandhi's philosophy, all people are created equal and no basis for discrimination exists. An important aspect of Gandhi's political strategy was the idea of self-sufficiency, although he may have seen this from greater perspective. It is also important at smaller scales, avoiding over-reliance as much as possible. The key takeaway from Gandhian philosophy for design education is to understand equality, to see oneself in the Other and the Other in one's Self. Moreover, designers should always aim to enlighten antagonists, holding on to the truth and avoiding the use of force.

2.4.8 Self-Enquiry

Indian mystics, also on a parallel track, have spoken of the Self, though their utterances do not perhaps constitute a *theory* of the Self. Ramana Maharishi²³, for example, is said to have said that the only question that is relevant to ask is Who am I? An attempt to answer this question, according to Ramana (1982) is:

The physical body, composed of the seven *dhatus*, is not *I*. The five sense organs...and the five types of perception known through the senses...are not *I*. The five parts of the

²³ "Who am I?" is the title given to a set of questions and answers bearing on Self-enquiry. The questions were put to Bhagavan Sri Ramana Maharshi by one Sri M. Sivaprakasam Pillai about the year 1902. Sri Pillai, a graduate in Philosophy, was at the time employed in the Revenue Department of the South Arcot Collectorate. During his visit to Tiruvannamalai in 1902 on official work, he went to Virupaksha Cave on Arunachala Hill and met the Master there. He sought from him spiritual guidance, and solicited answers to questions relating to Self-enquiry. As Bhagavan was not talking then, not because of any vow he had taken, but because he did not have the inclination to talk, he answered the questions put to him by gestures, and when these were not understood, by writing. As recollected and recorded by Sri Sivaprakasam Pillai, there were fourteen questions with answers to them given by Bhagavan. This record was first published by Sri Pillai in 1923, along with a couple of poems composed by himself relating how Bhagavan's grace operated in his case by dispelling his doubts and by saving him from a crisis in life. 'Who am I?' has been published several times subsequently.

body which act...and their functions...are not *I*. The five vital airs such as *prana*, which perform the five vital functions such as respiration, are not *I*. Even the mind that thinks is not *I*. In the state of deep sleep, *vishaya vasanas* remain. Devoid of sensory knowledge and activity, even this [state] is not *I*. After negating all of the above as *not I, not I*, the awareness that alone remains is itself *I*. The nature of awareness is *sat-chit-ananda* [being (existence)-consciousness-bliss]. (p. 1)

According to Ramana,

What exists in truth is the Self alone. The world, the individual soul, and God are appearances in it, like silver in mother-of-pearl, these three appear at the same time, and disappear at the same time. The Self is that where there is absolutely no *I* thought. That is what Ramana called *silence*. The Self itself is the world; the Self itself is *I*. (p. 4)

2.4.9 Self-Observation

On the other hand, Krishnamurthy's (1963, p.143) key response to *What am I?* is Self-Observation. According to him, "Observe your Self like you would observe a child. Passive awareness of oneself without judging (neither identifying nor condemning) is essential for only this can lead to understanding." Krishnamurthy explains passive awareness and the process of observation with the example of observing a child:

If you have a child, you have to observe him, to watch him. When you want to learn about him, you don't say that he must be this or that, you don't compel him to do this or that; you observe, you learn, because your heart has to respond, not your ugly, little mind of possession. So, you have to learn about your child. And you can't learn if you respond, if you react, as a parent, with your authority, with your extraordinary sense of importance, as though you have produced a marvellous world. So, if you want to understand a child, you look at him without thought, to find out what he feels, what he thinks. Now if you look at him that way, your mind at that moment is empty because you are concerned about him. You don't clothe him with your ideas and your hopes and your fears, but you want to see what he is. (p. 143)

Like Ramana, Krishnamurthy too speaks of silence. He connects silence and the ability to listen. Silence comes about through self-knowledge²⁴. The residue of knowing yourself is to go beyond yourself and go beyond the pettiness. This was Krishnamurthy's approach to education. According to Krishnamurthy (1963), from silence one learns to listen and to care: care for the other, care for nature, care for plants and animals and take responsibility. In other words, Krishnamurthy believed that silence helps in taking responsibility of everything around. The ways of the Self are revealed in the mirror of relationships. The way the Self has a relationship with the whole world is how the Self must be sensitive, to the Self, fellow human beings and also to the trees, animals and to the whole vast earth.

Krishnamurthy (1956) describes, "sensitivity to both silence and noise, neither pursuing the one nor resisting the Other; without self-contradiction, to be whole." (p. 182) He aligns consciousness to *pure attention* and *meditation*, and describes it as the total silence of mind. According to him, "welcoming pleasurable sounds of music and resisting unpleasant noises lead to self-contradiction and this conflict of the opposites leads nowhere." (p. 182) To be only partly sensitive is to be paralysed. To be sensitive is to be aware of both silence and noise, neither pursuing the one nor resisting the Other; it is to be without self-contradiction, to be whole."

This conscious Self is an empathetic Self. A thinking Self can see the Other and think it's empathetic, while truly speaking it may not really be so. It is the lack of empathy that lies at the root of many of our conflicts today. These conflicts cannot be solved by thinking, for thinking is a mind/brain activity and has limitations. Thinking is not the same as being conscious. It appears that silence is closer to consciousness.

The acknowledgement of the Self in modern Indian philosophy and education appears to align to the need to understand the notion of the Self in design education in contemporary times with the objective of developing an empathetic Self.

²⁴ Taken from an interview of Radhika Herzberger, Director, Rishi Valley School. (Rishi Valley School is an Indian boarding school, founded by the philosopher Jiddu Krishnamurti. The school has a holistic approach to education in the spirit of Krishnamurti's pedagogical vision.) <https://www.youtube.com/watch?v=EP0j4Qw5MsI>

2.5 The Self and Empathy

Empathy is an important component in *design processes*. However, it is not carefully defined and discoursed in design education. The complexities of the term and the concept of empathy need to be understood in depth and not approached superficially.

Empathy is the ability to understand or identify with the feelings, emotions, or experiences of the Other. But empathy is defined in many way and hence it is useful to be inspired by the recent works of De Vignemont and Singer (2006), who delineated empathy as (a) an affective state of the Self (b) that is elicited by the observation or imagination of (an)other person's affective state and (c) that the Self should know that the other person is the source of one's own affective state. According to Van Lange (2008),

The conceptualization by De Vignemont and Singer indicates that empathy is an affective state, and that observation and imagination can activate empathy. As such, empathy is different from perspective-taking alone (which is not necessarily an affective state—but more of a cognitive state) or emotional contagion alone (when people do not necessarily make a difference between Self and others). (p.767)

Affective state defines empathy as an emotion that might be activated in a variety of different ways. It can be a product of both controlled, thoughtful processes and uncontrolled, automatic processes. Recent evidence (e.g., Gallese & Goldman, 1998; Preston & De Waal, 2002) suggests that observing another's actions affects areas of the brain that are also involved in the *preparation* of our own actions, and observations of another's pain may involve brain activity that is similar to our own pain, or experiences thereof. According to Van Lange, these lines of research [add] “credence to the notion that empathy is by no means merely a product of controlled, thoughtful processes—but perhaps, just as often (if not more often), empathy may be a product of automatic processes, requiring almost no thought at all.”(p. 767) Based on contextual influences, however, empathy can often be activated in a relatively automatic manner, by being with the Other.

According to Van Lange and De Cremer (2007), interpersonal orientations could be defined in terms of how people evaluate outcomes for Self, outcomes for others, and equality in outcomes. These are often referred to as (a) selflessness (or de-activating selfishness), tendencies toward

forgetting about the Self, (b) altruism, tendencies toward benefiting another person, and (c) egalitarianism, tendencies toward enhancing equality in outcomes for Self-Other and another person (Van Lange, 1999).

According to Van Lange (2008), empathy is an Other-focused emotion, in that the *other* is causal in two respects: (a) Empathy is an affective state that is rooted in observing or imagining a similar affective state in another person, and (b) empathy is an affective state that people may act upon to help the Other or provide benefits for the Other. The latter claim had received a fair amount of support in the context of situations that tended to call for helping. *Calling for help* can well be interpreted as a problem, issue or an opportunity in design. This can be applied to empathy in design processes and in Foundation Design Education.

Previous research suggested that in order for individuals to be empathetic, they need to be selfless (Van Lange, 2008). Recent studies, however, found just the opposite: individuals who were more self-aware had higher levels of empathy (Johnstone, et al., 2015). Using MRI scans of individuals' brains, the researchers found empathetic individuals had increased functioning in the part of their brains associated with their sense of self. The researchers suggested [that] "to incorporate the experiences of others into the experience of the self (i.e., to be empathetic), one must have an intact sense of the self." (p. 463). According to Chew (2015) reporting on the study, Johnstone a neuropsychologist and professor of Health Psychology in the MU School of Health Professions said:

Previously, we've found the less individuals focus on themselves, the more able they are to connect with a higher power and have a spiritual experience; we also found the less individuals focus on themselves, the more likely they are to be forgiving."

"In order to be forgiving, it may be important to focus less on the perceived wrong to the self. We thought the same would be true for empathy—if individuals focus less on themselves, they'll be able to focus more on others and be more empathetic. However, we found exactly the opposite. This is one instance when being more self-focused is related to virtuous behaviours."²⁵ (para. 3).

²⁵ Johnstone and his colleagues gave neuropsychological evaluations to 31 individuals with traumatic brain injury, and the participants answered questions about empathy. Twenty participants also received MRI scans of their brains. The researchers found individuals who were

According to Johnstone, one possible explanation with regards to a previous literature is that, individuals should have an understanding of their own being in order to have a better understanding about the being of others and being able to feel what others feel. There is a better scope for the self to experience what the Other is experiencing, only if the self has a strong sense of who the self is. If individuals don't have a strong sense of self, it's hard for them to know what the Other person is going through or be able to feel it. Johnstone claims, based on his study, that empathy is a more complex process than the study conclusions suggest; the study provides a basis for future research on how self-orientation relates to empathy.

Compassion, which goes hand in hand with empathy, involves being touched by the suffering of others, opening one's awareness to others' pain and not avoiding or disconnecting from it, so that feelings of kindness toward others and the desire to alleviate their suffering emerge (Wispe, 1991). The concept of self-compassion, entails a break-down into three main components: self-kindness, shared humanity, and mindfulness (Neff, 2003). The concept of self-kindness refers to the state of being understanding and compassionate toward oneself, including in times of failure, pain, disappointment, depression etc. Unlike the concept of being self-centred, a self-forgiving attitude is one of the best defences against narcissism (Neff, 2003). A concept of shared humanity entails the perception of your own experiences as part of the larger human tapestry rather than being separate and in a silo. Shared humanity feeds self-empathy by reminding us that we are not alone, even in our failings (Neff, 2003).

Of the three components of self-empathy, mindfulness has been the most extensively studied. Mindfulness is the ability to identify your thoughts and feelings without reacting to them or judging them. "Appraising the contents of your mind from a third-person point of view affords you the self-awareness to understand the difference between the actual self and the thoughts and feelings that the self is having" (Riess, 2018, p.180). According to Riess, it is like taking a seat in the balcony to watch a drama starring your thoughts and feelings as they play out on a stage. "Becoming an observer of the drama rather than an actor allows you the freedom to

more empathetic appeared to have increased functioning in their right parietal lobe, which is the area of the brain associated with self-orientation. In a previous research, Johnstone found that when this part of the brain has decreased functioning, individuals are less able to focus on themselves and are therefore more selfless. In the present study, however, increased functioning of the parts of the brain that focused on the Self was associated with increased empathy. Additionally, greater empathy was associated with increased volume of the insular cortex, which perceives information about the internal states of the body, or Self.

consider different beliefs and attitudes about what is happening in your life” (Riess, 2018 p.180).

Mindfulness is a psychological process of focusing one's attention on the present, most notably through the application of meditation. It is the skill of paying close attention to what is happening in the present moment in the mind, body and external environment and accepting it with an attitude of open-mindedness and curiosity. The reason it has received such an enormous amount of attention is that mindfulness has been theoretically and experimentally associated with psychological well-being. Mindfulness has been shown to help us self-regulate our emotions more effectively. Also, studies link regular mindfulness activity with heightened levels of focus, awareness, and non-judgmental acceptance of moment-to-moment experience. By priming the brain to take greater control over attention, it helps us focus on what is important, fine-tuning our ability to switch attention onto something else when necessary. We know that when people feel centred and can live their lives with equanimity, the way they approach the world is very different from when they are distracted and emotionally dysregulated.

Mindfulness has gained empirical interest since the 1970s, with a 2015-meta-analysis finding that Mindfulness Based Stress Reduction (MBSR) is moderately effective in reducing stress, depression, anxiety and distress, and in ameliorating the quality of life of healthy individuals (Khouri et al., 2015). Studies have shown that due to neuroplasticity, the neural circuitry underlying empathy can be strengthened even in adulthood using mindfulness training (Davidson et al., 2012).

Empathy is a critical ability in design and the process of intentional looking in mindfulness allows a designer to tap into this empathy with a sense of curiosity and humility. To not see the world in good and bad, but as just being. The ability to regulate one's emotions and a greater self-awareness is the key to why mindfulness is required in design education.

A relevant question when talking about empathy in design, is what exactly it entails, according to Batson, “The term empathy is currently applied to more than a half-dozen phenomena. These phenomena are related to one another, but they are not elements, aspects, facets, or components of a single thing that is empathy, as one might say that an attitude has cognitive, affective, and behavioural components. Rather, each is a conceptually distinct, stand-alone psychological

state. Further, each of these states has been called by names other than empathy” (Batson, 2009, p. 3). Empathy can be cognitive where one on a purely factual level knows what emotions and feelings the other is experiencing or empathy can be affective wherein one feels these emotions and feelings as well.

There is evidence which suggests that learning about empathy through the recognition of emotional states in the Self and the Other, increases empathetic skills in both younger and older age groups (Feshbach, 2009). Numerous studies indicate that when similarity between the Self and the Other is emphasized, empathy increases. The use of role playing or role taking, which is the act of assuming the role of the Other, whether real or fictional, has been shown to increase both cognitive and affective empathy. According to Feshbach (2009), training in perspective taking, the ability to take another person’s point of view, another traditional educational strategy, increases levels of empathy.

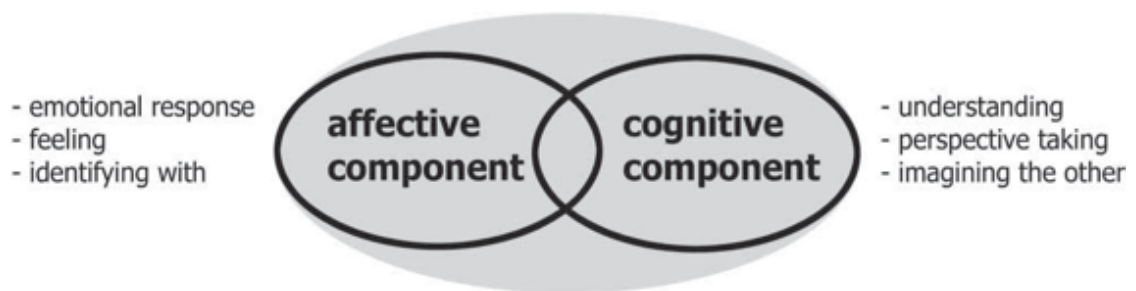


Figure 2.4
Components of Empathy (Merlijn Kouprie and Froukje Sleeswijk Visser, 2009)

As mentioned earlier in Chapter 1, in contemporary design practice, a widespread acknowledgement has been accepted for the importance of designers to gain empathy with people for whom they are designing. Many methods and tools have been developed to support an empathic design process but precise definitions and a framework of what makes ‘empathy’ is missing. Although the need for empathic approaches in design has been repeatedly stressed, a fundamental basis of the concept of empathy is missing (Kouprie; Visser, 2009).

As the focus of this thesis is using the understanding of the Self-Other relationship to enrich the foundation design programme, cognitive empathy is given prime focus as it is something that

can be developed more easily as a skill. This is adapted in addressing the notion of the Self for the designer and an understanding of Self-Other relationship in design. Understanding of Self is important for developing an understanding of the Self-Other relationship, also popularly referred to in design as empathy which is crucial to the humanistic approach of problem solving.

2.6 The Otherness

The sociological definition of *Otherness* is how majority and minority identities are constructed. Within any given society, representation of different groups is controlled by groups with political power. In sociology, the notion of the Other is understood by the way social identities are constructed. Identities are often perceived as natural, something humans are born with but this is not always true.

Philosophers like Hegel, however, since the 18th century, reflected about how *Self-Awareness* is linked to the construction of *Otherness*, and since then scholars have been investigating how the representation of the others is a crucial and essential component of the perception and description of the Self-Other. Hegel's analysis of consciousness claims that levels of consciousness need to be distinguished and their relations need to be understood. However, he also argues that a satisfactory account of knowledge based on consciousness is inherently incomplete – it needs to go beyond just based on consciousness to self-consciousness.

Many scholars (Hegel, 1807; Sartre, 1936; Husserl, n.d.) have been investigating how the representation of the others is a crucial and essential component of the perception and description of the Self.

According to Morin (2007), much of the discussion about the self and the other in philosophy has centred on the question of ‘who comes first.’

While one side, which we could roughly call Husserlian, argues that all meaning comes from the self and that all otherness must be constituted by the self, the other side, roughly Levinasian, responds that it is the call of the other that first institutes the self in its freedom and responsibility. (Morin, 2007, p. 165).

In the contemporary context, however, contact, interaction, and co-habitancy of people from different cultural backgrounds is a highly relevant issue, making understanding the notion of the self-important.

Alterity is a philosophical term meaning Otherness, that is, the Other of two. The term is popularly used to express that which is other than *sameness*, a copy of the Other. (Bachmann-Medick, 2017). In phenomenology, alterity is explained as the entity that is constructed as a contrast to an identity. It also implies the ability to distinguish between the Self and the not-self and accept the existence of an alternative viewpoint. In Anthropology, the term alterity is used by scholars to refer to the construction of the *cultural other*. According to Joshua Wexler (2019), “Given the various theorists formulations, the mediation of alterity or otherness in the world provides a space for thinking about the complexities of the Self and the Other and the formation of identity.” (para. 13) Surely this is significant for design education and recognise the importance of introducing the Self and the Self-Other relationship in the pedagogy of Foundation Design Education.

On the other hand, the term ‘Othering’, not to be confused with Otherness, however, is a negative reference made by an individual or groups of people of other individuals or groups of people, setting them apart as opposite in characteristics. Examples of Othering are seen in society today based on race, gender, social class, ethnicity, etc. In India, othering of people of different religions, castes and women are still prominent. The term Othering, broadly speaking, is perceived as an “undesirable objectification of another person or group” and as a social processes othering is a “process of stigmatization that defines the other in a negative manner. This differentiation of the other is often made to indulge the notional perceived ‘positive’ identity.

According to Staszak (2008), Othering consists of applying a principle that allows individuals to be classified into two hierarchical groups: ‘Them and ‘Us’. The out-group²⁶ is only coherent as a group as a result of its opposition to the in-group²⁷ and its lack of identity. This lack is

²⁶ *Out-group*: a group to which the speaker, person spoken of, etc. does not belong.

²⁷ *In-group*: a group to which the speaker, the person spoken of, etc. belongs.

based upon stereotypes that are largely stigmatizing (Staszak, 2008). The in-group constructs one or more others, setting itself apart and giving itself an identity.

The imbalance in power relationships is central to the construction of othering. Only the dominant group is in a position to impose the value of its particularity (its identity) and to devalue the particularity of others (their otherness) while imposing corresponding discriminatory measures (Staszak, 2008).

Designers, need to be wary of this human behaviour and work towards building a Self-Other relationship which is devoid of the process of Othering. Designers need to practice a process of alterity with the Other, thus enabling them to experience empathy with the Other.

In design, as mentioned before, a universal recognition has surfaced for the importance of designers to gain empathy with the users for whom they are designing. Techniques and tools in user studies have been developed to support an empathic design process (Kouprie and Visser, 2009). The Other has always been important in design education. The Other is introduced as either 'Target Audience', 'Customer', 'Client', 'User', etc. The shift today needs to be to 'Human', 'Partner', 'Other-Self'. This thesis identifies the need to include the notion of the Self for the designer in Foundation Design Education to understand the Self-Other relationship which more simply can be described as empathy where empathy is crucial to the humanistic approach to problem solving.

2.7 The Self in Neuro Sciences

A new study from Germany suggests developing a better understanding of yourself may also improve your capacity to better understand the thoughts and feelings of other people (Nierenberg, 2017). Researchers found that adults who participated in a psychology-training program to enhance their *perspective-taking*—a term psychologists use to describe the ability to understand another person's *inner world*, meaning his or her thoughts, beliefs, emotions and personality—became better at understanding themselves as well as understanding others, according to the findings of the study 'Know Thy Selves: Learning to Understand Oneself Increases the Ability to Understand Others' (Böckler, Herrmann, et al. 2016). Evidence in this research suggests that the ability to represent and infer others' mental states (Theory of Mind,

ToM²⁸) can be enhanced by mental training in healthy adults. The study done in 2016, investigated the role of training-induced understanding of oneself for the enhanced understanding of others (Böckler, Herrmann et al., 2016).

According to this neuroscientific research, putting ourselves in the shoes of others is a crucial socio-cognitive skill that is required not only in our everyday social life, but also with regard to cross-cultural understanding and mastering global political challenges (Batson, et al., 1997; Galinsky & Moskowitz, 2000; Paal & Bereczkei, 2007). Only recently, studies have shown that adults' capacity to represent and infer others' mental states can be enhanced through contemplative mental training programs (Mascaro, et al., 2013). Participants trained perspective taking on the Self-Other through the concept of inner parts (Holmes, 2011). The processes, however, that facilitate these improvements are yet unknown.

The 21st century citizens today face many problems of an industrialised and globalised world. Interaction and integration among people, trade, ideas, culture, governments, etc., worldwide, has resulted in the cultural, socio-economic, political, technological activities. Tensions between nations, humans, communities, gender, religions, etc., are apparent and rampant. Skilful but sensitive solutions are required as responses to complex problems that include cognitive perspectives of those who hold different socio-economic, political and religious views bearing in mind the needs of future generations. According to Böckler, et al., (2016), the importance of our ability to perceive other people as thinking and feeling beings has been emphasized in developmental and clinical domains: Impaired interaction and communication skills as well as aggressive and abusive behaviours towards others, for instance, have repeatedly been linked to reduced capacities or inclinations to take others' perspectives into account (e.g., Fonagy 2003; Frith and Happe 1994).

Also, Böckler's, research suggests that taking others' perspectives enhances cooperation (Paal and Bereczkei 2006), reduces stereotyping (Galinsky and Moskowitz 2000; Todd et al. 2012), and widens our circle of moral regard to the inclusion of formerly stigmatized groups (Batson

²⁸ Theory of mind is the ability to attribute mental states—beliefs, intents, desires, emotions, knowledge, etc.,—to oneself, and to others, and to understand that others have beliefs, desires, intentions, and perspectives that are different from one's own.

et al. 1997). The question that arises here is, does the enhancement of a better understanding of the Self, help better understanding others?

The socio-cognitive ability to take other people's perspective, to infer and reason about their mental states such as thoughts, beliefs, and intentions, is referred to as Theory of Mind (ToM), mentalizing or cognitive perspective²⁹ taking (Frith and Frith 2003; Premack and Woodruff 1978; Singer 2012). Over the last decades, neuroscientific research has revealed that processing others' mental states leads to enhanced activation in a network (Bröckler, Herrmann, et al. 2016). This cognitive route to understanding others has been distinguished from an affective route to understanding others (i.e., empathic sharing of another's bodily or emotional state; Vignemont and Singer 2006) both on the level of brain and behavior (Kanske et al. 2015; Kanske et al. 2016).

Designers can borrow from the research in Social Neurosciences and consciously develop the notion of the Self. Acknowledging the notion of the Self for the designer would attempt to remove the act of giving precedence and being prescriptive in responding to problems and needs of others and develop an enhanced understanding of Self-Others relationship.

2.8 The Notion of the Self for the Designer and the Self-Other Relationship

The notion of the Other, as mentioned earlier, has always been important in design. The designer is constantly engaging in design actions that responds to the needs of the Other. Often, for designers, there is a thin line between giving precedence or being prescriptive while assuming that all design actions as being unbiased. The designer needs to be aware of the value of subjectivity (as discussed earlier in Section 2.2.5) and be mindful of their biases.

The study suggests that an understanding of the notion of the Self for the designer can lead to a better understanding of the Self-Other relationship, which when woven into the pedagogy of

²⁹ Cognitive perspective is the psychological viewpoint that focuses on how people process, store, and retrieve information and how this information is used to reason and solve problems. The cognitive perspective is concerned with "mental" functions such as memory, perception, attention, etc. It views people as being similar to computers in the way we process information (e.g., input-process-output).

Foundation Design Education, can possibly lead to design methods that are responsive to contemporary issues.

Understanding others' emotions, intentions, beliefs, convictions, knowledge, desires, aspirations, thoughts etc., is a crucial ability for a designer, and in responding to the challenges in today's world. As citizens of the twenty-first century, we face many problems of diverse characters such as problems of a rural, urban, social, environmental, industrialised and globalised world. Tensions, both within and between countries, cultures, and religions are rising. Conflicts and political instabilities are driving a huge number of people to leave their homes and seek refuge in other places or other countries. If that were not enough, the consequences of climate change have become a crisis.

Effective solutions to these problems will require empathy across neighbourhoods, nationalities and cultures. In order to achieve this goal, designers need to develop the ability to be the Other, that is, to consider the viewpoint of those who hold different political and religious views and take cognitive perspective of other people, bearing in the needs of future generations.

To be with another in this [empathic] way means that for the time being, you lay aside your own views and values in order to enter another's world without prejudice. In some sense it means that you lay aside your Self; this can only be done by persons who are secure enough in themselves that they know they will not get lost in what may turn out to be the strange or bizarre world of the Other, and that they can comfortably return to their own world when they wish. Perhaps this description makes clear that being empathic is a complex, demanding, and strong—yet subtle and gentle—way of being” (Carl Rogers, 1959, p. 143).

Borrowing from the concepts of the Self and the Self-Other relationship, as understood by discipline of Psychology, an attempt can be made to understand this theoretical framework through the lens of design and how such an understanding may benefit design education. Maslow's 'Hierarchy of Needs', suggests that self-fulfilment and psychological needs become relevant once the basic needs have been met. This means that designers need first identify where in the pyramid they lie and acknowledge the same for the Other. The positions of the Self for the designer and the Other may not always be the same. In all likelihood, the Self for the designer may be at a higher level of fulfilment of needs. Designers have to acknowledge that

their basic needs are met even if they take the fulfilment of these needs for granted. However, designers need to understand the Other from a bottom up approach with respect to the pyramid – first attempting to understand the Other’s basic needs and only then looking to address higher level needs.



Figure 2.5
Understanding the Self-Other Relationship for the Designer, based on Maslow's Hierarchy of Needs

The designer, therefore needs to acknowledge their basic needs, recognise their psychological needs and realise their self-fulfilment needs for their Self, to better understand the needs of the Other.

Design education, or even education as a whole, in India today lacks any real input into developing self-awareness among students. Indian society as a whole is largely conservative and children are rarely taught to question the status-quo. Furthermore, the education system in India tends to stifle curiosity in children who grow into young adults who have never truly questioned who they are (Bhandari, n.d.). Students in foundation design usually only have a superficial understanding of themselves which leads to only a superficial understanding of the Other. It would be beneficial for a Foundation Design Education to break this superficial idea the students have of themselves so that they can eventually get a more holistic understanding of the Other.

2.9 Conclusion

This chapter examined the concept of the Self and the Self-Other in various disciplines and draws parallels in design. As mentioned earlier, the thesis proposes that a better understanding of the Self and the Self-Other relationship, can possibly lead to problem-solving methods that are more humanistic in their response to contemporary issues. Design has evolved from a process of creating products (including communication products) to a process of problem solving with a wide, all-encompassing scope. Design today involves humans in infinite context, making understanding the notion of the Self for the designer crucial today.

The notion of the Self is one that thinkers have been grappling with for centuries. Broadly speaking, the Self is that which defines us, making us unique through our consciousness, awareness and agency. There are many ideas and schools of thought concerning the Self and the identity, but this thesis will focus on those theories that have a practical value for a designer and design education and can be adapted meaningfully.

In the metaphysical context, eastern traditions, such as Buddhism, Jainism and Hinduism, spirituality is deeply ingrained in the philosophy of the Self. There exists a concept of *Nirvana*, a state where an individual has overcome the flames of desire, hate, and ignorance to become one with the world around them. The analogy can be ported to design education, as designers too need to understand their own inner selves to become one with the Other in order to identify, empathise and finally solve their problems.

Examining the notion of the Self from a physical perspective, experiments in neuro-biology and with split-brain patients have shown the presence of multiple intelligences in the brain bringing into question ideas that are axiomatic to many philosophers' theories. One such idea is that of a singular Self; just like the human body is composed of several systems and parts, so too is our brain a complex system of systems. We are still very far from completely understanding all aspects of the brain, yet it is a designer's responsibility to understand that humans are complex. The first step of which is to attempt to understand one's Self.

In certain schools of Philosophy, there is a notion called human consciousness. This is regarded as different from the human mind/brain. This school that believes in human consciousness is cautioning the school that thinks there is no consciousness, separate from the mind and say, that

the human mind, the rational human mind comprising neurons and neural activity that we call thinking, has limitations. They say that a quiet mind can sense what the thinking mind cannot.

This debate brings us to an interesting point in our attempt to define what the Self is. Is it reasonable to propose that when the Self is conscious, it is in touch with Others?

The Other has always been important in design and design education. This thesis identifies the need to include the notion of the Self in Foundation Design Education to understand the Self-Other relationship. Fostering the notion of the Self stimulates processes that sensitises the self and nurturing the Self-Other relationship enables the self to work with humans, society, industry, nature, environment and the planet.

Empathy is core to design and hence integrating it into design education is of critical importance. In no other field of education is empathy more important than in design education. That is not to say that no other field deploys or requires empathy; indeed, empathy is an important soft-skill to have in many fields such as practical psychology. But empathy is fundamental to design, and good design simply cannot be achieved without empathy as the Other is always central in any design action.

As mentioned earlier, it is widely acknowledged that it is important for designers to gain empathy with people for whom they are designing. Many methods and tools have been developed to support an empathic design process but precise definitions and a framework of what makes 'empathy' is missing. Although the need for empathic approaches in design has been repeatedly stressed, a fundamental basis of the concept of empathy is missing. Developing the ability to empathise is the first step towards understanding the Self before proceeding to understand the Self-Other relationship in design. A humanistic approach to nurture an empathic Self would necessitate that the Other include, the man-made artefact, nature, humans, non-humans, communities, environment and all else in *life*.

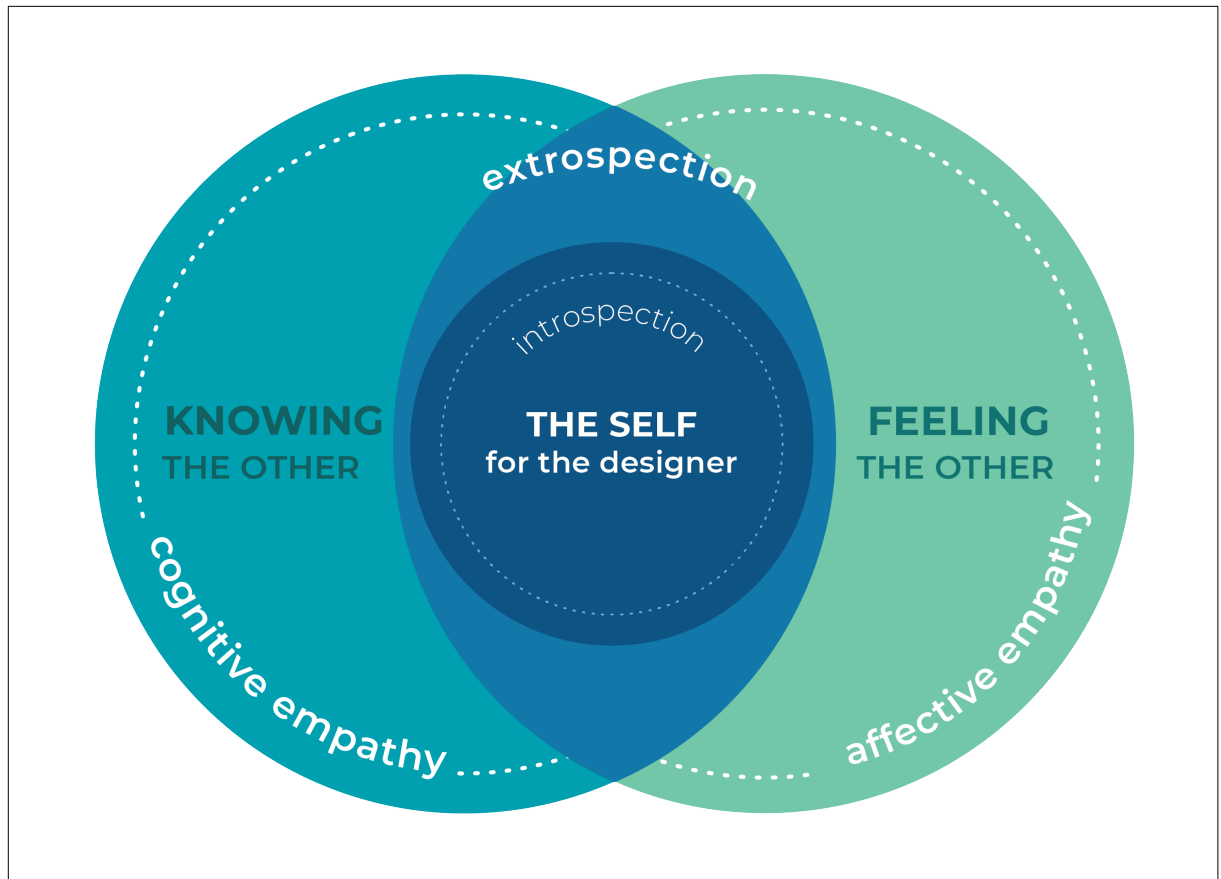


Figure 2.6
Introspection & Extrospection of the Self to Develop the Ability to Empathise

The framework for a humanistic Foundation Design Education can be borrowed from the field of Psychology specifically on understanding the concept of empathy and the importance of developing the ability to empathise with the Other. As discussed earlier, empathy can be cognitive, where, on a purely factual level, one knows what emotions and feelings the other is experiencing or empathy can be affective wherein one feels these emotions and feelings as well.

This theory is borrowed and framework is developed in Foundation Design Education to understand the notion of the Self and the Self-Other relationship through introducing the concept of ‘Introspection’ and ‘Extrospection’.

Introspection is process of examining and understanding one’s current mental state. Borrowing from the theories of the cognitive and affective components of empathy. The Self develops both the ability to know and to feel the Other. Mindfulness, a meditative and reflective state of mind,

can be helpful to articulate and consciously develop the Self. Thus, enabling the possibilities to develop a holistic understanding the Self-Other relationship. Introspection encourages journey into the Self that triggers questions, arouses curiosities, accepts denials, and embraces one's strengths, weaknesses, dreams, aspirations, fears etc.

Extrospection on the other hand involves understanding everything external to one's mind, and makes meanings of our connections to them. The various external elements are ordered in layers by one's proximity or closeness to them. The extrospective journey involves the relationships the Self engages with the world around.

The thesis proposes that engaging in the Introspective and the Extrospective journeys and applying the framework to any design activity would possibly develop the ability to know the Self and empathise with the Other which in turn would enable the designer to engage in design activities that are humanistic in its approaches. The thesis also, proposes a model that develops a holistic development of the Self, thus ensuring humanistic design processes in problem solving. This is discussed in length in Chapters 6 and Chapter 7. The thesis proposes that such an approach introduced to the Foundation Design Education will encourage the landscape to take on a humanistic topography.

The next chapter examines the implicit acknowledgment of the Self and the Self-Other relationship in modern design education at the Bauhaus, the Ulm School of Design, and later in the recommendations of the India Report by Charles Eames in India.

Chapter 3

Humanistic Concerns in Design Education: The New Man at the Bauhaus, HfG, Ulm, and the India Report

3.1 Introduction

The Bauhaus and Ulm educators and the Eames' India Report form the framework for the review of literature to examine humanistic concerns in modern design education. From the study of the foundation programme at the Bauhaus, it was found that there was certainly a concern for the New Man in a new technological society, a humanistic concern. This is described in Section 2.2. The ideologies of standardisation and mass production at the HfG of Ulm, directed the pedagogy towards exploring a scientific approach, integrating systemic and objective methods of collecting and processing data in order to inform of the design solution. A new scientific humanism, which synthesized science and design, recognized the pluralism of methods and methodological perspectives needed by the designer in addressing the new problems of an industrial culture. This is described in Section 2.3. In India, Charles Eames recommended a guideline for a programme of training in design that would serve as an aid to the small industries. Described in Section 2.4, the report addresses what Eames observed after touring India, which is rapid deterioration in design and quality of consumer goods. The recommendations of the report were made only after Charles Eames toured throughout India,

making a careful study of the many centres of design, handicrafts and general manufacturing. He talked with many persons—both official and non-official, in the field of small and large industry, in design and architecture, and in education, implying a strong humanistic foundation.

The previous chapter examined the explicit acknowledgment of the Self in disciplines other than design. The nature of the Self and the Self-Other relationship laid ground for research questions in Section 2.5. Comprehensively, this chapter is an attempt to examine the nature of Self and the Self-Other relationship from texts by the Bauhaus and Ulm educators and the Eames' India Report.

3.2 The New Man: A Humanistic Concern

Staatliches Bauhaus, the institute for experimentations and education of German industrial art, architecture and handicrafts, was founded in Weimar by the architect Walter Gropius in 1919 as a seat of learning in modern art, industrial art and modern architecture. After the World War I, industrial art was no longer an individual expression. Objectives for design actions were set collectively and there was an urgent need felt for a change.

The shift from abundance to poverty created a new kind of consciousness. Bauhaus was a response to these social changes. A unique opportunity, was brought about by the industrialisation of war. Large areas in many European cities were wiped out by bombing during the WWI. This created a clean slate for post-war development where new visions could be drawn. “The opportunity to rebuild the city was the opportunity to build a new society, to design for human well-being, thus to produce a new kind of citizen.” (Miles, 2011, p. 154). Miles, described the project [as] “...enacting materialism: that is, the philosophy (as in Feuerbach) which states that human character and action are shaped by the material and the intellectual environment inhabited – changes to the environment produces changes in the person.” (p. 154)

Social changes and new goals were not easy to combine with the new human being. The designer had to balance between the inner Self-Other and the Other in society with technology and mechanisation. According to Gropius (1965), “Bauhaus wishes [to] educate a new type of worker for industry and handicrafts, so far missing, who simultaneously has the command over

techniques as well as form”(p. 23), he believed [that] “in the future, handicrafts will show in a new function unit as a supporter of industrial experimental production.”(p. 23) This is how Gropius advocated a humanistic approach to industrialisation.

The origins of Bauhaus differed from the earlier methods of education in art, craft and architecture. The idealistic basis of Bauhaus of a socially-orientated programme was based on the newest knowledge in pedagogy.

Specialized training without basic knowledge of general humanistic concepts should no longer be possible. What is missing in today’s education—almost without exception is an inner view of life or of the ‘philosophical’ foundation of the meaning of human activity... Education usually consists of a process of more or less forced accumulation of individual facts which students are supposed to learn and for which they have no use outside their particular ‘field’. (Wingler, 1969, p. 147).

Gropius himself was a victim of the war and reflected the trauma, pain and loss of faith felt by an entire generation after the trepidation of World War I. The joy of technology was shattered by all the mechanised killing of masses. Gropius, being the first director of Bauhaus, along with his group of teachers and students, was motivated with a sense of new awakening. Gropius led the group and set out on a path to explore this New Man of the future (Gropius et al., 1938). The goal was to provide the New Man with a tangible form.

In the initial years of Bauhaus, the laboratory was experimental and exploratory. Creativity had no limits and no strict mandate. Bauhaus attempted to focus on a holistic view of mankind through the perception of body and movement, colours and forms, materials and contrasts via all human senses (Wingler 1969). Gropius attempted to create a new guild.

Let us then create a new guild of craftsmen without the class distinctions that raise an arrogant barrier between craftsman and artist! Together let us desire, conceive, and create the new structure of the future, which will embrace architecture and sculpture and painting in one unity, and which will one day rise toward heaven from the hands of a million workers like the crystal symbol of a new faith. (Wingler 1969, p. 31).

Under the guidance of Gropius and the other Bauhaus masters, students were encouraged to shed their pre-conceived ideas and approach each problem as if it were completely new. They

were trained to start with a clean slate, studying both functional requirements and the technical process necessary to realize a solution. In other words, they were trained to understand the synthesis of art and craft, of aesthetics and serial production. There was also a subjective, non-rational aspect to the Bauhaus experience, which, in the teachings of Johannes Itten, had a certain mystical quality. The school of design had faculty who were purely creative artists as a spiritual counterpoint and the practical technician, in order that they may work and teach side by side for the benefit of the student. It appears that the Bauhaus did attempt to develop the Self-Other in the students to create a balanced whole.

Jonathan Itten was the founder of the preliminary *Vorkurs* (Basic Design Course) at Bauhaus, which was compulsory for all students to take before they could be admitted to any of the workshops. Itten developed the *Vorkurs* in order to break down students' pre-conceived classical notions of art training (Itten, 1975) and rebuild independent, free-thinking and adventurous art students. Johannes Itten (1975) wrote, "I consider it essential, in teaching the means of artistic representation, to evoke an individual response in students of various temperaments and talents. This was the only way to generate the creative atmosphere conducive to original work." (p. 7). The preparatory course at the Bauhaus was a planned semester of intensive work. The post-war political and economic instability, however, proved rather unfavourable to their work and students faced a future of uncertainty. There was no dearth of studio space, but there was no heating facility. Classes were held only one morning a week. The students then worked by themselves on assigned tasks, without any supervision. This being-on-one's-own evolved into a significant process of self-discovery. It provided students time to introspect which in turn nurtured an inner growth of the individuals along with external knowledge. According to Itten:

My teaching was designed to guide the student in acquiring the means of artistic expression by appealing to his individual talents and so develop an atmosphere of creativity in which original work became possible. Each student was expected to realize *himself*, his original works had to be *genuine*. Thus, he gradually became self-confident and more conscious of himself. He could find his vocation, unless obstinacy and ambition threatened his awakening sensibilities. This choice of a vocation was facilitated considerably by tests with patterns and materials. The student soon found out

which materials appealed to him, whether wood, metal, glass, textiles, stones or clay stimulated him to creative activity.

It takes various aptitudes and energies to bring about creative achievements. To receive new ideas requires devotion and preparedness, tranquillity and self-confidence. To realize creative ideas through the expressive means of art takes sound physical, sensual, spiritual and intellectual powers and qualities. This insight determined the goal and methods of my teaching (Itten, 1965, p. 105).

During his time at the Bauhaus, Itten worked to build up the entire person as a creative being. He studied Eastern philosophy, delved into Persian Mazdeism and Indian yoga teachings, and compared them with early Christianity. He reached the conclusion that there should be a counterbalance between externally-oriented scientific research and technological speculation with inner-directed thought and practice. He initiated a search for something on which a new way of life could be based. At the beginning of each instruction period, Itten gave the class exercises in relaxation, breathing, and concentration, to achieve a state of spiritual and physical readiness, which is conducive to intensive work. Itten believed that the training of the body as an instrument of the spirit was essential to the creative artist.

Itten thought it necessary to administer breathing and stretching exercises. Students followed him in meditation rituals in order to develop open-mindedness and a relaxed creative atmosphere. These physical activities helped students focus the mind and ready the body for the work that needed to be done. Advice about diet and hygiene followed. After this introduction, a harmonic alertness permeated the class and he was able to start working out problems and exercises concerning the means of artistic expression. Itten clearly attempted to encouraged the students to develop a holistic Self-Other for the designer.

Itten also believed in play. Itten believed that he would lead all creative activity back to its roots of play. In his book, he argued that those who fail at this, fail as artists or students. Itten encouraged the Self-Other for the designer to engage in the spirit of play.

Oskar Schlemmer, another faculty, explored the universally valid Human Types in which emphasis was placed on characteristic forms while reducing individual features (1965). In a sense, Schlemmer appeared to address the Self for the designer. He, conducted a course on

‘Man’. This course had been preceded by a course in figure drawing—schematic rendering of the human body. Life-drawing, in a narrower context of the word, was practiced in the Bauhaus independent of this course. In a broader context, the *man* was conceived as a totality—as the unity of body, soul and spirit—and the course was divided into formal, biological and philosophical parts (Wingler 1969). This course appears to implicitly acknowledge the Self in the designer. As Schlemmer himself explained in the Bauhaus Journal 1928 (Number 2-3):

Within the course, these three parts run next to each other in turn, only to unite finally into a totality of the term Man.

The part dealing with figural rendering, mainly one of drawing, deals with schemata and systems of lines, planes and body sculpture: the standard measures, the theory of proportions, Dürer’s measurements and the golden section.

From these develop the laws of movement, the mechanics and kinetics of body, within itself as well as in space, in the natural as well as in the cultural sphere... The paths of movement, the choreography of every day, form a transition to the conscious, shaped movement in gymnastics and the dance, and further to the art form of the stage. Analyses of figural renderings in old and new art conclude this section.

The natural-science part begins with the mysteries of the world, ether and plasma and deals with the theory of cells and seeds, birth and growth, life and death. The organisation of the joints of the skeleton, the functions of the muscles, the internal organs (and their functions) are illustrated from a bio-mechanical and bio-chemical point of view. (Wingler, 1969, p. 523).

The course also made painstaking inquiries into sensory perception. The philosophical part considered man as a *thinking and feeling being* in his world of conceptions and ideas and in the struggle of politico-philosophical views. Drawings and diagrams added a visual element to the theoretical investigations (Wingler 1969). There appears that Schlemmer attempted to address the Self in many ways, with a balance of the physical, the emotional and the philosophical Self for the designer.

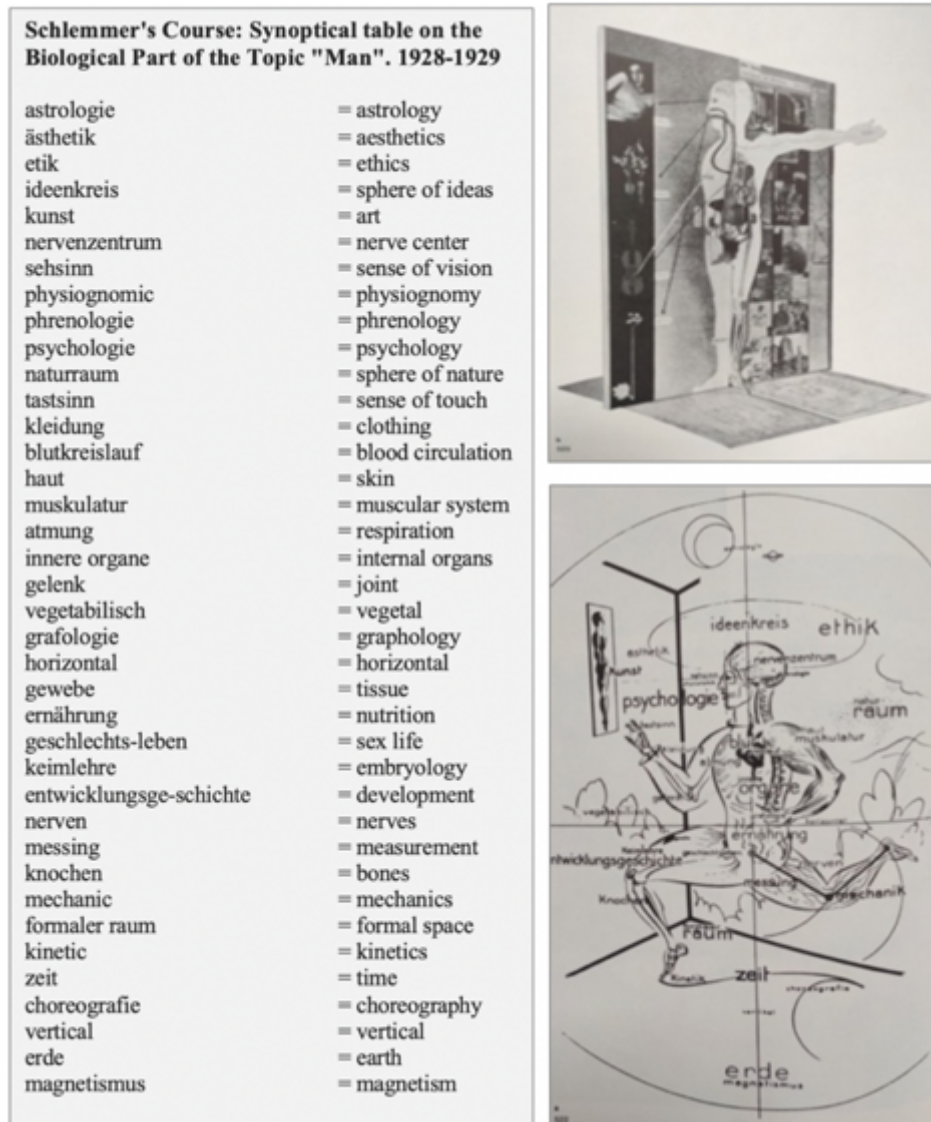


Figure 3.1
Oskar Schlemmer's Man in the Sphere of Ideas, (Wingler 1969)

Oskar Schlemmer's Triadic Ballet became the embodiment of artistic expression, one in which, human-machine figures performed the dance of the future (Wingler 1969). The amalgamation of the New Man, with technical and artistic attributes, symbolized the Bauhaus' gradual adaptation with industrial material, methods of working and production.

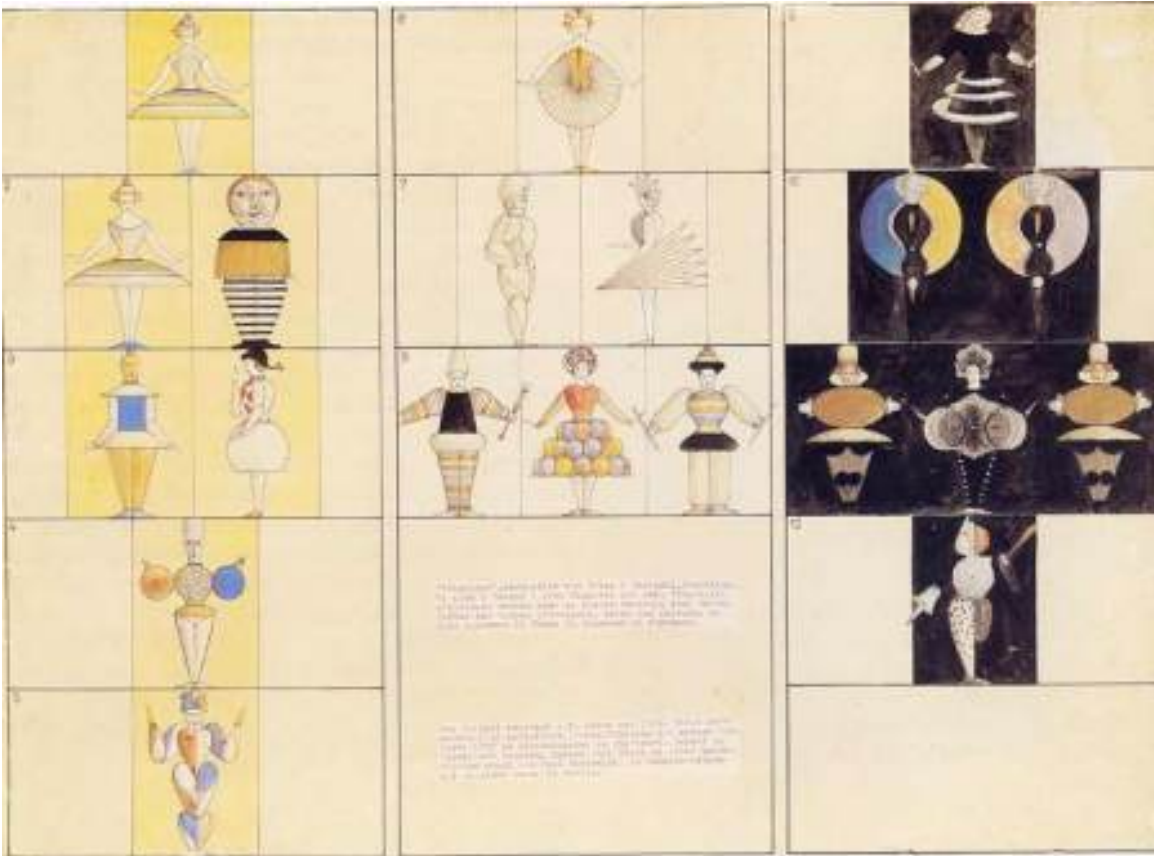


Figure 3.2
Sketches and Movement Studies for Das Triadisches Ballett by Oskar Schlemmer, late 1910s



Figure 3.3
Das Triadisches Ballett, developed by Oskar Schlemmer, performance in *Wieder Metropol* at Metropoltheater, Berlin, 1926, photographed by Ernst Schneider

“I vacillate between two styles, two worlds, two attitudes toward life” (Schlemmer, 1990, p. 30). Schlemmer’s work doesn’t just capture the tension between man and machine, but mediates between the two, posing creative responses to their coexistence.



Figure 3.4
The Triad Ballet 1926: Exploring Costumes with Wires

Wassily Kandinsky, on the other hand, took yet another humanistic approach. Kandinsky explored new harmonies between man, nature and technology through use of abstraction and colour.

At the Bauhaus school, art and craftsmanship shared a symbiotic relationship which was woven into Gropius’ visionary idea. In the manifesto, Gropius set out the objectives and principles of the school, stating that “the Bauhaus strives to reunite arts and crafts—sculpture, painting, applied art, and handicrafts—as the permanent elements of a new architecture” (Wingler 1969, p. 32).

The Bauhaus’ founding manifesto and programme in 1919 included a woodcut by Lyonel Feininger which Gropius selected. The illustration depicts a cathedral with three towers whose steeple carried three stars which symbolised the three arts of painting, sculpture and architecture and whose rays interlaced symbolically.

Printed on the Bauhaus Manifesto, the cathedral represented an ethos that was to combine architecture, craft and art into an ideal unity. The objective of the Bauhaus was to reunite the

arts that had previously been separated in the academies in order to arrive at contemporary forms of art, craft and architecture.



Figure 3.5
The Cathedral by Lyonel Feininger, from *Walter Gropius' Manifesto and Programme of the State Bauhaus*, April 1919

As in the reform movements that had preceded the Bauhaus, what mattered here was to find a humanistic response to industrialization. The Bauhaus movement wanted to become a force capable of changing society and hoped to form a modern type of human being and environment. In a transdisciplinary community of work, the Building of The Future, and thus also the future itself, was to be conceived and created (Wingler 1969). According to Gropius, an artist must be conscious of his social responsibility to the community. On the other hand, the community has to accept the artist and support him.

The initial years of Bauhaus were expressionist in character. Gropius often engaged Bauhaus students in his own professional practice. The Sommerfeld Residence, completed in 1921, and

a Memorial for the Victims of the Kapp Putsch³⁰ in Weimar, completed in 1922, are both reflection of this expressionism for the Other.



Figure 3.6

The Bauhaus Movement of Building of the Future as a Transdisciplinary Community of Work



Figure 3.7

Memorial for the Victims of the Kapp Putsch, in Weimar

The first Bauhaus director was a tireless fighter for the Bauhaus idea. After the seizure of power by the Nazis, Gropius had hopes that the aesthetic of the Bauhaus could be a means for this new regime to express itself. But soon it was clear that for this fascist regime, there was little interest in modernism as the aesthetic language.

Gropius invited many well-known artists to Bauhaus, knowing that a cluster of artistic egos in a space may lead to creative friction. He, however, managed a coexistence based on a human

³⁰ In 1920, Walter Gropius submitted his *lightning strike* as a *symbol of the living spirit* for a competition tendered by the Städtisches Museum Weimar. The *Monument to the Victims of the March Putsch* was designed to commemorate the victims of the Kapp Putsch of March 1920. Two years later, Gropius' monument was erected in the main cemetery in Weimar.

centric philosophy. Gropius also managed to defend the design school against the political hostility. Once again, it was his belief in the concept of the New Man that aided him in the act.

The Bauhaus first phase of exploration focused on searching for answers to questions relating to the New Man. The next phase investigated on how the New Man would like to live in future. It was a given that there was no turning back of the wheels of technology, the idea of merging technology and art to form an effective unity. The approach then became a humanistic one to make everyday life more efficient and more beautiful by taking full advantage of modern materials and functional design. The Weimar era of the Bauhaus explored movement of body, light, colour and material in a playful manner.

The Bauhaus only existed for 14 years, from 1919 to 1933, but it became the most important college of architecture, design and art in the twentieth century. Fresh starts had to be made in Weimar, Dessau and Berlin because of political reasons. The philosophy of the Bauhaus was not to replicate traditional concepts but to rethink design from the bottom up. Not only to start afresh in modern art and craft, but also to enable the influence of the Bauhaus Experiment to continue into the future. And rightfully, it continues to the present day.

The emphasis at the end of the day was not on the details of the solutions produced, but the will to rethink things from the ground up. In this way, the Bauhaus, which only existed for 14 years, became the model for reform efforts in its period, and it continues to attract attention even today. “You can’t achieve that kind of resonance with either organization or propaganda,” said Mies van der Rohe, the third and last Director of the Bauhaus. “Only an idea has the power to spread so widely” (Bauhaus Archiv, n.d., para 3).

Summarising, the notion of the Self-Other for the designer appeared to be omnipresent at the Bauhaus. It can be sensed in the philosophy and the idea of the school. It appears significantly in the experimentations of the teachings and the work of the students.

3.3 A New Scientific Humanism: Science and Design

The HfG, Ulm (1953-1968) saw the transition from an industrial society to post-industrial society. Despite its short existence during the post-World War II period, the HfG, Ulm project

also rethought the role of social sciences based on a strong belief in reason (Neves and Rocha, 2013). To counter the Nazi resistance, the HfG, Ulm nurtured the idea that in a democratic society, *good design* should be accessible to all. The social goal, however, behind the ideal of good design [implies] “...an unspoiled social order, democratic, rational, clear and transparent, without guile and tricks, knowing no misguided emotions” (Spitz, 2002, p. 15).

This appears to suggest that a certain sense of the self was needed to be acknowledged. The question that would arise is, Would a certain sense of the self, need to be recognised and nurtured, to be able to develop an ethical self for the designer?

In one of the few critical texts regarding the contribution of the HfG, Ulm, Kenneth Frampton (1974) says:

There is little doubt that HfG has been the most significant school of design to come into existence since the end of WWII, not so much for what it achieved in terms of actual production, nor for the large number of designers it effectively educated, but finally for the extraordinary high level of critical consciousness that it managed to sustain in its daily work... The questions that the Hochschule began to ask a decade ago are now being asked, consciously or unconsciously, by every design and architecture school, and the crisis of identity that befell the Hochschule has now become a universal malaise. (p. 295)

The ideology that focused on the artistic dimension of design, a legacy of the Bauhaus, was carried on by Max Bill, the first director of HfG of Ulm. This was a contrast to the multidisciplinary scientific approach, and supported by the next director Tomás Maldonado (Neves and Rocha, 2013). Even though it was considered an extension of the Bauhaus, the philosophy of the HfG, Ulm was qualitatively different. HfG, Ulm did not perceive design as an individual centred, art and craft activity. According to Trivedi (1989), an Ulmer himself, the Ulmers were idealists. They believed that the quality of human life could be improved by improving the quality of the built environment. This, however, does not imply that the notion of the self was no longer important. In fact, it could be possible that it was even more critical to understand the self as part of a collective group of selves. Did the collective Self-Other, dilute the individual self?

Education at the HfG of Ulm, was based on standardization and mass production, and investigated a scientific approach integrating systemic and objective methods of collecting and processing data in order to inform of the design solution (Spitz, 2002). It synthesized science and design in a new scientific humanism that recognized the pluralism of methods and methodological perspectives needed by the designer in addressing the new problems of industrial culture. According to Maldonado, what emerged were the beginnings of an operational view of design science which he often referred to as ‘Scientific Operationalism’ (Maldonado, Gui, 1964) drawing on methods from many disciplines, gathered in an eclectic manner. Nowhere was this question more focused among designers of utter devastation yet with unlimited curiosity about all of the new disciplines of science and new ideas in the philosophy of science and mathematics (Buchanan, 2009). As Maldonado states, “The mainspring of all of our curiosity, our reading, and our theoretical work was our determination to find a solid methodological basis for the work of design” (1991, p. 222). This implicitly suggests the presence of the notion of the Self. The inner Self of the designer needed to be motivated and curious in a way, that scientific knowledge and new methods could be applied in the search of design problems solution within an industrialized environment.

Maldonado, in an interview for an investigation with Neves and Rocha (2013), described:

[That] we were living in another time. There was the onset of a conflict in which young professors understood that it was no longer possible to continue with Bauhaus traditions, which were a near repetition of the same ideas. It was a difficult conflict to manage because there were Bill’s ideological characteristics and ours, and the conflict grew worse with time, I am talking about 1955. For example, Bauhaus was known for not having a library, there was distrust for all that could be considered philosophical and scientific literary culture. This was of the first problems that young people would encounter in this library. Ulm began to be more oriented towards the theoretical part, but also with a strong tendency for the technological part for design, for example, Braun looked at technical elements, medicine, and appliances for pharmacists” (Maldonado, 2012, p.41).

This phase introduced different subjects such as, Sociology, Psychology, Mathematics, Economics operational research, Semiotics, Statistics, Set Theory, Linear Programming

techniques, and Cybernetics. Subjects that dealt with the history of science and theory of machines built an analytical and evolutionary knowledge. With the introduction of new subjects, Maldonado made it possible for the students of Ulm to engage and participate in the scientific and theoretical philosophy of the time (Huff, 1955). Tomas Maldonado navigated the change in direction of HfG, Ulm and according to his disciple, Huff,

It was a feverish, avid curiosity, which favoured above all certain fields, which were emerging at that time: cybernetics, information theory, system theory, semiotics and ergonomics. But one must also mention other more established and not less important fields such as philosophy of science and mathematical logic (1955, p. 110).

Weaving through the change in design education steered the school towards a new scientific humanism, which synthesized science and design. The scientific approach to design took place in the period around World War II when the computational era was emerging (Neves & Rocha, 2013). Anticipating a rapid technological progress and industrial production methods, HfG's teaching of fundamentals included Visual Methodology, Means of Representation, Methodology, and Perceptual Understanding.³¹ A newly developed objective of the foundational course was the introduction of rigorous methods, showed mathematical equations and their translation became the focus of the exercises that were given by Tomas Maldonado. According to Maldonado (Ulm No. 8/9, 1963), Albers too took upon himself the challenging task of modulating the Bauhaus preliminary course. This he managed [by] "... transforming the different and partly contradictory components (pedagogical activism, mystical expressionism, and exaggerated constructivism) into a systematic, coherent and operable subject of teaching" (Maldonado, Ulm No. 8/9, 1963, p.12). He made a significant contribution by augmenting the visual training component of the basic course with the interdisciplinary content, that is, with abstract fields of knowledge. Maldonado claimed that the Bauhaus didactics, particularly its preliminary course, was a question of exaltation of expression, intuition, and action, above all of *learning by doing*. He believed [that]

³¹ Visual Methodology taught perception, symmetry, and topology in 2- and 3-dimensional experiments; Means of Representation taught drafting and sketching as well as exercises in writing and language; Methodology gave an introduction to mathematical logic, combinatorics, and topology, as well as the sociology and cultural history of the 20th century, which analysed the influence of the Industrial Revolution on the society and its means of production; Perceptual Understanding introduced the main problems of perception.

this educational philosophy is in crisis. It is incapable of assimilating the new types of relations between theory and practice, engendered by the most recent scientific developments. We know now that theory must be impregnated with practice, practice with theory. It is impossible today to act without knowledge, or to know without doing. (Neves & Rocha, 2013, p.42)

Changes gradually took place in the foundation course, and the new principles formulated by Maldonado were put into practice. For example, Maldonado's course attempted to integrate mathematical knowledge into the visual training component in the form of a grid or graph, elaborating on early versions of fractals like the Sierpinski Triangle, the Peano or Hilbert Curve.



Figure 3.8
Sequence of Sierpiński Triangle Source

Another example is the course in Cybernetics. The term cybernetics would tend to be associated with robots, computers and electronics. But there is another facet to cybernetics. According to Norbert Wiener³², when he launched the term some 30 years ago, he defined it as “the study of control and communication in the animal and the machine” (1948). Since then, because of the way in which it views them, it has led to a way of thinking about perception, behaviour, and cognition that is revolutionary. Cybernetics [is] “the science of control and communication, with special reference to self-controlling or adaptive systems” (George, 1971. p.3). Unlike Psychology, Philosophy, Sociology, etc., [cybernetics] “does not draw an absolute distinction

³² This is one of the fundamental documents of our time, a period characterized by the concepts of *information* and *communications*. Norbert Wiener, a child prodigy and a great mathematician, coined the term cybernetics to characterize a very general science of control and communication in the animal and machine. It brought together concepts from engineering, the study of the nervous system and statistical mechanics (e.g. entropy). From these he developed concepts that have become pervasive through science (especially biology and computing) and common parlance, such as information, message, feedback and control. He wrote, “the thought of every age is reflected in its technique . . . If the seventeenth and early eighteenth centuries are the age of clocks, and the later eighteenth and nineteenth centuries constitute the age of steam engines, the present time is the age of communication and control.”

between organisms and inanimate, or man-made systems in this context, since either can be self-controlling and adaptive in behaviour.” (p.3)

According to Glasersfeld, “The traditional view, both in psychology and epistemology, does not acknowledge the difference between what can be said about observed organisms and what organisms might be able to say about their own experience.”(1979, pp. 1-2) Further stating “Insofar as the cyberneticist is a builder of models (physical or conceptual) that are supposed to regulate or govern themselves, he must remain aware of that dichotomy.”(1979, p. 2) If cybernetics and design can be considered two sides of the same coin (Glanville, 2003), the Self for the designer, should be aware of the very same dichotomy. The Self for the designer, must not consider himself only an observer but also part of the system he is creating.

Self-Regulation in cybernetics normally refers to the principle of *negative feedback*. A common example that Glaserfeld gives is that of the thermostat. He says [that] “a thermometer that senses the temperature in the area to be controlled. If that temperature rises beyond a pre-set value, a contact breaker closes and a cooling mechanism is switched on. If the temperature sinks below the set value, a heater is switched on” (Glaserfeld, 1979, p. 2). This is referred to as the feedback principle in machines where a sensor can sense the actual temperature and a desired temperature can be set with a comparator. In humans, sensory organs work for homeostatic functions that control single physiological conditions in the body, such as internal temperature, sugar level, and blood pressure (Glaserfeld, 1979; Cannon, 1932).

This feedback model, however, does not provide for any form of learning. There are different ways of learning that can be incorporated in cybernetic models (Powers, 1973; McFarland, 1971), and one of them is, in principle, an implementation of the age-old process of inductive inference (Glaserfeld, 1979). According to Glaserfeld, [if] “the feedback model is to be of use in the study of the more complex forms of behaviour we see in animals, and in humans, we shall have to give it some capability for learning.” (p. 3). Artificial Intelligence (AI) and Machine Learning today are perhaps off-shoots of cybernetics. Cybernetics was humanistic in its conception. Cybernetics is concerned with psychology because psychology is concerned with the behavioural patterns of organisms which adapt to changing circumstances (George, 1971). The development of psychological theories of cognition, particularly with respect to learning and perception, mirrors closely the attempt by cyberneticians to model these same

adaptive processes in what we call Machines. One of the early contributions of cybernetics to the theory of scientific analysis and investigation was the concept of a black box.³³

The self, it appears existed in cybernetics. In cybernetics, there is a self that is part of one's perceptual experience (Glaserfeld, 1979). The self can [be] "isolated as the locus of the perceptual (and other) experiences I am having. This self as the experiencer appears to be an active agent rather than a passive entity."(p. 22) This active self can decide to look or not to look, to move or not to move, to hold the pencil or not to hold it and, within certain limits, to experience or not to experience. As suggested by Glaserfeld, the self for the cybernetician, [is] "a relational entity, it cannot have a locus in the world of experiential objects. It does not reside in the heart, as Aristotle thought, nor in the brain, as we tend to think today. It resides in no place at all, but merely manifests itself in the continuity of our acts of differentiating and relating and in the intuitive certainty we have that our experience is truly ours" (1979, p. 28).

The HfG had no access to any computer systems. It was, however, of extreme importance in the history of the beginning of the computer era because of the work done at HfG. In an interview with Neves in 2012, Maldonado narrated the vision of future possibilities in technology:

My contribution was important due the formative disciplines such as cybernetics, information theory. The computer is emerging. There was no computer at that time. We did not know the computer right now....In the first year, students were linked to a fundamental course in the elementary school, where I think the important question and contribution was how to fix and change the fundamental course at the Bauhaus to one that assimilated these new concerns....In the elementary course something very interesting happened. All exercises that were made had a very special character. Apparently, they had some things still related with the Bauhaus, but they included one

³³ Cyberneticists, in general, unlike the strict behaviourists who profess no interest in the internal machinery of a black box, are ready to make conjectures and to test their plausibility, much as scientists in other fields formulate and test hypotheses about things not directly observable. But there is one important difference. Other scientists believe that sooner or later they will be able to match their hypotheses with observations and find out whether they were right or wrong. A true cyberneticist knows that the *intelligent* functions he is investigating are never observable. All he can possibly check on is the material they start with and the results they produce: their *input* and *output*. Hence he tries to design a model that, given the same input, will always produce the same output as the black box. Although it is rewarding to design a physical model that actually works, cyberneticists more often than not (for practical reasons or for lack of time or money) have to be satisfied with theoretical models that demonstrate at least that there is a logically feasible way of performing the function.

more thing. That was the idea of how through the behaviour of elements could one create an image. The model was a grid of little dots with different diameters to produce an image. This very elementary idea allowed us to manually simulate what you would be able to do later with computers. The students were asked to make such images with incredible detail which was an immense difficulty. Here one can see clearly the intuition of what would become a computer use, but in our case, it was a manual production.... that was crazy” (2012, p.43).

This was a powerful intuition, which is what the development of the computer and automation technologies subsequently confirmed, after 1963. Maldonado, knew intuitively that the idea [of] “arriving at a sort of symbiosis between calculus and graphic representation in the resolution of problems, of which were many of us closely attached to during the 1950s, is at the basis of the currently expanding utilization of computer” (Maldonado, 1991, p. 44). Maldonado developed the *Visuell Einföhrung* (introductory visual training) exploring diverse ideas that later shaped the curriculum of the school as a whole. He believed in his inner self and based his explorations on human intuition. Is intuition a critical element for the self?

This was a powerful intuition for the computation era. Years later the development of the computer and automation technologies confirmed this ground breaking work. This reflected the new scientific humanism which intuitively worked towards progress in technology.

Maldonado in Looking Back at Ulm, wrote [that] “Ulm had a pioneering vision on the design process, but they lacked a machine—the computer...but in the midst of our limitless faith in method...there lay some powerful intuitions that the evolution of information technology, especially since 1963, has to a large extent confirmed” (1991, p.47). Prior to the use of computers in HfG, a kind of computing-without-computers was already taking place, and this factor constitutes a theoretical and practical contribution carried out by some of the main figures of the HfG, Ulm, such as Tomás Maldonado. Computing without computers paved the way for the conceptualization of the computer, before its existence. Later, computing with computers transposed the traditional modes of operation and thinking into a new medium. It was computing without computers at the Ulm School of Design that had led to a paradigm shift in the understanding of subject and object that had led to a radical rethinking of the production of form (Rocker, 2010).

A modulated approach to the design process was introduced. Generation of forms began to be controlled by definition of geometric design rules. Hand-drawn constructions reflected a mode of computational design thinking. Geometric patterns took on a system-based approach. Expanding the manual possibilities, the machine (computer) was designed to extend the idea of design systems to a greater level of flexibility and complexity. Was the Self lost in this process?

More recently, Klaus (2006) discusses the need to address the difference between science and design. He highlights the definition provided by Simon (1969), who defined science as the “how things are,” while design is “how things ought to be.” Klaus believes that Simon’s training as an engineer colours his perspective as he looks at the difference in terms of the logic they employ. Klaus however believes this sort of analysis leaves room for improvement as this process manifests Simon’s technical rationality. It works for problems that are clearly defined and have a limited or finite solution space as is often the case in engineering. Klaus notes that this technical rationality served Simon well in extending simple engineering conceptions to larger design problems in defence systems, R&D efforts and NASA projects. But this approach to distinguish design falls short in problems that involve people as agents in heterarchical forms of organisations such as free markets. Such social problems are complex and cannot easily be understood in mechanistic terms and hence technical-rational problem solving breaks down in such cases. Klaus lists specific activities of the scientist and contrasts them with the activities of the designer, while also looking at the motivations driving these activities. Thus, he concludes that the artefacts created by scientists differ quite radically from those created by designers. The two work in incommensurable paradigms and efforts to search for commonalities might not serve either profession.

The computing power of the machine (computer) however, made it possible to handle more complex design algorithms, which would have otherwise been difficult to be conceived and implemented only by mental and manual design processes. Design students began to think like machines and perhaps acknowledge the computer as the Other, along with the user as the Other. Scientific methodology imbibed a new meaning where design practice started to embrace the concept of systems, where sets of interdependent information were structured to control the generation of design solutions. Human thinking was adapted to machine thinking. The Self for the designer appeared to have played a significant role in the new scientific humanism, which synthesized science and design, giving the Self-Other relationship a deeper meaning.

The Ulm School of Design, “one of the most influential design schools of the world in the second half of the twentieth century” (Trivedi, 1989), though considered an extension of the Bauhaus, followed a different philosophy. Ulm School did not see *design* as an individual centred, art and craft activity. The emphasis was not on Self-Discovery, on awakening the intuitive, inner personality; but in seeing designers’ collective responsibility as one of the important contributors to man-made environment. Will a better understanding of the Self, lead to becoming an accountable and responsible designer?

The Ulmers were idealists, believing that the quality of human life can be improved by improving the quality of built environment. It was a recognition of the fact that problems of designing the whole man-made world are exceedingly complex and cannot be solved by isolated acts of design. This led HfG, Ulm to develop a set of design methodologies to solve complex problems. This was perhaps the first indication of the collective self.

Summarising, the self for the designer appeared to have played a significant role in the new scientific humanism, which synthesized science and design, giving the Self-Other relationship a deeper meaning.

3.4 The Humanistic Balance: Rural and Urban India

It was industrialization after World War 1 that influenced a new humanistic approach in Bauhaus, termed the ‘New Man’. In India, in the early years after independence from British colonial rule in 1947, India’s leaders, particularly the first Prime Minister Jawaharlal Nehru, worked towards revitalizing the country economically, socially and culturally. While Nehru had a real interest and appreciation of the Indian craft tradition and encouraged the revival of textiles and handicrafts, he embraced modernism as the best way to project the nation’s modern image. The concept of the ‘New Man’ in independent India can well be the same.

The introduction of design education was a conscious and considered act of the Indian nation state. In 1958, the Indian Government sought advice on developing a programme for an academic institution in design with the objective of aiding small industries that would “resist the present rapid deterioration in design and quality of consumer goods” (Eames, Eames, 1997)

from an industrial designer from America, Charles Eames and his wife and colleague Ray Eames.

The Eameses visited India for three months to explore the problems of design and to make recommendations for the training programme. Their tour of India made a careful study of the many centres of design, handicrafts and general manufacture. The study included many conversations with people, official and non-official, in the field of small and large industry, rural and urban, in design and architecture, and in education. These narratives were assimilated into the India Report.

The report began with a quotation from the Bhagavad Gita emphasising the importance of the self for the designer, especially the aspects of selflessness, self-awareness and the ability to be humble in success and for the self to learn from mistakes or failures:

You have the right to work but for the work's sake only; you have no right to the fruits of work. Desire for the fruits of work must never be your motive in working. Never give way to laziness, either.

Perform every action with your heart fixed on the Supreme Lord. Renounce attachment to the fruits. Be even-tempered in success and failures, for it is this evenness of temper which is meant by Yoga" (Eames & Eames, 1997, p.1).

Will philosophising help in developing the notion of the self?

The objective of the India Report was stated as "a desire to create an alert and impatient national conscience—a *conscience concerned with the quality and ultimate values of the environment.*"

Based on the definition of human consciousness discussed in Chapter 2, according to the *Sandford Encyclopaedia of Philosophy*, consciousness is the state or quality of awareness or of being aware of an external object or something within oneself. It has been defined variously in terms of sentience, awareness, qualia, subjectivity, the ability to experience or to feel, wakefulness, having a sense of selfhood or soul, the fact that there is something that it is like to have or be it, and the executive control system of the mind.

From the text of the India Report, the Eameses, appeared to advocate a humanistic concern that involved qualities of integrity, respect, compassion and values that reflected a belief in human

dignity and science. They appeared to believe that human needs and values are of prime importance and projects an emphasis on agency of human beings, individually and collectively in a holistic manner.

According to the report, the Eameses were asked by the Government of India to recommend [a] “program of training in the area of design which would serve as an aid to the small industries. We have been asked to state what India can do to resist the rapid deterioration of consumer goods within the country today.” (p. 2) It further stated:

In the light of the dramatic acceleration with which change is taking place in India and the seriousness of the basic problems involved, we recommend that without delay there be a sober investigation into those values and those qualities that Indians hold important to a good life, that there be a close scrutiny of those elements that go to make up a *Standard of Living*. We recommend that those who make this investigation be prepared to follow it with a restudy of the problems of environment and shelter, to look upon the detailed problems of services and objects as though they were being attacked for the first time; to restate solutions to these problems in theory and in actual prototype; to explore the evolving symbols of India.(p. 2)

The Eameses found it critical that both the urban and rural issues were addressed with equal importance. It appears that the Eameses believed that developing a holistic Self for the designer was important as evidenced by their recommendation for a multi-disciplinary approach to design education. Furthermore, they emphasised through their exposition of India’s greatest problems as its biggest advantage that it is important that designers are trained to identify real problems and not tackle trivial problems for the sake of being original. According to the Eameses, India’s immediate problems [are]:

well defined: FOOD, SHELTER, DISTRIBUTION, POPULATION. This last stated advantage is a great one. Such ever-present statements of need should block or counteract any self-conscious urge to be original. They should put consciousness of quality—selection of first things first— (investigation into what are the first things) on the basis of survival not caprice. (p. 3)

To be able to recognize real needs on the basis of survival requires the designer to understand the notion of the Self-Other and Self-Other relationship. The Eameses included these immediate problems as an advantage to the newly formed country, yet after 60 years these problems still persist. If anything, the problem has been exacerbated as the population today is over three times it was when the Eameses visited India. Thus, the qualities outlined by the Eameses, namely of solving real problems, are as important today as they were 60 years ago. India is in need of empathetic designers who can identify and pursue real problems.

The Eameses describe the essential qualities of a designer to have “a questioning approach and a smell for appropriateness; a concern for quality which will help him through the immeasurable relationships.”

According to the Eameses:

In the face of the inevitable destruction of many cultural values—in the face of the immediate need for the nation to feed and shelter itself—a drive for quality takes on a real meaning. It is not a self-conscious effort to develop an aesthetic—it is a relentless search for quality that must be maintained if this new Republic is to survive. (p. 5)

The Eameses warn of biases that can be present in the form of cultural values that may hamper the process of solving the national problems. They recommend a drive for quality that encourages the designer to question everything contextually and not conform to their biases. They forewarn the designer to not indulge in a selfish attempt to develop a meaningless aesthetic.

It can be implied that the Eameses, encouraged the humanist approach, as they suggested that a more nuanced understanding of the relationships between humans, society, industry, technology and even the non-human worlds, to become more aware of the all-too-human nature. When designers try to make a leap to embody other human perspectives the Eameses advised the need to safeguard from false empathy. They believed that it could be an imposition of our personal biases and understanding of other entities, instead allowing for the space and the possibility to imagine other types of intelligence that are completely different from our own.

Being a humanist for the Self, means holding a compassion-based value system and recognizing common humanity with all of humanity, nature, environment and the planet. It also reflects the acknowledgment of personal biases. Will a realisation of the Self reduce biases?

The Eameses made a seemingly unrealistic recommendation of [having] “a faculty that would more than complement them in number. Even as it grew to an optimum size, this one-to-one ratio of faculty to students might well be maintained.” With such a high degree of interaction between faculty and students, it is much easier to impart more salient topics such as aspects of the Self which are not well defined in curricula. But without the personal touch of having such close relations between students and teachers, it becomes important to identify the more nebulous teaching that can be imparted with a one-to-one ratio. The most important of these is the concept of the Self-Other for both the teacher and learner. The Eameses felt that the faculty would need [a] “strong nucleus of exceptionally aware architects and designers to act as catalysts and preceptors.”(p. 9) During the inception of the institute when teachers and students had comparable numbers, the students could develop a healthy sense of Self-Other through constant interactions with their self-aware faculty, they would learn it through osmosis. Today that is no longer the case, student-faculty interactions are brief or in mass. The student-faculty ratio today is far from the ideal that the Eamses’s proposed. The dearth of qualified and driven design educators combined with the growing popularity of design among students has exacerbated the problem to a point where design educators must make difficult choices. Student-faculty interactions are either in mass or too brief to provide much value. The technological context of the modern student is different from what the Eamses’s may have imagined, with students today having a wealth of information and resources available to them through the internet, but benefits of having one-to-one interactions in design education still remain. Design is an iterative process of improvement and without close interactions and consistent and meaningful feedback and discourse between facilitator and student, the more salient nuances of design cannot be imparted to students.

The Eameses describe the purpose of training students as:

The purpose of training these students is to prepare them to meet problems in design, problems which have occurred many times, and problems which have never occurred

before—and to meet them all openly and inquiringly. Strictly speaking, preparation for problems that have never been solved before calls for education, not training. (p. 6)

Clearly, the meaning of education according to the Eameses went beyond mere development of skills and knowledge. They saw it as, perhaps, the acquisition of a plethora of factors such as self-awareness, empathy, responsibility, values, etc. Is being aware and understanding the Self therefore an ability?

The Eameses recommend sensitising the Self to [some] “good clues in the everyday solutions to unspectacular problems, in vernacular expressions that are so often ignored.” Using the example of the ‘*Lota*’³⁴, the Eameses demonstrated the importance of different factors and different individual contributions to be considered. According to the Eameses it is not [a] “... self-conscious effort to develop an aesthetic” – but, “... what is more important, they should be trained to help others solve their own problems.” (p. 5)

The Eameses expected that those leaving the institute [would] “leave with a start towards a real education.”(p. 8) They expected them to be trained not only to solve problems but more importantly, “they should be trained to help others solve their own problems.”(p. 8) Here the Eameses explicitly highlight the importance of the Self-Other relationship for a designer. According to them one of the most valuable functions of a good industrial designer then [was] “to ask the right questions of those concerned so that they become freshly involved and seek a solution themselves.” (p. 8) How can design education prepare students to ask the right questions? Will understanding the Self, help? The Eameses recommended projects to facilitate learning, one of which was a project that helped to build a foundation of values. As mentioned earlier, in a country that faces food, shelter and distribution problems like India does, the Eameses recommended a closer look at those things that constitute a standard of living in India. The questions that they put forward were:

How do they vary according to time, place and situation? What are the real values? To what degree is snobbery and pretension linked with the standard of living? How much pretension can a young Republic afford? What does India ultimately desire? What do Indians desire for themselves and for India? (p. 10)

³⁴ A typical yet simple earthen or brass everyday globular water container/vessel used for multiple household functions used in India.

The first two questions can be deduced as a reference to the Self, and the subsequent few as a reference to the Self-Other relationship. We infer that the values the Eameses thought of as comprising a real education are those of the Self and Self-Other relation. Are the questions posed by the Eameses relevant even today? Is the notion of the Self, relevant of today?

The projects outlined by the Eameses the India Report tackled many scopes, from simple to complex problems in both rural and urban settings. An evident gap in the report, however, is the lack of any mention of environmental issues. Was the environment aspect left out because there was no resource crisis during that period? Perhaps, in the late 1950s and the early 1960s, the environment movement had only just begun (Papanek, 1971). Today we face an environmental crisis (climate change, plastic pollution, etc.) which needs to be considered by all designers. Has this been the result of not engaging with the Other for the designer? And this begins with the sensitising of the Self-Other relationship for the designer.

Summarising, Charles and Ray Eames, amongst the new educators of modern design, played a significant role in the shaping of design education in India. It appears they had highly developed notions of the Self-Other, as evidenced by their compassion and depth of seeing which enabled them to provide human dimensions to their report.

Today, in India complex issues like – neoliberal capitalism or other issues makes it necessary for Indian design to have a humanistic response. In the study of India, important work has been done to chronicle the impacts of the liberalisation of the economy since the watershed economic reforms of 1991, (Nakassis and Searle, 2013). Their study provides a few examples from an extensive literature, where scholars have interrogated new national(ist) imaginaries and (middle-classed) citizen-subjectivities that have mediated and been mediated by liberalisation; liberalisation's impact on the state; the restructuring of post-liberalisation cities; transformation of gender, age, caste and class through liberalisation; as well as the relationship between commodity aesthetics, mass media and liberalization.

When India ushered in neoliberal economic reforms during the early 1990s, the promise was job creation, inclusive growth and prosperity for all. Yet suicides by farmers and farm labourers continue to persist. And poverty remains one of the greatest levels of inequality out of all 'emerging' economy.

The handloom and handicrafts sector is an important segment of the rural economy. Traditional craft goods and artistic handloom fabrics reflect the cultural heritage of the country and next to agriculture this sector was the major provider of employment in the country. In any other country, with such a rich heritage in crafts, these craftspeople with generations of indigenous knowledge and skills may have naturally transformed into modern designers. This did not happen in India because the traditional craftsman was not given the kind of access to education – the kind of education that would have enabled this transition.

Humans tried to gain control over nature in order to improve quality of life. The cultivation of land and organized food production were the first steps. The tilling of land necessitated the development of basic science and technology in order to become full – scale agriculture (Illaiah, 2009). Leatherworkers, potters, ironsmiths, carpenters and so on created the earliest science and technology. All these technological instruments were essential to bring land under cultivation, to produce again (Illaiah, 2009). People from all societies across the world contributed to these processes of improvement of human life. Each social group specialized in some work or the other. In India, such labours came to be treated as ‘lower’ caste.

In the neo-liberalised era in India, very little re-articulation or transformation has occurred in the caste system as a social value (Nakassis and Searle, 2013). How would the Foundation Design Education prepare the Self for the design student to work with the diverse demographics of the Other in context to the changing times in India. Life has evolved in India, since the time of the Eameses recommendations. However, what has not changed, is the effectiveness of a humanistic approach to responding to diverse range of issues.

3.5 Conclusions

While this thesis proposes that a more humanistic approach to design education is more beneficial, there are several socio-economic issues both across the world and in India specifically that beget a more humanistic response. For example, a key issue in India today is the large rural population. More and more of the population migrate to urban centres, for better opportunities, giving rise to a variety of problems. Wealth inequality is another one of the foremost problems in India and across the world today, without major political and economic

intervention this economic inequality is only going to get worse. One of the foremost issues on a global scale is the rise of disinformation and fake news; designing effective solutions for this would be impossible without a humanistic approach. Religious fundamentalism is another problem prevalent in India, but it is also a common problem world over. This also ties into the rise of populism, religion being a common tool of populists. These issues are not individual problems but a network of social issues that are all connected.

As large and complex as these problems are at their heart, they are human problems, and arise from individuals. Understanding people will help understand the roots of the major issues which is the basis of humanism.

The pedagogy of Bauhaus and Ulm touched on various aspects of the Self-Other, such as humanism, but failed to explicitly define the Self for the designer. Society can be thought of as a collection of individual selves, and as a society evolves over time, so do the individual selves that constitute that society. So, it stands to reason that the process to understand the Self-Other relationship evolves alongside a society. Self-discovery is different for every generation, and a Foundation Design Education needs to adapt accordingly to imbue its students with a robust understanding of the Self and the Self-Other relationship. The current landscape of Foundation Design Education has two fundamental problems relating to the Self and the Self-Other relationship. First, that the notion of the Self and the Self-Other relationship is not explicitly defined, and second that it has not kept pace with the evolution of society, being unchanged since its inception.

Empathy is a cornerstone of modern design but can be difficult to foster in the age of information. Today students are under a constant barrage of information from social media, a vastly different scenario from 50 years ago. Fostering empathy in the students of design, today is very different from how it was when the Eameses made their report.

The next chapter describes the extensive engagements made with experienced design educators and other design participants in various design education conferences. Excerpts from these interactions with design educators have been used to argue that such a lacuna exists and the importance of understanding the Self and Self-Other relationship in Foundation courses. While the Other is clearly recognized in design, the recognition of the Self for the designer can add

value to design interventions. The chapter argues why notion of the Self for the designer is an important factor in Foundation Design Education.

Chapter 4

Concerns in Design Education in India:

Gaps Identified in

Contemporary Foundation Design Education

4.1 Introduction

Design is a human-intensive activity in which people with varied backgrounds, such as having different levels of education, society, economy or stemming from different cultures, collaborate and coordinate. In many cases, this collaboration and coordination takes place across time zones and platforms. Until recently, studies of design and design education have focused on tools, technologies, methods, products, processes, and systems with a parallel focus on end users, consumers, clients and target audience—in other words—the Other. Users are universally perceived as humans, however, there has been very little study of the designer as the human.

The previous chapter examined the nature of the Self and the Self-Other relationship from texts by the Bauhaus and Ulm educators and the Eames' India Report. This chapter examines the concerns of contemporary design educators that can argue for the importance of introducing the notion of the Self for the designer in Foundation Design Education. It also strives to establish the lacuna in the same.

The renowned John Chris Jones, author of *Design Methods*, shared that his intention in developing design methods was to improve the quality of design by responding to the rapidly changing nature of design tasks. Addressing this transition, he has written that alongside the old idea of design as the drawing of objects that are then to be built or manufactured, there are many new ideas of what it is, all very different (Mitchell, 1992). According to Jones, these new ideas are:

- Designing as the process of devising not individual products but whole systems or environments such as airports, transportation, hypermarkets, educational curricula, broadcasting schedules, welfare schemes, banking systems, computer networks, etc.
- Design as participation, the involvement of the public in the decision-making process.
- Design as creativity, which is supposed to be potentially present in everyone.
- Design as an educational discipline that unites arts and science and perhaps can go further than the either.
- And now the idea of designing *without a product*, as a process or a way of living in itself (Jones, 1992).

As Jones' first experience with design methods, he claimed [that]

I didn't want to get involved with design theory or methods. I just wanted to get the ergonomics work into action. I only did the design methods in order to get the ergonomics accepted, and that was there in order to get the product better. I thought, well the right thing is to understand their design process, so we'll do ergonomics on the design process. So I did this ergonomic study of how the design was done purely with the view of getting the ergonomic information which was obviously sound and well tested into the engineering design process at the point where it wouldn't be rejected, so the human requirements would come first and the machine requirements would come second, instead of the other way round, and in doing that I hit on what's now called design methods.” (Jones, 1989, p. x).

Clearly, Jones consciously kept the human central and his recommended design processes responding to challenges were humanistic in nature. Unfortunately, his first edition which was published in 1970 and quickly became the standard textbook on the subject, having since been translated into five languages, did not have the effects Jones had hoped for. People who adopted

the new methods, “took design to be a completely rational, explicable process and used the methods as pretext for excluding intuition altogether.” (p. xi). As Jones has noted, his intention was otherwise. According to Jones:

We sought to be open minded, to make design processes that would be more sensitive to life than were the professional practices of the time. But the result was rigidity: a fixing of aims and methods to produce designs that everyone now feels to be insensitive to human needs. (p. xi).

Another result that was observed was that design methods became more theoretical, and many of those who applied it to design processes, turned it into the academic *study of methods* (methodology). Jones’ intention was, instead, trying to *design things better*. He lamented that the language used [to] “describe designing, and to describe the aims and purposes of things designed, became more and more abstract. The words lost touch with how it feels to be a designer and how it feels to inhabit the systems being designed.” (p. xi) Jones, along with another renowned design methods pioneer, Christopher Alexander, rejected the over-rationalization of design methods and adopted new, more explicitly intuitive design approaches. The fundamental concepts of Jones' thinking on the subject are still of immense value and relevance (Mitchell, 1992). Reflecting on the over two decades during which design methods have been used, Mitchell further adds about Jones that perhaps one point he did not emphasise enough initially [is] “the critical importance of the role of intuition in choosing and using the methods. The methods are, and have always been intended to allow rationality and intuition to co-exist in the design process.” (p. xii) Jones, apparently never intended rationality to replace intuition, as some mistakenly seemed to believe.

Perhaps, it can be noted that Jones' ideas are very much relevant now than when the book was first published in 1970 and republished in 1992. While Jones does not explicitly mention the notion of the Self for the designer, he implies its importance when discussing the importance of intuition for a designer.

The previous chapter examined the explicit acknowledgment of the Self in disciplines other than design and attempts to draw parallels in design education. It sought to adapt ideas of the Self and the Other as understood in disciplines such as Philosophy, Psychology and Sociology, and scrutinize such claims to formulate the notion of the Self for the designer.

The present chapter will focus on the concerns of design practitioners and educators in the context of a Foundation Design Education. The study includes extensive engagement with experienced designers who participated in various forums of public dialogues and conferences on design education. Excerpts from these interactions with design educators and professionals have been used to argue that such a lacuna exists, and emphasise the importance of understanding the Self and the Self-Other relationship in the foundation courses. The chapter also includes published texts of interviews of design educators who contributed to the development of concepts relevant to design education in the present Indian context. An overarching issue concerning the field of education in design is one of relevance. According to Vyas³⁵, (2014):

In order to bring forth a successful educational programme, it is essential to undertake timely review of the curriculum and update the same. A qualitative curriculum update is only possible through interaction and dialogues with educators, thinkers, philosophers, entrepreneurs, and students. These interactions can guide in creating a flexible and dynamic curriculum that would connect with contemporary socio-economic requirements and technological developments.

4.2 Humanistic Education: The Self for the Designer

Among many the prominent design educators is Rashmi Korjan³⁶, an industrial designer, and part-time design educator, who shares a common concern of many educators. During the early times of design education in India, according to Korjan, there was [a] “deeper inquiry into what design is, what the role of a designer and what the contribution of a designer was. The whole

³⁵ Pradyumna Vyas, ex-director NID, (2009–2019), acquired a Masters in Industrial Design from the Indian Institute of Technology, Bombay. Vyas has more than 33 years of professional and teaching experience in different spheres of design. Since the last 27 years, he has been associated with the National Institute of Design (NID) as faculty in the Industrial Design discipline. He was elected as an ICSID (International Council of Societies of Industrial Design) Executive Board Member for 2009–11. In July 2015, World Education Congress, 2015 conferred the award for Outstanding Contribution to Education to Mr. Vyas.

³⁶ Prior to founding Studio Korjan, with her partner Dinesh Korjan, Rashmi, along with her partner Grishma Dave, established the country's first all-women product design agency. Rashmi is a visiting faculty at NID, CEPT, IICD, and NIFT.

teaching process encouraged students to find their own method. There were no pre-cooked ideas delivered to students” (Korjan, 2014). According to Korjan,

Today the Foundation Programme focuses more on skill-development. It is certain that these skills are also required and that they are important to actually execute the design process.

But we do not have a component, which, other than talking about design, also defines design as *planning* or *creating value*. It is important to highlight the peculiarities with which a designer approaches a situation or a problem. Students should comprehensively understand what the approach of design should be like, what is specific or special about the way designers look at a problem and how they respond to it. We should talk about how design can look at very complex problems and offer a solution, because design is not specialized; it is about having a process and it is also about addressing a problem with that process and eventually coming up with solutions. We must always take the overall context into consideration. (pp. 85-87)

Trivedi³⁷ touches on the lacuna in design education in the foreword of Readings from Ulm in the late 1980s:

It is a major shortcoming in design education that, by and large, design teachers do not follow a minimum accepted level of state of knowledge. More *re-inventing the wheel* occurs in design education than in any other established academic discipline. While it would be unthinkable for a teacher in a course in electronics in a modern technological university to be unaware of IC chips, LSIs and VLSIS; and continue to teach about valves—an analogous situation is not uncommon in design education. How many design teachers are aware of the state of knowledge established in HfG, Ulm in fields

³⁷ Kirti Trivedi was a former Professor at the Industrial Design Centre, IIT Bombay, Mumbai. After a degree in Mechanical Engineering, he did postgraduate studies in Industrial Design at IIT Bombay, and the Royal College of Art, London. He initiated and founded India's first Master of Design Programme in Visual Communication in 1981. The same year, he worked as a UNESCO Fellow in Japan, under the guidance of Prof. Sugiura Kohei, and was introduced by him to the intellectual depth and the richness of Asian design. He has been engaged in research and documentation of the classical design traditions of India and Asia since 1984, with several publications on Indian design traditions. Besides teaching and researching design, he is active as a design consultant in the areas of graphic design, book design, exhibition and museum design, environmental graphics, and signage and product design. His current research is in developing appropriate interaction design solutions for Indian needs based on emerging technology possibilities, and in understanding Asian design as Founder Director of ADARG (Asian Design and Art Research Group).

such as Basic Design, Semiotics, Design Methodology, and Planning Tools? (Trivedi, 1989, p. ii)

Trivedi's thoughts are relevant even today. The idea that Trivedi discusses is essentially that design educators must continue to practice design even while teaching as design educators, must fundamentally understand what design in today's world is about to be able to impart that knowledge to students. Trivedi continues [that] "Nothing is easier in teaching design than to conduct set exercises developed decades ago." (p. iii). The inference is made that design education is not merely a development of skills, design is a holistic problem-solving process that requires deep engagement from both students and teachers. Trivedi describes design [as] "a holistic problem-solving activity, which is self-renewing and self-adjusting according to the differing social and temporal contexts." (p. iii).

The fundamental problem in developing a new vision, in curriculum design, is that old ideas continue to dominate. As Trivedi claims, nothing is easier in teaching design than to conduct set exercises developed decades ago, thus failing to recognise that change is needed to keep up with change. Echoing Jones' thoughts in current times on design education in India, Korjan said that the situation today is different, as there is now a greater awareness about design. However, Korjan continues [that] "unfortunately, this awareness does not automatically translate into a deeper understanding of design. This awareness is only about a certain kind of design and it is somehow dominated by the media and by what is in vogue (2014, p. 85)."

Certain basics of design will always remain, just as basic elements of any language will always be the alphabets. Similarly, many skills, knowledge, and theories in basic design education may remain constant. But with the advent of the internet, significant amount of information is now available online. Therefore, the amount of time spent on developing some of these basic skills can be reduced to accommodate additional courses that may be relevant in contemporary times. Once the student is made aware of the importance and the application of these skills in the design practice or design action, the student can spend as much time and even a lifetime to hone and improve upon these skills, practicing on their own during non-contact hours. This, thus opens up an opportunity to include aspects to the curriculum that would be relevant to present

times. There is little room for new ideas to incubate and grow if changes are not acknowledged. New visions must have space to evolve.

Perhaps this *deeper inquiry into what design is*, what the role of a designer is, and what the contribution of a designer is, is the implicit lacuna that Korjan attempts to point out.

Vijay Singh Katiyar³⁸, a textile designer and an acting Director of NID for a brief period, acquainted to performance-based discipline much like dance, music, and medicine, and claimed [that]

the learner has to get into actually doing things and understanding through sensory perception. All kinds of senses need to be utilised to gain knowledge and experience. And once our minds both consciously and subconsciously are attuned to these kinds of perceptions, they start processing information. Therefore, with regard to design education I always feel that it is the experience that comes first, while the philosophy or theory comes second; this is how the growth of an individual must be seen (Katiyar, 2014, p. 174).

Katiyar points out the importance of the *growth* of the Self, and perhaps we can deduce the suggestive gap that he directs our attention to the notion of the Self.

Of the many gaps that design educators have talked about at various forums, the ones that this thesis focuses on is the importance of introducing the notion of the Self for the designer in a Foundation Design Education, and a deep understanding of the Self-Other relationship.

According to the eminent design educator Balaram (2014), India as a nation has a long way to go, not just in economic development but in terms of human development. “We must sadly admit that in all these fifty years of design education, we have not been able to make any contribution to human development.” (p.46). Perhaps, this is the result of the absence of acknowledging the Self in design education. Shimul Mehta Vyas³⁹ (2014), echoes this lacuna

³⁸ Prof. Vijai Singh Katiyar, a textile designer by profession, is an alumnus of the National Institute of Design (NID). Katiyar is a Principal Designer at NID and has more than 29 years of experience in design education, research, and practice. He has served on the NID’s Governing Council and is a member of the institute’s Senate. He has been the Chair across various departments such as the Professional Education Programmes, Research & Publications, Integrated Design Services, Outreach Programmes, and International Programmes. Katiyar was also the Officiating Director of NID in early 2019 for a few months.

³⁹ Shimul Mehta Vyas has been involved in design education, research, and practice for the past 19 years. After graduating in Commerce and Law, Shimul specialised in Accessory Design from the Fashion Institute of Technology, State University of New York, USA. Subsequent to

in another way. According to Vyas, “Design should clearly recognise and adopt a developmental approach which is more empathetic and wholesome in nature and which is not purely guided by economics.” (p. 156). Vyas believes that design educators need to take a pause and articulate the role of design education in the context of changing India, and the profound impact that design can generate on the industry, society, and the Indian economy in general. Vyas observes [that]

Our way of looking at things is not always intrinsically Indian; we have not sufficiently understood the value of borrowing from our own culture and traditions. Recognising who we are as people and consumers, what is our way of life, what are our social cultural values, what are attitudes and aspirations, what meanings and associations we draw, and how we engage with products and services, are some of the important contextual Paradigms on which design must be anchored. In the absence of such inquiry, what we create may fail to connect with people at functional or emotive levels. (p. 156)

It can be deduced that, to include these very values and contexts, which according to Vyas, “need to form an important core of the design curricula in the country,” (p. 157) it needs the recognition of the importance of shaping the Self in a young design student.

Bhaskar Bhat, an industrial designer, shares similar concerns but with a different perspective. Bhat (2014) believes that education should be future focused.

We have to understand what a country will face in the next 20 years; this should be the future focus. We never seem to be ready. We are always looking over our shoulders trying to find a problem to address. It is true that our problems are massive and cannot be ignored. But the future that looms large is more frightening than the present. In the next 20 years, there will be a shortage of key resources. (p.166)

Since the time that design has evolved from products to complexed challenges, Bhat’s observations of the state of healthcare, and access to water and food arouses real concerns. “Our Healthcare delivery is terrible. Our preparedness for water-scarcity is pathetic. Food security

a brief work experience in USA and India, Shimul joined the National Institute of Design in July 1995 as faculty of Accessory Design under the aegis of the Apparel Design discipline. Since the past 16 years, she has been actively contributing to the cause of design education and institution building.

will be a serious challenge.” (Bhat, 2014, p. 166). Designers need to be sensitised to such present and future crisis. As educators, it is [a] “fundamental responsibility to inform our students of what is happening in the world. We need to lead by example. It is very easy to point fingers at the government; everybody does it all the time.” (p. 167). It is now more relevant than ever to introduce the Self and the Self-Other relationship in a Foundation Design Education to develop a sense of responsibility in students. Many concerns were voiced in public forums:

“We need to sensitise ourselves to each and everybody irrespective of where the person comes from. We must sensitise ourselves to the basic realities and fundamental realities of the country and human civilization in general” (Bholey, 2014, p. 146)⁴⁰.

“No one can become a designer without the actual experience of doing things & observing one’s surroundings and environments” (Sethuraman, 2014, p. 57)⁴¹.

“Design is mainly a collective process. Team work can only be taught in design institution. The designer is an ideator, an assembler, or a synthesizer. Designer is very important, but not any more than other professionals. This humility reduces conflict while working with other professionals on a project. This quality needs to be developed in design colleges” (Balaram, 2014, p. 48).

Kapadia (2014)⁴² supports all these views and recommends *Looking inwards* and [that],

to develop one’s Self, demands having knowledge of a wide range of subjects—deep, intense perceptions in many subjects. If you are unable to strike a balance between these qualities, you cannot go any further. Students should put in sincere efforts and have that ferocity to learn... Students should have sacred goals in life. (p. 63)

Kapadia sums up the Self for the design student as consciously cultivating the right attitude. The student needs to be inspired by philosophy, art, music, etc., and be a dreamer, achiever,

⁴⁰ Mihir Bholey is a senior faculty of Interdisciplinary Design Studies and the coordinator of PG Science and Liberal Arts at NID PG Campus, Gandhinagar. He teaches various subjects of Liberal Arts covering the broad area of humanities and social sciences, which range from Comparative Aesthetics to Narrative Theories, Semiotics, Approaches to Indian Society, Public Policy and Design, Material Culture, Urbanization, and Design and Research Methodology, to name a few.

⁴¹ S Sethuraman, is a post-graduate in Industrial Design from NID Ahmedabad. He has been teaching for almost 50 years. He teaches a wide range of courses in Product Design and also Creative Thinking Methods.

⁴² Sen Kapadia, an architect by profession, was associated with NID as faculty. His philosophy and approach to design is explained in a simple statement ‘Design of a habitat has to be an experience of living, with the building conceived as a body of confined space that inspires human activity’.

innovator, and be a fearless seeker. Faculty too need to possess qualities of a philosopher and spiritualist.

Concerns on design education are many and varied but it is safe to claim that central to all concerns is shaping the Self for the designer. A holistic development of the Self in design education can lead to a better understanding of the Self-Other relationship in the design processes.

4.3 Humanistic Education: The Self-Other Relationship in Design

Education systems need to evolve with time and the everchanging needs; they need to respond to context. Education cannot be complete unless it is comprehensive. Design educators need to understand that ultimately knowledge must be seen in its entirety, and should not be compartmentalised as personal needs and interest. Katiyar (2014) points out [that] “the education system has not evolved along with time and ever-changing needs.” (p. 173). He goes on to state:

We need to be contextual about the core approaches and value in a design curriculum. I believe that the Universities and Institutions have also not kept pace with time in evolving the systems. The national needs in terms of design include: How to utilise the resources and processes that are available in our country? How do we make design efficient and effective? How do we make design reach our diverse mass of users: the illiterate, the underprivileged, and the rural populous? Only if we consider all these aspects, can the product or service be termed as national. Design education like any other kind of professional education is context-based. Therefore, the curriculum for design education has to be dynamic. (p. 173)

The question that design educators in India are posing range from whether design education is about learning skills to whether it is a process or is it a principle or is it a value that needs to be taught? According to Sharma⁴³ (2014):

⁴³ Sudhir Sharma is the founder and chief executive of INDI Design. Sudhir holds a degree in Visual Communication Design (batch of 1983) from the National Institute of Design, Ahmedabad. Sudhir is a founder and President of Designindia, an online community of professional

Design education has become skill oriented. Students are taught about 3D applications, web design, and the environment, but they do not talk about life or how people live and why do they live like that. They get to discover a lot of things only when they become designers. (p. 324)

Sharma goes on to explain the need to see the big picture; the environment as the complex system, where eventually all small systems will gradually fit:

As a designer, I believe that we have to internalize the fact that when we create something, we create disturbances, this is the very case with any industry which starts producing something, and in the process, aggravates pollution. He might make green industry but the fact remains that making a factory itself is a destructive phenomenon. Take it for granted that nothing that we ever designed will be non-destructive. The moment something has been created, something else has been destroyed in the process. However, we should focus on how one can minimise it, how one can do that with responsibility. I do not think that we should be commissioned a Green Project; this project has to be part of all processes. We should take this aspect into a process otherwise we cannot create. Anybody who creates anything must be aware of the environment, it is not just the responsibility of a designer, but it is responsibility of the entire society. I think that is where the role of Institution comes in, which questions what our responsibilities are and how do we teach students to be responsible towards the natural environment (Sharma, 2014). (p. 325)

Manikoth⁴⁴ (2014) echoes this ideology, suggesting a change in the educational systems. He argues [that]

those little boxes which have been created in which one likes to fit, for example, one says, ‘I am an industrial designer, a graphic designer or ceramic designer,’ creating a major disconnect between professionals. But if it is patterned on a larger life system

designers in India. He was on the jury panel of the inaugural Cannes Lions for Design, Adfest, Spikes Asia, Dutch Design Awards, Design Turkey. He is a member of the India Design Council, constituted by the government of India, and is an alumnus of the World Economic Forum (WEF) on the Global Council for Design. He is a member of various design, innovation and management council boards of institutions. He is the publisher and editor-in-chief of the POOL Magazine, India's first magazine focused on design, innovation and creative sectors.

⁴⁴ Rajeev Manikoth, an independent graphic design professional and an alumnus of National Institute of Design, Ahmedabad, has been practicing since the early eighties and has been discoursing on the relevance of courses in design in the current context.

which is completely enmeshed and intertwined, one will find that each designer can complement the other. (p. 363)

Manikoth expands this suggestion with another aspect to a choice-based system, somebody who wants to learn and become an eventual professional. He elaborates with the example of a medical professional:

For example, a doctor who has got a great interest in the idea of design, comes in for two or three courses, probably does not practice design, but spreads the idea of design. All this is critical in terms of people getting more knowledgeable about what design is all about.⁴⁵ (p. 363)

In India, design needs to experience a movement from product to process, from design solutions and products to a collaborative process between users and designers, which in turn, generates meaningful outcomes (Bhattacharya, 2014). This is a significant change from the way design has been traditionally viewed. According to Bhattacharya⁴⁶, so far, the Indian design context has never really been looked at meaningfully. “What we have been doing all this while is looking at a preconceived notion of what design should be.” (p. 398). Design awareness and design thinking, which is currently confined to the products we make, must shift to other areas. What is presently within the domain of the Ministry of Industry, Government of India, must pervade across all sectors. Bhattacharya argues that:

Every ministry should set up its own design cell. They should set up their own institutions for different kinds of design learners and must address their needs. We can no longer ignore the ethos of India. We have sufficient design educators for the urban and global market. We need educators for other areas. (p. 313)

The environment, as perceived by design in India, is concentrated around the metropolitan cities. According to Bhattacharya, design education needs to include the rural sector into the curriculum in a more inclusive manner that goes beyond just a course in Environmental

⁴⁵ This suggestion is implemented in a pilot study of a Foundation Curriculum in Design that responds to the current context. This is discussed in Chapter 6.

⁴⁶ Deepankar Bhattacharya had his earliest education in design at National Institute of Design, Ahmedabad, as a member of its first undergraduate batch and has since, practiced and taught it in various settings. As a strategic design consultant, he partners with clients in developing user-centred problem discovery, and solving processes.

Perception in a Foundation Education. The transfer of design as taught and practiced in Europe and the United States to India, has worked quite well as a profession in metropolitan cities due to the existence of a global lifestyle there.

Design principles and approaches that work in New York could very well work in Mumbai or Delhi. However, the moment one steps into small towns in India such as Bareilly in Uttar Pradesh or Kochi in Kerala, one will find that the typical design approach entirely breaks down. This has a lot to do with the fact that the mindset of people who will be using the products and services created on the basis of Western models of design, might be completely different from the mindset of designers who have made those products.

The ground reality in Kerala is not the same as in Rajasthan or in Arunachal Pradesh, be it in terms of habit, social interactions, or issues such as birth, marriage or death. There is a lot of variety and innumerable shades to each of these aspects.

If design cannot embrace this variety, then it will turn into a mediocre average problem-solving process and design will lose the game even before it starts. This is where we have gone wrong. This is also one of the reasons why design has not seen widespread acceptance in India (Bhattacharya, 2014, p. 308).

It is essential to question the role design can play at the grassroot level for addressing local needs. One is not talking about only the design of a product but about a process. The question thus arises, what changes need to be made to design education for the rural sector to be included in design? Bhattacharya too echoes these queries:

We need to become a tool for people who are looking at the whole process differently. We do not know how change will happen. We need to debate on this. What will be the foundation course for design in school curricula at the village level? What should be the other inputs given there? It will be a different schooling process, which is not quite the one we have been following in urban India. The basis of foundational learning needs to be debated not just among ourselves but with all stakeholders. We have sufficient design educators for the urban and global market. We need educators for other areas. (p. 313)

A foundation education that includes the rural sector, would need an approach which needs to be different from the education that India has adapted from the West (Ranjan; Balaram; Bhattacharya; & Manikoth, 2014). To impart an environmental-centric foundation education would certainly require a relook at the curriculum. To sensitise students to varied environments would entail developing abilities in them to grow sensitively and a holistic Self.

4.4 Humanistic Education: Empathy in the Self-Other Relationship

Seven decades after independence and six decades since the start of a National Institute of Design, majority of the Indian populace still live in rural areas. In spite of some effort made, design has not been able to bring about any difference to it (Balaram, 2014). According to Balaram:

Even in these present times the humble sickle, the age-old the back-breaking paddy planting done by bending over in knee-deep water—all continue to remain a common feature across the country and no improvements are seen in them. The problem persists and is worsening day by day, on one hand, more design institutions are opening up with an increasing number of students applying, however, the quality of these institutions is rather poor. (p. 47)

India is the world's second largest populated country—1.2 billion and still rapidly increasing! This population explosion is not a small thing to cope with. Most of the precious resources are too stretched and probably education and higher education could not get the priority because a big chunk of the population is ill, starving, or dying. We still have a long way to go, not in terms of economic development but in terms of human development. We must sadly admit that in all these fifty years of design education, we have not been able to make any contribution to human development. (p. 46)

Clearly, design education is unable to impart among the students, the ability to be humble and the ability to empathise with the Other. This lacuna evidently needs to be woven into the curriculum. Travel and observation are the most essential elements for design education to

attempt to be one with the Other. Balaram illustrates the importance of humility and empathy with Gandhi and Eames:

History reveals that two great personalities Mahatma Gandhi and the renowned American designer Charles Eames had travelled across India to better understand the country. When Mahatma Gandhi left South Africa forever and came back with an intention to do something for India, he travelled extensively within the country. When Charles Eames was asked by Pandit Nehru, the then Prime Minister of India, to propose an appropriate design activity for India, he said that he would like to go around the country before giving any proposals. I think there is a great wisdom behind why these people travelled because the kind of understanding and focus one gets, particularly in a complex and diversified country such as ours is unparalleled. Thus, design students will benefit enormously from the experience gained by travelling around the country and meeting people. (p. 48)

Balaram goes on to share the story of Henry Ford to demonstrate this humility of a company head:

In this context, I recall Henry Ford, founder of the Ford Motor Company, being asked in an interview as to how he felt as the inventor of the automobile, a marvellous gift to the society. Ford smiled humbly and said that he could hardly take credit for it. He had not invented rubber, he had not invented steel, he had not invented the wheel, he had not invented the horn, he had not invented the engine—he did not invent these; somebody else before him did. All he had done was to put them together and somebody called it a *car*. So how could anyone say it was Ford's gift to the world? Ford was at the most, an assembler. This applies to the designer too. It is important to keep in mind that a designer is not God. The designer is an ideator and assembler or a synthesiser. The designer does not have a magic wand which produces solutions out of the blue just because he or she deals with creativity. It is essential to understand the correct role of a designer. Of course, the designer is very important but not any more than other professionals. This humility reduces conflict while working with other professionals on a project, this quality needs to be emphasised in design colleges (2014, p. 48).

Humility and empathy are qualities that students need to consciously begin to develop right from the beginning of their design education. This lacuna can certainly be addressed by introducing the notion of the Self for the designer and the Self-Other relationship in the Foundation Design Education.

4.5 Conclusion

The future focus should be on what the nation will face in the next 20 years. Even though the problems today are serious and cannot be ignored, the future will be more frightening than the present. In the next 20 years, there will be shortage of key resources if human beings do not take responsibility⁴⁷. The United Nations has identified 17 Sustainable Development Goals (SDGs), also known as the Global Goals, which were adopted by all the United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030.⁴⁸ Many design schools include these complex problems in their curricula, though they are addressed in the senior years. It is critical, however, to sensitise design students early in their education of the problems among human beings, and enable them with skills, knowledge, and abilities to respond to the problems of the future.

As already stated, the notion of the Self and Other in the context of west and that of India has been discussed in the previous chapters, both in the modern professional discourses and education. Both, design practice and design education, have evolved from the past till the present times. It is necessary to trace the abilities that students develop, while designing the course in the modern period and in the present state, with the objective of identifying the lacunae in design education in context to the contemporary design. Design, which has evolved over the last few decades, can be *commercially-led*, *socially-led*, or *led-by-the-other* in the present times (Kasturi, 2007). Design has always emphasised the needs of the people (Eames, 1963; Papanek, 1985; Ranjan, 2007; & Balaram, 2014). However, it is more pertinent today to maintain a focus towards real needs. Students of modern design education need to be trained

⁴⁷ http://www3.weforum.org/docs/WEF_FutureAvailabilityNaturalResources_Report_2014.pdf

⁴⁸ <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>

and sensitised to these real needs of the people. In a world where design is ubiquitous (Design Manifesto, 2014), students need to develop skills, knowledge and specific abilities that would prepare them to engage in humanistic design activities of a wide range.

The present chapter projects a strong concerns of design practitioners and educators for the relevance of a Foundation Design Education that has sustained itself since the genesis of the programme in India. These excerpts support the presence of a lacuna that the thesis attempts to establish and the importance of introducing the understanding of the Self and the Self-Other relationship in foundation courses. The thesis claims that to conduct a humanistic Foundation Design Education, one needs to begin with Self for the designer.

Chapter 5

Design Educators Speak: Abilities Identified for a Contemporary Foundation Design Education

5.1 Introduction

The Foundation Design Education courses of India and the West are reflective of the extent of the development of the notion of the Self and the Other in these regions respectively. In order to design a course that is relevant to the current and future needs, it is necessary to clearly define its learning outcomes for the students. And the course material should be put together only after the learning outcomes have been identified.

A Foundation Design Education provides the essential design theory and techniques that are required to build the competency in students. In the educational context, it is important to develop a foundation course to develop the core abilities that are required for the students to proceed.

The previous chapter focused on the concerns of design practitioners and educators in the context of a Foundation Design Education. The study includes extensive engagement with experienced designers who participated in various forums of public dialogues and conferences on design education, and the interviews are published in the section, *Design Education in India*,

in this report. Excerpts from these and interactions with design educators and professionals have been used to argue that there exists a lacuna—that of acknowledging and understanding the Self and the Self-Other relationship in foundation courses. The chapter includes interviews of design educators who share an all-encompassing concern for the field of education in design, as one, which contributes to the development of concepts relevant to the design education in the present Indian context. An overarching issue concerning the field of education in design is one of relevance.

The present chapter will focus on the abilities that need to be developed in a Foundation Design curriculum. It examines the pedagogy that was followed in the Foundation Design Courses in the modern period in both the western and Indian contexts. The study also includes extensive interviews with a focused group of design educators at NID and IDC, IIT Bombay. The interviews are transcribed and analysed with the objective to seek abilities that are suggested as critical for Foundation Design students by these design educators.

5.2 The Foundation Design Education Pedagogy

5.2.1 Design Education in the Modern Period

The development of courses in a Foundation Design Education in the Modern period started with the establishment of the Bauhaus. The approach for the development of the course and the curriculum varied among the educators at Bauhaus.

With the fundamental unity at its core, Walter Gropius developed the design course at the Bauhaus. The Bauhaus workshops resembled laboratories for working out practical new designs for the present-day articles and improving models for mass-production (Gropius, 1965). The objective of Gropius was to eliminate the various drawbacks of the machine without giving up the advantages of it. There was an aim to realise the standards of excellence and not create *transient novelties*. He stated that art cannot be taught or learned, but a thorough knowledge of its principles and of the sureness of the hand can be, which is necessary for both the artisanal genius and ordinary artisan. According to him, there was a prevalence of an artistic proletariat who were brought up to the professions of architect, painter, sculptor, etc., without the requisite

training to give it an independent artistic preference and to enable it to find its feet in the struggle for existence. Thus, such skills that are developed are unaware of the realities like the technical progress and commercial demand. Gropius, thus, had developed the new format of the course at Bauhaus considering the new technological advances, economic situation, and the social background during the modern period.

Bauhaus under Gropius believed in the proper balance of the faculties in order to develop the quality of creative work. According to Gropius, there is a necessity to train all of these equally since all the abilities need to be developed, and for it a manual and mental instruction in design is given simultaneously to the students. The curriculum developed by Gropius consisted of: Practical Instructions and Formal Instructions (Gropius, 1965). Gropius had identified the students' needs, and their expectations and abilities that were needed to be developed by the end of the course. He emphasised on the change of the existing structure and proposed a new course outline. The full course in Bauhaus covered three periods: preparatory instruction, technical instruction and structural instruction (Gropius, 1965). The most significant one was, the Bauhaus Foundation Course, the *Vorkurs*. The Bauhaus *Vorkurs* had different coordinators at different locations. In Weimer, it was under the supervision of Johannes Itten who wrote the original *Vorkurs* emphasizing material discovery and personal expression (Neumann, 1972). Itten emphasised on the unusual usage of common materials. The course aimed to liberate the creative forces and thereby, the artistic talents of the students. It was students' own experiences and perceptions that produced authentic work. The students were expected to discard conventional ideas and perceptions and acquire the courage to build the work of their own. Here, Itten's objective encouraged the idea of knowing and understanding the Other, to create the design by the students (Itten, 1975). Secondly, Itten's aim was to make the student's choice of career easier with a proper training and development of abilities. He introduced exercises with materials and textures which could be relatable by students. Lastly, the basic course presented the principles of creative composition to the students for their future careers as artists. The objective and subjective problems were taught to be addressed through the laws of form and colour. The approaches of Itten were towards development of the means of artistic representation and introduction of an individual response in students of diverse temperaments and talents for development of the creative ability. According to Itten, individuals with different

talents react quite differently to the means of expression, and develop along different ways accordingly (1975).

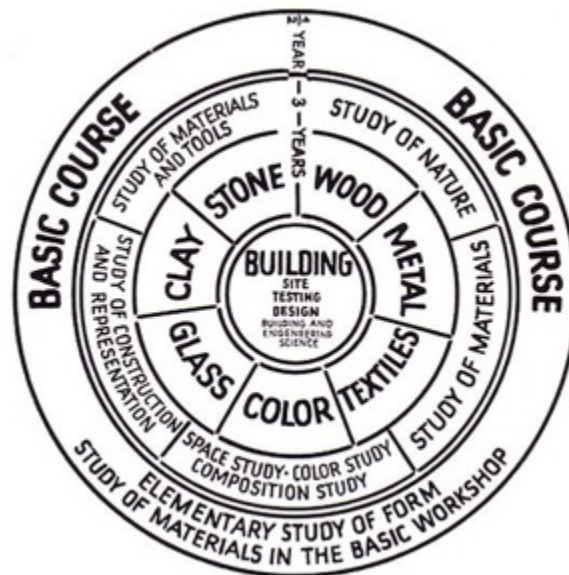


Figure 5.1

Syllabus of Weimar Bauhaus, 1923, <https://www.nda.ac.uk/blog/100-years-of-bauhaus/>

Itten's objective while developing the course was clearly towards the development of the creative Self of the students of design who would not follow the traditional or preconceived notion of an object, and would rather understand and create it with an individual comprehension of the subject.

In Itten's assignments, students were presented with discarded materials such as wire mesh, cardboard, newspapers, matchboxes, phonograph needles, and razor blades, and instructed to improvise something. Other assignments involved the study of materials. Wood, feathers, mosses, and hides had to be looked at, touched, and drawn until they were known by heart and could be created from memory. The idea was to transcend realistic reproduction to achieve an interpretative design instead of a mere imitation (Neumann, 1972; Itten, 1975; Behrens, 1998). Itten developed a general theory of contrast, the main theme of which was the *clair/obscure contrast*, as the basis for this course. This was treated in various assignments: first in the form of checker-board patterns, then in abstract, and finally in realistic works. Classical pictures were also analysed with the same aim in mind. By dividing it up into squares, the student was induced to work through the entire area of the picture with awareness, and to make a new decision each

time regarding the respective grey value (Itten, 1975; Saha, 2005). It is said that this method was influenced by Friedrich Froebel's pedagogy of *education through play*. It was his earlier training as a primary school teacher that led to the adaption of the *child-based* techniques for the training of the professional art student (Neumann, 1972; Raleigh, 1968).

His approach was, however, not approved by Gropius at Bauhaus, which ultimately led to the discontinuation of Itten's teaching in Bauhaus. Itten's methods were more inclined towards the knowing of the Other, without letting any previous notions to interfere with the designer's thinking and develop the abilities to identify the Self of the designer to acquire the genuine product. Yet, his methods did not adhere to the concept of universality followed by Bauhaus in the modern period. Thus, the first basic course of design and assignments by the students were mainly to develop the abilities of comprehension and creativity, which ultimately explored the arena of the concept of the Self and the Other. Itten's course structure and assignments can be observed as addressing the Self and the Self-Other relationship. His concept of education to form the creative individual was followed later throughout the world.

In the year 1923, László Moholy-Nagy took charge of the basic course, the *Vorkurs*, and shifted the focus from artistic to technical issues. Rationality replaced romanticism and sensitivity to the nature. This Hungarian Constructivist⁴⁹ joined the Bauhaus Weimar as the youngest master of form, supporting Walter Gropius in his orientation towards the new unity of art and technology (Krisztina, 1985; Burke, 2014). Moholy-Nagy adopted Itten's teaching method in the basic course by asking students to carry out independent studies of material. He did not want to promote the pure individuality of his students, but to systematically introduce them, through a synthesis of the senses, to the technical foundations of statics, dynamics, and equilibrium. Moholy-Nagy's lessons on the surface, or the plane, focused on the medium of collage (Krisztina, 1985). Moholy-Nagy rewrote the *Vorkurs* story with an emphasis on integration of art, technology, and industry. Joseph Albers assisted Moholy-Nagy in the teaching of the basic design course (Borchardt-Hume, 2006; Krisztina, 1985; Adam, 2005). Moholy-Nagy shifted the emphasis from artistic issues to technical ones and developed

⁴⁹ Constructivism was an artistic and architectural philosophy that originated in Russia beginning in 1913 by Vladimir Tatlin, a Russian and Soviet painter, architect and stage-designer. This was a rejection of the idea of autonomous art. He wanted to *construct* art. The movement was in favour of art as a practice for social purposes.

exercises on construction, balance, and materials. He advocated integration of technology and industry into the arts, a viewpoint fully explained in his book *Vision in Motion* (1947). Moholy-Nagy believed in the Constructivist theory that art was a potent force which could teach workers to live in harmony with new technology, thus implying an advocacy of the balanced Self for the designer—one between human and technology.

Moholy-Nagy's approach to the basic course at Bauhaus was similar to the Rodchenko's programme on the design of metal objects. Alexander Rodchenko was a revolutionary artist, an art theorist and educator, and began teaching at the *VKhUTEMAS* (Higher State Art-Technical Studios) in Moscow in 1920. A Russian Constructivist artist, he was both politically and aesthetically revolutionary (Krisztina, 1985). In the basic course of Moholy-Nagy, the students dealt with the conditions of equilibrium, motions of a body suspended at a single point, and the stability and mobility of various constructions. Though the characteristics of the materials were treated by Albers following his own method of instruction, it was Moholy-Nagy who was in charge of the whole department (Krisztina, 1985; Droste, 2002). The students at Bauhaus were made acquainted with the problems of Constructivism by Moholy-Nagy along different lines from the analysis of the earlier works of art by Johannes Itten. But he did not follow Rodchenko's practice of designing only functional objects. Moholy-Nagy, in accordance with his own theory of creation, encouraged students of the basic course to work with and create objects from wood, aluminium, glass, wire and other materials. He emphasised on the materials that were not merely functional. Moholy-Nagy was primarily concerned with the students' knowledge of three dimensional, sculptural relationships and tension. As reflected in his creation of the *Nickel Sculpture*, his idea of a kinetic-constructive energy system, he had expectation from the students to develop the ability to realise their own ideas, without imposition of his own will upon them (Krisztina, 1985).

The new course developed by Moholy-Nagy addressed development of the ability of creativity of individual students, but instructions given to students were more on technical knowledge for the construction of the object. Unlike Itten, he did not lay emphasis on the development of the understanding of the Other and the development of the Self to be creative for producing new ideas. Though he did not impose his ideas on his students, the significant emphasis on the technicality of the production of the object and knowledge of the material towards the latter half of his teaching career appeared to develop a more technically-skilled Self for the designer.

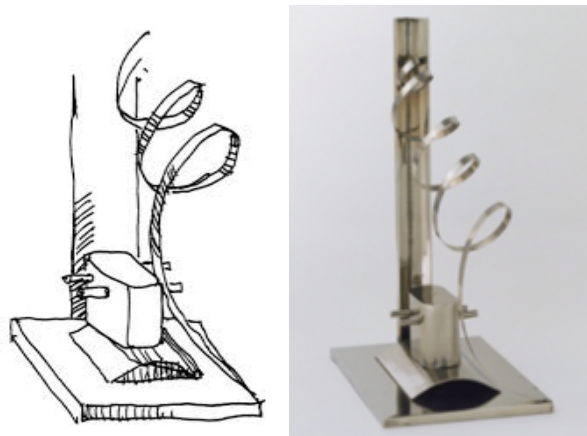


Figure 5.2
Nickel Sculpture by László Moholy-Nagy, 1921. *Nickel Plated Iron Welded* (35.9cm x 17.5cm x 23.8cm).
<https://www.moma.org/collection/works/80832>

Thus, it is seen that Moholy-Nagy diverted from the original *Vorkurs* created by Itten where the notion of the Self and the Other was addressed to a certain extent.

Similar approach is seen in the teachings of Joseph Albers, who led the basic course together with László Moholy-Nagy. From 1928, Albers became official leader of the preliminary course. Albers was responsible for familiarising the students with craft techniques and appropriate use of the most important materials. Albers gave the materials *Werkslehre* (German for *Work Teaching*) for the freshers, which he extended to up to 18 hours a week. In his lessons, he used simple tools to examine the material properties of various materials such as metal, wood, and paper. In the foreground was the development of spatial structures in which the connection of material, construction, function and manufacturing/technology should be experienced with the goal of the best possible performance with minimum material, energy and time—a school of invention. He encouraged students to learn through the shared experience of interacting with their peers, rather than relying solely on the teacher's instruction, which became a fundamental precept to Albers's approach as an educator. This approach manifested itself in the form of group critiques, when Albers joined Bauhaus as an instructor. During these group critiques, Albers emphasised upon the students the necessity to test the results by discussing and defending them as a group. He further stated that individual and group critiques require a well-founded justification of the choice of material, procedure, and form (Wick, 2000; Saletnik & Schuldenfrei, 2009).



Figure 5.3
Josef Albers and students during a critique at the Bauhaus in Dessau (detail), ca. 1928–1929.
https://monoskop.org/images/1/10/Josef_Albers_Minimal_Means_Maximum_Effect_2014.pdf

The necessity of learning through a collective dialogue encouraged students to know the other, even though not through a direct contact. The shared experiences and dialogues, however, helped these students in understanding the idea of the Other for producing a genuine product. This discursive approach was perhaps the beginning of a process of developing an understanding of the Self-Other relationship.

As a Bauhaus educator, Albers approached this role with characteristic intensity, immediately removing the expressionistic tendencies that had characterized Itten's teaching of the course. Instead, Albers instigated a methodology categorized by problem solving in which no single method existed for the resolution of the exercises, encouraging students to find their own solutions for the given tasks. Under the basic course, Albers provided his students with two approaches to studying the functional and utilitarian aspects of the physical materials with which they were working. One of the approaches was the Material Studies, where the *Vorkurs* students of Albers explored elements of a material's external appearance. In examining the distinct characteristics of a material's surface for themselves, students experienced the systemic ordering of materials into suites with rising or falling values; tactile scales from hard to soft, smooth to rough, warm to cold, or hard-edged to amorphous, smoothly polished to sticky-absorbent (Wick, 2000; Saletnik, 2009; Healy, 2016). On the other hand, Albers also trained his students to investigate the internal properties of materials, exploiting their structural possibilities and limitations. Working with a wide range of materials—paper, wire mesh,

corrugated cardboard, glass, plastic, sheet metal, tin foil, and matchboxes—students were encouraged to examine the dormant possibilities of these substances. These exercises helped the students in learning to see both statically and dynamically, and further encouraged students to learn experientially through their own exploration and practice, placing emphasis on the need for the intimate contact with the material (Borchardt-Hume, 2006; Saletnik, 2009; Albers, 2014). This approach of Albers made students connect with design but not have an understanding of the Other for whom the object was designed. Instead, the emphasis was on the connection with the material used. It appears that, to a great extent, the identification of the Self was encouraged, but it was in context of the material used *as the other*.

In the initial assignments, Albers had his students begin their exploration of materials by studying the three-dimensional potential of paper. By folding and fastening paper in ways that would place an emphasis on the edge while testing its performance under pressure and tension, the resulting creations were varied and diverse. While there was no one way to respond or approach each exercise, Albers encouraged students to plan their folded paper models in advance, ensuring that the economy of the form was measured in relation to the anticipated expenditure of material and labour. The textural and malleable properties of this material were also explored through repeated folding to create prismatic structures and fluid, organic forms. By pushing the *Vorkurs* in these new exciting directions, Albers enabled his students to explore the hidden three-dimensional aptitude of paper. The resulting forms from these studies inhabited the realms of positive and negative space, thus revealing the latent potential at odds with paper's traditional applications. The objective within the *Vorkurs* of Albers was not to create finished works of art, but to explore the duality and latent potential of materials (Wick, 2000; Albers, 2014).

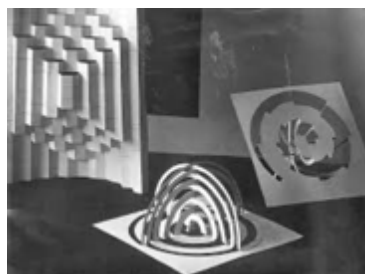


Figure 5.4

*Vorkurs Under Josef Albers: Turning Two-Dimensional Sheets of Paper Into Three-Dimensional Forms.
Material Exercises in Paper—Stability and Construction Exercises Without Waste.
https://monoskop.org/images/1/10/Josef_Albers_Minimal_Means_Maximum_Effect_2014.pdf*

Thus, Albers's course investigated the subject itself, the experience and understanding of the characteristics of the material and their variability. The greatest possible economy in the method of construction and use of material were indispensable prerequisites. Structural and visual possibilities, which were not considered earlier, were tested. This approach encouraged development of the ability of creativity in students. Even the Other is experienced in an indirect way through discussions and sharing of ideas and experiences. The emphasis, however, was placed more on the material and work process in the basic course, rather than in the development of the basic abilities. It could well be conjectured that the Self-Other relationship may have been between the designer and the material.

Thus, the basic course in the modern period itself went through several changes with the commissioning of different instructors to the *Vorkurs* in Bauhaus. The course and the assignments and exercises that the Bauhaus instructors had constructed for students were activities that were intended to develop different abilities. Some of the abilities that were developed were understanding of the contrasts in marks, tones, colours and materials; ability to develop material manipulation skills or the ability to work with hands; ability to handle a wide range of materials, understanding their characteristics and variability; ability to understand the subjective and objective qualities, the scientific testing of material and the existence of the fourth dimension (time); and the ability to understand and test three-dimensional sculptural relationships and tensions of materials.

The summary of the abilities that the instructors Itten, Moholy-Nagy, and Albers tried to develop did not reflect much on the development of the understanding of the Other for the creation of the object. There is however, a common focus on the development of the creativity of the individual Self. The abilities to develop the relationship between the Self and the Other is not directly addressed in the basic course of the Bauhaus. It is the notion of creativity that has been focused upon in the *Vorkurs*. The structure of the Bauhaus *Vorkurs* was reflected in the new design school HfG, Ulm whose first director, Max Bill, was one of the students of Bauhaus. The HfG, Ulm that started in the post-modern time departed from the principles of the modern design and has continued to survive till the present time and influence design education.

5.2.2 Design Education in the Late-Modern/Post-Modern Period

Design education in the latter part of the twentieth century can be explored with the examination of the HfG, Ulm. The Basic Course or the *Grundlehre* at HfG, Ulm was an introduction to the philosophy of HfG. In the Basic Course, structural thinking was promoted and basic methods were trained with the philosophy of minimalism and purism (Spitz, 2002; Curdes, 2011). The Basic Course focused on non-object-oriented design and training of the hand and eye, with a number of assignments innovated by the teachers.

As the most progressive and influential institute of design of the twentieth century, this basic or the preparatory course at the HfG, Ulm was adopted from the Bauhaus structure. Studies in the institution began with the propaedeutic year known as the Basic Course, and was mandatory for students irrespective of their previous qualifications or the intended duration of study. The Basic Course acted as a qualification ground that took out students who did not fit into the HfG, Ulm philosophy. Abandonment of the Basic Course started in the 1959/1960-academic year and at the start of 1961, the term Basic Course was replaced by First Year. The main objective of the Basic Course was to prepare students to work in the departments from second-year onwards, especially in terms of the method along with the purpose, to bring together the knowledge of the students from diverse educational backgrounds to a uniform level. The second aim was to familiarise students with the fundamental challenges of the technical age. It was, however, not confined to the daily/practical business, but endorsed and encouraged a focus on the big picture in society, politics, industry, and culture. Lastly, there was a practice of collaboration between the subjects and teams. The basic course coped with diverse students challenging the various preconceptions attached, and socialising the students to the school's culture. The course created a common ground for design, language, and vision, before students specialised in the areas taught in the school (Krippendorff, 2008).

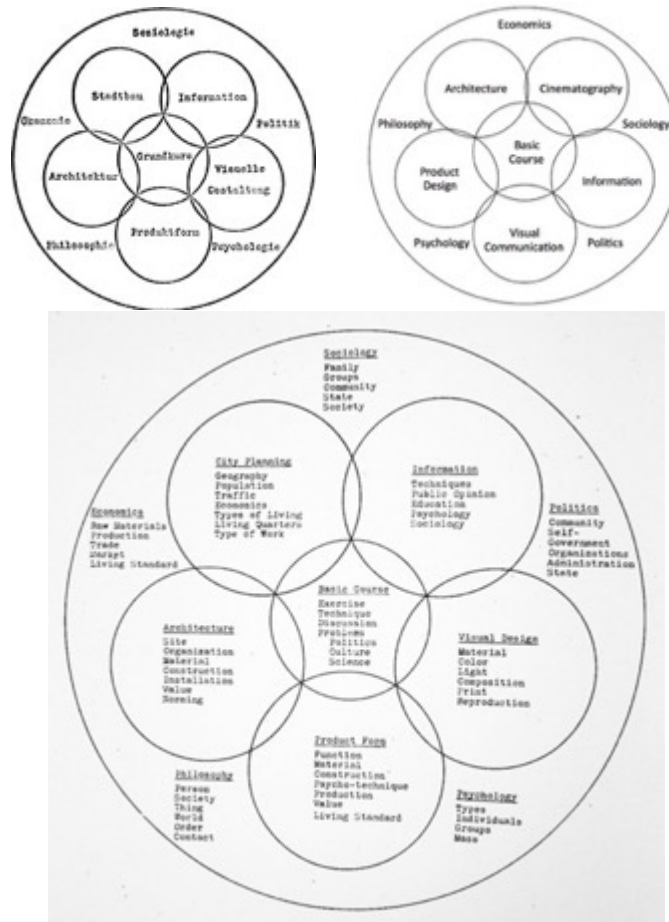


Figure 5.5

This Diagram from a 1951-Concept-Script Illustrates the School's Universal Approach (Scholl 1951).
https://www.researchgate.net/publication/269574636_The_Information_Department_at_the_Ulm_School_of_Design/figures?lo=1

The aim of the Basic Course or *Grundlehre* at HfG, Ulm was to promote equality in the thinking process of the students. In this way, students have same knowledge while identifying the Self to be creative. Discarding of the preconceived notions by students is similar to the ideas of Itten. The aim of collaboration between the subject and team addresses the Self-Other relationship to a great extent, though not explicitly, which can be compared with the exercise of Moholy-Nagy of collaborative learning.

Classes at HfG began with the first Basic Course in 1953 by Walter Peterhans. Josef Albers and Helene Nonne-Schmidt directed the course after Walter Peterhans (Spitz, 2002). In the Basic Course, faculty took classes and gave identical assignments, with the aim to introduce rigor and imagination; to build a creative paradox. One such faculty was Helene Nonne-Schmidt, who

had also been at the Bauhaus and taught colour theory at the Ulm. She used water colour as a medium, and systematically over-painted overlapping areas with basic colours, creating systems of different hues. Students who were unwilling to discard their preconceived notions, even with patience and extreme care would not be able to create the effects of combining primary colours to create secondary and tertiary colours, and realise whether they had succeeded or failed the exercise (Krippendorff, 2008).

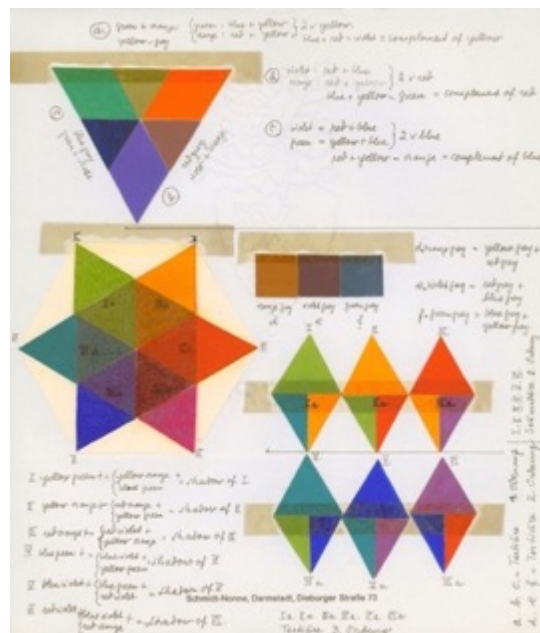


Figure 5.6
Helene Nonne-Schmidt's Systems of Different Hues
<https://twitter.com/ublibraries/status/921026409178341376>

The assignments or exercises of Nonne-Schmidt developed the ability of the students to give up their preconceived notions and patiently create a work with the use of new techniques and medium. Krippendorff (2008), however, is of the notion that her exercises made the idea of artistic self-expression irrelevant. It can be argued that though she was imposing her style in the work, the whole idea of the exercise in the Basic Course was to prepare students for the long run in the design education and practice. It can also be agreed that though certain abilities were developed that adhered to the philosophy of the school, students were cajoled into opening their minds, develop the ability to be patient, and disciplined to pay attention to details.

The Basic Course was also taught by Hermann von Baravalle, a master and inventor of geometric constructions on paper and its three dimensions. Baravalle's ideas were different from the traditional Ulm preferences for rectangular shapes. He gave assignments to draw patterns, with black ink on white paper, using ruler, compass, and string. Students created eclipses, hyperbola, hyper geometric curves, etc., with certain principles and after some obligatory exercises, students followed their own principles and explored different forms.

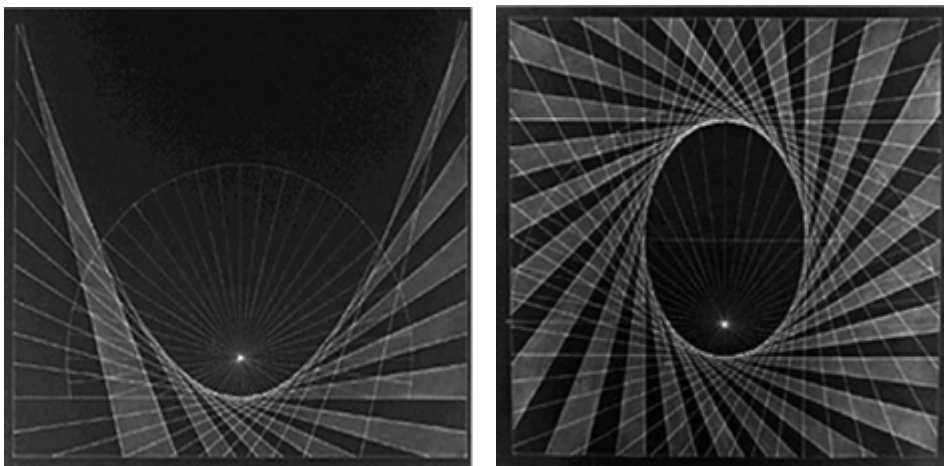


Figure 5.7

Exercises from the Course Taught by Hermann von Baravalle (1955-56). © HfG-Archive, Ulmer Museum, Ulm

Such exercises promoted self-discipline and appreciation of complex geometric regularities which were common to solving several design problems (Krippendorff, 2008). But similar to Nonne-Schmidt's, Baravalle's ideas also did not address the Other, although there was the freedom of the exploration of the Self and discovering the creativity of the student. The Self was explored with repeated understanding of the principles of art and design. Another instructor, Herbert Ohl, pursuing industrialised building, gave assignments to students of the Basic Course to design two- and three-dimensional structures using just two kinds of elements (Krippendorff, 2008). Here too the emphasis was on training and developing the ability to use the principles of drawing and design.



Figure 5.8

Communicating to the Other using Typography by Eugen Gomringer
<https://www.e-flux.com/announcements/29137/eugen-gomringer/>

Another instructor, Eugen Gomringer, instructed students in developing the ability to increase their sensitivity for language. Eugen Gomringer's exercise, to a great extent, appeared to address the ability to understand the Other through the understanding of the language.

It was Tomas Maldonado who, as the director of the Basic Course in 1955, introduced new pedagogical ideas and conceived a visual methodology that consisted of three components: theory of perception, that embraced the Gestalt principles; symmetry, the systematic transformation of shapes; and topology, the relations of forms in space. Students in the Basic Course were all trained in a single room with basic equipment such as, the drafting board (*Zeichenplatte*), two stands, a stool (the popular *Ulmer Hocker*), and a small chest of drawers, thus setting a fertile ground for creative ambiance (Krippendorff, 2008).

Maldonado took over the Basic Course and brought in simplicity and precision to the core of the assignments. Drawing too was modified to focus on reflective visualisation. In a way, Maldonado carried out a purification of the Bauhaus way. In the foundation programme in design, he made the teaching interdisciplinary and as already stated above, brought in the theory of symmetry, topology, and Gestalt (Ranjan, 2005). Along with Maldonado, Otl Aicher, Gugelot, and Vordemberge-Gildewart tried to build a new and markedly closer relationship between design, science, and technology. The HfG evolved a model of training that aimed to give designers a new, and rather more modest and cautious, understanding of their own role (Maldonado, 1991). It was after Tomas Maldonado, that the Basic Design Course got detailed and evolved further to have a focus in the disciplines; the assignments were developed as well to meet the needs of different disciplines, such as graphic design and that of product design,

industrialized building and information design (Ranjan, 2005). According to Ranjan (2013) Herbert Lindinger stated [that]

as design was now to concern itself with more complex things than chairs and lamps, the designer could no longer regard himself, within the industrial and aesthetic process in which he operated, as an artist, a superior being. He must now aim to work as part of a team, involving scientists, research departments, sales people, and technicians, in order to realise his own vision of a socially responsible shaping—Gestaltung—of the environment. Under Maldonado, a new Basic Course came into being, which broke away more and more clearly from Bauhaus concepts and absorbed the lessons of perceptual theory and semiotics.” (para. 3)

Maldonado stressed on the need for continued non-objective studies even in the senior years, when students were dealing with real-life design problems, though with gradually reduced time allocated for such studies in the curriculum. It should be noted, however, that non-objective assignments provided students with critical abilities in the judgment of the form when applied to real-design situations. In the search for new capabilities, a number of three-dimensional assignments were innovated to suit the needs of product design students, and nature studies and bionics got integrated into the search for science principles that permitted new explorations (Ranjan, 2005). Maldonado had objected to the overemphasis on manual practice in Bauhaus education; students in the preparatory course should free their creative power, re-educate their senses and regain their lost psycho-biological unity (Takayasu, 2017).

The new approach of the HfG, Ulm brought design closer to the understanding of the Other through working on a project by involving the Self with the whole process, from research, sales to technicalities in order to identify and realise the Self for the designer, in relation with the Other and Society as a whole.

Thus, the Basic Course at the HfG, Ulm emphasised on the development of the skills for two- and three-dimensional thinking: the ability for endurance, ability for precise working, ability for systematic thinking, ability in basic methods of creative thinking, ability in systematic structuring of complex tasks, and the ability to search for non-conventional solutions. There was development in the model of the Basic Course of the HfG, Ulm to scientific methodology, and included mathematical disciplines such as topology and semiotics because of its

applicability to understanding the signs in society (Takayasu, 2017). In the later period, the Basic Course started considering the Other for the development of the abilities of the students. The Ulm model was adopted across the globe at that time itself and continues till the contemporary times. In the Indian context, design education was established as an institution in the post-modern times with recommendations from the West, with adoption of certain ideals from the HfG, Ulm School of Design.

5.2.3 Design Education in India (National Institute of Design)

As already discussed in the previous chapter, the history of design education owes much to the India Report compiled by the Eameses in 1958, on the basis of which the National Institute of Design (NID) was set up. It was in the early 1960s, when the NID was established to assist programmes of training in the areas of design. The Foundation Design Course was started with the aim to create new designers to help in the development of India (Chatterjee, 1983). The design educators had designed the course structure of the NID, integrating design education ideas from the HfG, Ulm. As discussed in the previous chapter, the Eameses recommendations were followed to a great extent, which was planned keeping the socio-cultural scenario of India in view. The Eameses had stated the institute's objectives "as a desire to create an alert and impatient national conscience—a conscience concerned with the quality and ultimate values of the environment" (Eames & Eames, 1997, p.6). The Foundation Programme, which plays a major role in design education, developed over several years at the NID. Mohan Bhandari, with the coordination of teachers, worked out a Foundation Programme that was suitable for a professional education programme.

NID's design pedagogy was also highly influenced by the pedagogy of the HfG, Ulm in the early years, with NID's faculty members being involved with the Ulm's in the 1960s and later. Two such prominent Ulm members were Gui Bonsiepe and Kohei Suguira. NID borrowed a lot from the Ulm for its Product Design programme. Hans Gugelot from the Ulm was responsible for drafting the curriculum and commencing the Product Design programme at NID (Ranjan, 2005). Herbert Lindinger, a German Industrial Designer from the HfG, Ulm, was a consultant to NID for the Product Design programme. H Kumar Vyas was deputed to spend 10 months at the HfG, Ulm before commencing the first Product Design programme at the NID in

1966. Sudhakar Nadkarni, a student at the Ulm, joined NID's Product Design programme as a faculty in 1967. It was Tomas Maldonado's Basic Course that Kumar Vyas introduced to the new batch of Product Design students, when the three-year postgraduate course was offered to graduate engineers in 1967. These students were admitted with the understanding that they would be offered faculty positions. In fact, Mohan Bhandari, who was assigned to conceptualise and execute a foundation course when NID began its five-and-a-half-year Professional Educational Programme, was part of this batch of Product Design students (Ranjan, 2005). When Mohan Bhandari joined NID as faculty, he was deputed to Germany to work with Herbert Lindinger for a year, and it was on his return that he was asked to coordinate the Foundation Programme (Ranjan, 2005).

The importance of a foundation programme for NID's curriculum of a professional educational programme was well understood in the years 1970-75. By 1975, Mohan Bhandari was assigned the task to find out what type of a foundation programme in design would be suitable for NID's Professional Design Education Programme. Environmental Orientation and Bias was the main focus in the newly developed Foundation Programme coordinated by Bhandari (n.d.). The new Foundation Programme resulted in many of the courses being brought out of the classroom into real-life situations. This in turn developed an attitude among nascent design students to start learning fundamentals of design more suited to the Indian day-to-day life situations (Bhandari, n.d.). It is seen that Eames' recommendations were taken into consideration while designing the course structure by placing an emphasis on the roots and tradition of the Indian culture. This way design students were trained to develop the ability to know and understand the Other, which is an important component for designing the product.

The Foundation Programme intended to accomplish cognitive, emotive, intuitive, and physical aspects of a learner's growth, both from the point of view of making him a design professional and a broadly exposed human being. Mohan Bhandari analysed the observations of the problems of education in general as well as in particular at the school level, and also concerning the higher education, in order to synthesise the form of programme, courses, learning processes, etc., for the initial stage of design education at NID (Bhandari, ND). Various inputs in the Foundation Programme culminated into the stage of a problem-solving process in design (Bhandari, ND). This problem-solving approach in the Foundation Programme brought designers closer to the Other for better understanding the diverse culture of India.

The programme formed a structure through which the abilities of the students were to be developed with a specific course outline and projects. It included the development of the skill of drawing through the recording of human form, objects/spaces and nature. The drawing was to be done by a free hand, without the use of instruments. The ability to develop an understanding of the fundamentals of form/space relationships, an understanding of the man's perception of the environment to realise its various underlying principles, to employ such an understanding while preparing perceptual material for the environment, were also part of the Foundation Programme. Along with it, there was also the emphasis on the understanding of the evolution of form and the various attributes of form/space (Bhandari, n.d.). In order to develop these abilities, students were trained to develop the skill of typography; the basics of composing, printing, and creating typographic layouts for a fundamental understanding of the form. In order to have a fundamental understanding of the form and its relation with the human being and culture, the study of art history was promoted. It was to create an understanding of the development of various art forms through the ages, related to their respective and changing cultural contexts (Bhandari, n.d.). These were the basic objectives for the development of students in the foundation year at NID. A vivid examination of the course and its assignments will help in a better understanding of the Other, and eventually in the identification of the Self, based on the comprehension of the Other.

There was an emphasis on the sensory perception of various specialised areas of social sciences, natural sciences, and communication sciences, in order to learn the different points of view to understand the different aspects of our environment. The course aimed at developing a fresh environmental perception and interpretation of the ideas and experiences of the objects (Bhandari, n.d.). The Eames' idea of discarding the conventional as stated in the India Report (Eames and Eames, 1958), which was also emphasised by Johannes Itten in the Foundation Course in the Bauhaus, reflected in the objective of the first foundation course of NID. Eames' recommendations have also been followed in the perception of the environment and an analysis of perceived data in the process of problem solving in design. By discarding conventional ideas and understanding the environment, the Foundation Design Course emphasised an elementary environmental analysis, for the awareness of environmental inter-relationships, and to learn and view different aspects of the environment. It was an effort to combine different areas, to develop a composite framework of criteria for analysing the problem of the environmental scale. The

recommendation in the India Report (Eames and Eames, 1958) to analyse and consider the various aspects related to the Other in the design process, has been applied at the NID to a great extent. In other words, the Other and its environment have been given a great significance in the foundation course. This awareness and perception of the diversity of the Other, especially in an Indian context, is important for the designer to develop the ability to understand the needs of the Other in a contemporary environment, and to eventually develop one's Self for the design process. The course design talks of the development of an outlook of understanding and analysing the problems.

In order to have a better understanding of the foundation course, it will be insightful to look into the assignments provided to the students for development of their abilities. The course, Environment Exposure I in the Foundation Year Programme 1976-77, coordinated by Mohan Bhandari and H. K. Vyas, aimed at imparting a sense of awareness about interrelationships that exist amongst the various components of the environment where human beings reside. It is seen that environmental components which seem to exist in isolation are also interdependent in a very subtle way. On the other hand, a particular environment is in contact generally at the moment when a designer is associated with it. The same environment has much more happening to it at other times when the designer is not associated with it. The assignment given in the foundation course was an "on the spot investigation which leads to perceiving the environment as an integrated whole of its components" (Bhandari, n.d.). The environment for the assignment was selected from the day-to-day life, which had either definite physical boundaries or could have been an environment like a road crossing and surround. In the latter case, the environment is defined by including its important components around the road-crossing, such as houses, mobile tea-carts, *paanwalas* (preparation of betel leaf and areca nut), slums, etc. To study the environment, the student was required to be physically present in the environment, make observations and record the environment and its activities. The task was to study the environment, component by component, and in the sequence in which these components were related in time and space. The assignments of Environment Exposure I covered aspects of the environment such as description of the components, the interrelationships among the components, and their relationship to the outside world (Bhandari, n.d.).

Moving on to the Environment Exposure II, the objective of the assignment was to learn to figure out the problems in the day-to-day physical environment. To understand the functioning

of the physical environment, an investigation of its essential physical components such as houses, shops, community places, etc., was done (Bhandari, n.d.). These environments were found to have distinct patterns of thinking and behaviour of the people. According to the instructors Bhandari and Vyas, designers would be constantly required to recreate an environment through its physical reorganisation, for which the attempt should be to promote the basic human needs which were neutral and not artificially generated to meet the selfish goals of a few in the society (Bhandari, n.d.). Design educators had explicitly voiced the need to understand the Other in individual environments where they belonged, and not choose a few characteristics to cater to only a certain section of the society. The assignment required design students to trace the historic development of the environment, that is sequence the development of a component of the environment. The assignment also required to describe significant events in the immediate surroundings of the environment, and to look at parallel developments in other parts of the town which might have led to the creation of a particular component or a set of components. Finally, the assignment required students to take a minimum of two projections in the past, and visualise the environment in terms of interrelationships of its components and to the other parts of the town. Subjective impressions of the people could be gathered as a basis for the study (Bhandari, n.d.). Thus, in this part of the assignment, students could gather detailed information of the environment for the understanding of the Other. The other part of the assignment was developing the ability of perception. This assignment helped in perceiving the problems in the environment. With people being the most important link between the components of an environment, as they are the environment's mobile elements, students were required to identify the most important components for the chosen problems. Also, through the process of elimination, addition, or substitution of components or sub-components *reorganise* the environment (Bhandari, n.d.). Objectives of both the assignments were to broaden the perception of students in terms of interrelationship and interdependence of its physical components; learn simple investigation methods and a method of consolidation of acquired experiences into a final conclusion; and train in *sensory education* through the experience of the selected environment by means of drawing and a gradual internalisation of its significant events that happened over a certain time duration in the environment. The aim was also to undo the preconceptions of students about a town and its people by perceiving the environment as a whole and not as isolated parts which lead to biased views. Another objective of the assignment was to develop the ability to reconstruct the past if case of a present malfunctioning of the

environment, and to develop imagination to visualize the nature of the environment for the future ahead. It also attempts to incorporate onsite experiences with one's experiences in the studio through interactions with other students, and to additionally develop the skill of drawing, which is a primary and essential tool for a designer (Bhandari, n.d.).

Therefore, the discussion on course objectives and assignments, has revealed that the Foundation Programme developed in NID during the 1970s and coordinated by Bhandari was influenced by the Bauhaus and the HfG, Ulm. The Eames (1958) recommendation in *Project B* [of the India Report] of taking into consideration diverse aspects of the environment, such as the history and its entire social mores, weather, local resources, study the economics—immediate and long range, were addressed in the course and incorporated in the assignment for the development of students' ability of perception and solving problems. Abandoning preconceived notions about the environment and the Other—as introduced by Itten in the Bauhaus foundation programme—was also emphasised in the recommendations by Eames (1958) in the India Report. Moreover, having group discussions and interactions with other students for a better understanding of the experiences regarding the Other and the environment was something that Moholy-Nagy had introduced during his tenure as the director of the foundation programme at the Bauhaus. These characteristics for the development of the abilities of students were also followed in the HfG, Ulm, which was also greatly influenced by the Bauhaus. But these attributes taken from the Bauhaus by the HfG, Ulm and eventually by the NID, had gone through several modifications in line with the contemporary situation. In the Indian context, though, these notions and ideas were used keeping in mind the cultural diversity and deep-rooted traditions that characterised the Indian society. The diversity in traditions and how it was important for design students to be able to understand it was emphasised in the India Report (1958). The course structure and assignments of the NID's foundation programme thus gave importance to the understanding of the Other in context of the diversity that was rooted in the traditions of India. It also took from the ideas and experiences of the design instructors at the HfG, Ulm. But the objectives and courses facilitating the development of abilities in students at NID, have been more or less constant till the contemporary time, though certain changes were made in the curriculum in 2010.

India has seen tremendous development in both urban and rural sectors in the past decades. In order to understand the development and problems of a diverse environment, various

programmes were carried out for training students to develop such abilities of perception. The course, however, does not address the Other as a connection or in relation to the designer's Self. The notion of the identification of the Self for the designer, after an understanding of the Other, has not been dealt-in as a different aspect for the development of the ability; rather, the relationship has been addressed in general and in an inclusive way in the course.

5.3 Abilities Recommended by Design Educators in India

For the development of a new curriculum, especially at the foundation level, it is important to consider the topics and level of the course. The questions that needs to be put forward before creating the course structure are: What are the important concepts that students should learn and remember from the course, such as facts and other kinds of core knowledge; the most vital ideas, theories, approaches, perspectives, and other broad themes in the field, that students should understand after taking the course; the most important skills that the students should develop during the course; and the attitudes the students need to develop as a result of the course. These will help in structuring the course according to the abilities that students need to develop in the foundation year, and which would form a basis for the higher level in design education.

This section will discuss questions and suggestions that led to the structuring of the abilities which design students need to develop in Foundation Design Courses, with an emphasis on the development of the abilities in context to the relationship between the Self for the designer and the Other. The abilities will also be discussed along the abilities that the present Foundation Programme objectives at the NID offer.

To develop a course structure for the Foundation Design Education that would be relevant to the current needs, several educators are approached to participate in a semi-structured interview for the study. Some preferred an informal 'chat', from which little is found to be relevant to the enquiries of the study. However, eight design educators agree to participate in this first round of semi structured interviews to discuss its bearing in the changing times, and the critical abilities that design students need to develop in view of the transitions and increasing social and economic complexities (for instance, the complexities in the IT sector have been

intensifying exponentially). Four educators from the NID and four from the IDC at IIT, Bombay agree to share their thoughts and experiences (Details of the respondents can be seen in Annexure 3). Each interview, semi-structured in nature, lasts between one hour and two hours. These are later transcribed to look for patterns and direct/indirect responses to the enquiries in the study. The emergence of a rich wealth of insights from the analysis of the transcriptions played a critical role in the research. No need is found to conduct more interviews.

Specialists in qualitative research often try avoid the topic of ‘how many’ interviews ‘are enough’. However, what is suggested as a minimum comprises a wide range. A large number of articles, book chapters, and books suggest anywhere from 5 to 50 participants as adequate (Dworkin, 2012). When responding to the question of ‘how many’ many engage in nuanced debates and frequently respond with a ‘it depends’. It appears that there are several important factors, including “the quality of data, the scope of the study, the nature of the topic, the amount of useful information obtained from each participant, the use of shadowed data, and the qualitative method and study designed used” (Morse, 2000, p. 1).

These educators voice their concerns over the changing milieu of the society in India as well as globally, and the shifts that have occurred in the understanding and definitions of design and design education in India. Critical abilities that students of design education need to develop in the Foundation Course were also given importance by the educators. The concern was for the development of those critical abilities in the students that would be imperative for a professional designer to be able to meet the needs of the evolving times.

Suggestions and insights from the design educators interviewed are later taken into consideration, to identify critical abilities that are required for the development of the foundation design students.

A cluster of 55 abilities has been identified that are required for the development of design students in the changing environment of India and the world. These 55 abilities are collated and compressed to 9 abilities as primary abilities (Annexure 4) that need to be developed in order to assist in the development of the Self and Other. Some of these nine abilities are currently present in the Foundation Programme at the NID but they are not looked through the lens of the Self for the designer to better understand the Self-Other relationship.

5.3.1 The Ability to Learn with an Open Mind Without Fearing to Make A Mistake

1	Ability to learn with an open mind without fearing to make a mistake	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
1.	Ability to adapt to different systems of learning			00:05:15						
40.	Ability to be curious & questioning							00:40:02		
53.	Ability to develop a risk-taking approach									00:11:15
42.	Abilities to inculcate interpersonal skills						00:10:48 00:12:35			
25.	Ability to work on different projects/assignments simultaneously								00:32:25 00:33:30	
46.	Ability to have the right attitude to finish work						00:30:52 00:31:33			
44.	Ability to manage time and finish projects/assignments						00:29:30 00:30:14			

Table 5.1
Abilities Cluster 1: The Ability to Learn With an Open Mind Without Fearing to Make a Mistake

Students when introduced to a design education should be trained to develop the ability to learn with an open mind. In order to develop such a basic ability, several other development areas need to be addressed in the student. First thing they need to develop is the ability to adapt to different systems of learning (Table 5.1). In the face of constant changes, students will need to have different skills all the time. But to develop such skills based on situations and environment, an education system is required to train students in the ability to learn in different situations. This in turn helps to develop the designers of tomorrow. Different systems of learning also include different styles of learning such as visual, auditory, kinesthetics, logical, social, solitary, and naturalistic styles of learning (Clemons, 2004). Tamilselvi & Geetha, (2015) defines Multiple Intelligence as the theory that ‘people are smart in more ways than one has immense implication for educators. Howard Gardner proposed a new view of intelligence that expands the concept of intelligence with such areas as music, spatial relations, and interpersonal knowledge in addition to mathematical and linguistic ability. To integrate Multiple intelligence theory into a curriculum, there is a need to specialize the process of lesson planning and providing them with the optimum learning environment through their preferred learning medium and help them to achieve their fullest potential in their respective talented areas (Tamilselvi & Geetha, 2015).

Visual learning is the most common type of learning style and includes a predisposition toward images, colours, graphs, pictures, and maps, etc. Visual learners are good at spatial thinking and recalling images or places in their minds. Through visual learning, students can excel at being detail-oriented because they notice very small changes in their surroundings (O'Brien, 1989). On the other hand, in aural learning, students need to be good at picking up the language, verbal communication, and retaining long conversations. In kinaesthetic learning, that is learning through physical action, students develop the ability to learn with practical experience and active participation. Logical learning is applicable in situations where students have to observe interconnections and understand complex problems and strategies. Social learning develops strong interpersonal and communication skills through social interactions. It also helps in development of the students' ability to gather ideas of other people through group discussions and group projects. The social learning system or group learning provides a great opportunity to know the Other. This system of social or interactive learning, introduced in design education by Moholy-Nagy, was also incorporated in the NID's foundation course under the coordination of Mohan Bhandari. In contrast to the social learning system, solitary learning is self-directed and independent. This helps students in identifying and understanding their own emotions and feelings (Zajac, 2009). Solitary learning provides a good space for the development of the understanding of the notion of the Self. Naturalistic learning is more like kinaesthetic learning, where students get the opportunity to participate physically with the environment rather than learning solely from a textbook. This system develops an investigative nature and observational skills, which helps students understand the Other more in a natural environment than in a created space.

These aspects of developing the ability of the design students for learning with an open mind have been addressed to a certain extent in the present NID curriculum, such as in the course of Design Drawing 1 and 2 (NID, 2010)⁵⁰. This module offers intensive training in drawing and sketching which helps in observing, representing, conceptualising, visualising and communicating an idea through a study of the environment. The module also aims at the

⁵⁰ Conference 'LOOK Back – LOOK Forward: HfG Ulm and Basic Design for India', Kolkata, 2010, Documentation of pedagogy and students' work of Foundation Programme, NID, was shared during the 50 years celebration of NID, by the Late Prof MP Ranjan of NID, with conference participants.

development of the ability to visualise and articulate one's thinking process and intuitive ideas (NID, 2010).

The ability of keeping an open mind for learning would help students in an understanding of the Other through diverse means available. This ability needs to be developed in the initial stage or in the foundation course itself, because it will help students adapt to different learning systems, as well as help establish an understanding of the Other for the design process before learning the technical aspects.

The ability to learn with an open mind without the fear of making a mistake also includes: the ability to be curious and questioning; and the ability to develop a risk-taking approach (Table 5.1). A curious and questioning mind leads to an exploratory behaviour which helps in deriving information about the environment and the Other for whom the object is to be designed. For developing curiosity skills, students also need to develop their communication skills to acquire information required to build up the visual image of the environment, and to become the Other in order to identify the Self in the design process. The ability to inculcate interpersonal skills (Table 5.1) also requires communication skills for proper interaction with the social environment. The ability of risk taking is part of developing and protecting a valued identity⁵¹. Current societies have been characterised as risk societies where dealing with risk is a normal experience of everyday life (Beck 1992; Giddens, 2000). In risk societies, understanding people's perception and responses to risk taking is crucial to deal with the rapid social, technological, and environmental change and the side-effects of social advancement (Beck, 1992; Beck, 2009). Understanding risk-taking requires examining how it is embedded in social institutions and processes such as building and protecting a meaningful identity, engaging in intimate relationships, securing a good income, making a valuable contribution to the society, and building and continuing friendship-based relationships (Zinn,

⁵¹ No society can exist without values, yet with the accelerating technological and societal transformations in the era of globalization, it is increasingly difficult to determine how values are to be understood and to be negotiated when in conflict. How do values define human identity and the different forms of activity through which this identity finds expression? Values are central; they go to the very core of us, to our personal identity. There are many parameters for values. Aesthetic and artistic values based on what is distinctive to visual art, literature, and film. Moral values based on moral problems raised by contemporary transformations in science, technology, and medicine. Religious values based on religious beliefs and rituals, and also extending to expressions in the arts and in politics, and the regional cultural differences. Economic values based on the principles of ownership and exchange, and the social identities and conflicts arising from these. Socio-political values concerning the governance of societies and the power-relations that these embody. There is considerable crossover between disciplines, e.g., in the very notion of *cultural politics*, and contemporary and historical tensions between moral fairness and political expediency. Issues of politics and national, and cultural and regional identities are also issues of concern.

2017). In today's changing social scenario, a risk-taking approach will help in the development of the Self for the designer, and also lead to cultural diffusion in the Indian context.

Other abilities that come under learning with an open mind are: ability to multitask or work on different projects/assignments simultaneously; ability to have the right attitude to finish work; and the ability to manage time and finish projects/assignments. These abilities are interconnected and absolute for the development of the identity of the Self for the designer, which is reflected in the designer's work. With a right attitude towards work, there is a better chance of understanding the Other and place proper focus in the design process. With the development of this ability in the initial stage of design education, students will have better management skills and attitude toward the design learning process.

Any action that wishes to change existing situations to more effective ones must endorse at the least a minimalist notion of the Self (Zahavi, 2015). Zahavi argues this using the theory of consciousness. At the same time, he also says that an adequate account of the Self has to recognize its multifaceted character, and that various complementary accounts must be integrated, if we are to do justice to its complexity.

Thus, while arguing that the most fundamental level of selfhood is not socially constructed and not constitutively dependent upon others, Zahavi also acknowledges that there are dimensions of the Self and types of self-experience that need to be other-mediated. To experience empathy, the Self needs a distinct experiential acquaintance with Others. It begins with the ability to develop an open mind.

5.3.2 Ability to Engage in Thought Processes

2	Ability to Engage in Thought Processes	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
10.	Ability to articulate a thought process				00:41:40					
13.	Ability to think in a context				00:41:40 00:43:40					
14.	Ability to think conceptually					00:22:40				
15.	Ability to think critically			00:25:08						

Table 5.2
Abilities Cluster 2: Ability to Engage in the Thought Processes

Development of this skill requires developing patience which will help design students perform well under pressure and present their ideas and thoughts more clearly and concisely. The skill to engage in a thought process is required for developing the identity of the Self after collating knowledge and an understanding of the Other and the environment. It is an essential skill for the design process (Table 5.2). The ability to articulate a thought process is a part of it. The articulation of thoughts will be reflected in the designed object or drawing, which will indirectly reflect the Self that had been identified with the Other. It may be difficult for students to develop their articulation skill in the beginning, but teaching it in the foundation year would help them immensely in gradually developing it.

The ability to think in a context, the ability to think conceptually, and the ability to think critically is also significant in a thought process (Table 5.2). When students think in a given context, they make use of their various thought processes, and it is the interaction among them that yields the result. Critical thinking seems to be linked more to a person's creative abilities during problem solving rather than in problem finding. Students' performance in the creative task of problem finding seems to be more independent than their performance in the critical-thinking tasks. Therefore, the context within which the students are thinking activates corresponding intellectual processes of creative and critical thinking, which are not independent from it (Kousoulas & Mega, 2007). Among students, thinking should turn from the exercise of isolated forms of thinking to various instructional environments where thinking is cultivated holistically and is measured in terms of expression during particular learning experiences and not in terms of constant capacities (Kousoulas & Mega, 2007). Therefore, in the instructional environment of the Foundation Programme, development of critical thinking helps in the articulation of one's Self which as a result helps in the process of solving the problem. And this identification of the Self for problem solving is achieved through the understanding of the Other in a critical way and in the context where the problem existed.

The ability to think conceptually (Table 5.2) develops and reflects the individual Self of design students. In conceptual thinking, students are able to make connections between various ideas and communicate them more effectively, or solve the problems more naturally. It is critical for flexibility and innovation demanded in the present-day society and culture, and especially required in the context of India, with the existence of locally diverse traditions as well as the influence of the popular global culture. The ability to think of a design concept is necessary and

one of the primary stages of the design process. The idea behind a design is formed after necessary questions are asked and the Other is known. It is during the formation of the concept that the Self can also be identified. The concept will lead to the choices in colour and type, choosing the aesthetic, and determining the form. The design concept becomes the framework for all design decisions that a designer takes. Developing a design concept is something of an individual process and there is no one right or wrong way to generate an idea. What works for one may not necessarily work for another. There are, however, common parts in the concept development process that need to be addressed by everyone in the same way, such as defining the problem and researching the environment for the Other. It is through conceptual thinking that the Self of the designer or the student can be identified, and eventually reflected in the product design.

The Foundation Programme at NID (2010) has a course that introduces design concepts in Design Processes to the students. This overview is “essential for students to appreciate the learning through various courses. Design is a process. Anyone who wants to get into the field of design, irrespective of the discipline of specialization, needs to get conversant with the basic steps, their relevance methods and approaches involved in the process of designing This course seeks to introduce the design process and methods.” The objective of the course is [to] “introduce students to the different stages in the design process—from perception of a problem to generating a solution to the problem through investigation analysis and synthesis.” It is also [to] “understand the methodology of the problem-solving process.” The Design Process course [covers] “analysis and mapping of the design process; morphology of the problem-solving process; and the role of creativity in design and case studies.”

The Foundation Programme at NID includes conceptual thinking in the course, where the objective is a focus on problem solving through design concepts and concerns. But the recognition of the development of the Self, which should be important in conceptual thinking, appears to be absent from the course objective.

5.3.3 Ability to Solve Problems

3	Ability to Solve Problems	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
9.	Ability of developing a thought process of problem solving.	01:25:40			00:04:15 00:41:40					
21.	Ability to generate appropriate responses/solutions to the situation/product/service	01:27:40 02:00:20								
43.	Ability to work at day-to-day solutions as design problems						00:12:35			
22.	Ability to apply and connect skills and knowledge in a given context							00:32:08	00:20:14 00:21:10	
26.	Ability to find multiple solutions to a problem								00:35:50	
18.	Ability to visualize									
39.	Ability to work with hands							00:39:35		
17.	Ability to use technological tools					00:23:30				
52.	Ability to know your tools/software						01:50:25			
45.	Ability to present effectively						00:29:30			

Table 5.3
Abilities Cluster 3: Ability to Solve Problems

Problem solving in the design process provides a cognitive framework of analysis, synthesis, and evaluation. It is used by many professional designers to create solutions to design problems. Students may be taught this process as an effective life skill, which starts with defining the problem and moving through steps to creating a logical solution (Zande, 2006). The Foundation Programme at NID, introduces stages of problem solving in the Design Process course through broad-based investigation, analysis, synthesis, and use of different methodologies in each stage of the process.

The ability of developing a thought process of problem solving is a process of design thinking for creative problem solving (Table 5.3). Problem-solving is an essential feature of technology education. Critical thinking is also a crucial component of technology education, especially as it is a central skill in problem-solving. In a problem-solving process, production of ideas through creativity acts was one of the core capabilities that students had to learn and develop

(Schooner, *et. al.*, 2017). The thought process of problem solving begins with identification of the problem of the Other, the strategy and conceptualisation of the solution, the process in which the designer comes very close to the Other and relates the Self to the Other to deliver a solution that solves the problem. The development of the ability to solve problems is crucial for students and it has been addressed in the design courses. But the development of the Self-Other relationship appears to be significant with its absence.

The ability to generate appropriate responses/solutions to a situation/product/service is also a part of the process of problem solving. In addition, the ability to work at day-to-day solutions as design problems, the ability to apply and connect skills and knowledge in a given context, the ability to find multiple solutions to a problem and the ability to visualise, (Table 5.3), are various facets of the problem-solving process that students need to be aware of while developing the ability of problem solving. Detailed learning in the Foundation Programme itself will help students in the development of the ability to have critical thinking, and perceive the environment and the Other in order to develop the thought process for the identification of the problem and eventually relate oneself with the Other to solve the problem.

Following the thought process of problem solving, students also need to develop the skills to work with hands, to use technological tools, to use tools and software, and the ability to present the product effectively (Table 5.3). These abilities reflect a problem-solving thought process and the design process is complete with the combined efforts of the development of all the skills in the design students.

5.3.4 Ability to Make a Positive Change

4	Ability to make a Positive Change.	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
5.	Ability to make a contribution towards improving the quality of life	01:30:35	01:03:30		00:01:05					
6.	Ability to achieve something meaningful in life				00:03:45					
8.	Ability to adapt to the environment and the socio-economic reality			00:23:32 00:44:55	00:04:15					
23.	Ability to identify a problem as opposed to be given a problem								00:23:55	

27.	Ability to find a challenge								00:49:50	
34.	Ability to look into sustainable issues in design							00:08:30		
35.	Ability to identify and perceive social concerns							00:09:58		
36.	Ability to identify and address wicked problems/difficult issues//complex concerns and add value to society						01:26:40	00:09:58 00:13:50		

Table 5.4
Abilities Cluster : Ability to Make a Positive Change

For a positive change (Table 5.4), the abilities to solve problems and engage in thought process should also consider political, technological, and environmental systems through a span of time covering the past and moving into the future. This attitude toward design will help students in engaging in an effective design action, which will require the building of the students' Self to be more empathetic towards the Other and the environment. It will assist in observing and perceiving an issue or problem in different perspectives and contexts. For the reframing of ideas and the notion in a positive attitude, the student will have to develop a strong connection with people and the environment in which people exist. This would result in the designing of more effective solutions. Various tools can be used to summarise, trigger, and support social conversations. By bringing social issues to the surface and making those visible can spark new innovations. A positive attitude for change, brought by design, will give students the opportunity to express their own ideas for a better world and put them into action. It is the development of the positive change that will include innovative ways to inculcate creative thinking, empathy, problem-solving, and leadership skills in the students of design in the foundation year itself. This positive attitude would be crucial for the development of the ability to make a contribution towards improving the quality of life and the ability to achieve something meaningful in life. This way the designer would evolve the Self with every situation and identify the Self in a more positive environment which would result in a design that would bring in change for the Other and the environment.

The ability to adapt to the environment and socio-economic reality, the ability to identify a problem as opposed to be given a problem, the ability to find a challenge, the ability to look into sustainable issues in design, the ability to identify and perceive social concerns, the ability to identify and address wicked problems/difficult issues/complex concerns and add value to society (Table 5.4) are connected with the development of the positive attitude. The socio-

economic impacts of environmental stresses associated with global environmental changes depend, to a large extent, on how societies organise themselves (Lahsen, et. al., 2010). Varied, multiple-scale causes of vulnerability must be identified, and adaptation must be addressed in a similarly broad fashion while designing the product. The economic, social, and environmental planning practices of societies embodying *urban sustainability* (Basiago, 1998) have also become important for the designer to consider while designing for a positive change, as with more population living in the cities, the city is characterised with social conflict and environmental degradation.

5.3.5 Ability to Solve Real Problems at Both Urban and Rural Levels

5	Ability to Solve Real Problems at Both Urban and Rural Levels	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
4.	Ability to work at the grass-root level		00:46:55	00:22:22						
7.	Ability to take on a bottom-up approach			00:21:30 00:25:40	00:02:28					
20.	Ability to adopt an indigenous approach			00:26:20 00:28:40						
33.	Ability to work in diverse situations/groups							00:09:58	01:01:35	

Table 5.5
Abilities Cluster 5: Ability to Solve Real Problems at both Urban and Rural Levels

In relation to the development of the positive attitude for change through design, the development of the skill to solve real problems at the both urban and rural level is indispensable. The ability to work at the grass-root level, take on a bottom-up approach, along with the ability to adopt an indigenous approach, and the ability to work in diverse situations/groups are crucial for solving problems in urban and rural scenarios, especially in an Indian context (Table 5.5). Deep-rooted traditions embedded diversely in the rural and urban settings, inclusion of popular global culture in India—design students need to be aware of the overall changing scenarios of the diverse society and the diversity that is present in the Other. This has been emphasised in the Eames' India Report (1958), which recommends to understand the varied traditions of the Indian society.

The Foundation Programme at NID (2010) includes a course [that] “helps sensitize students to study the social, cultural and physical environment in which his/her design has to operate, so that it has meaning of relevance to the people” in Environmental Perception which covers an introduction to the fieldwork and methodology within the socio-cultural structure of the Indian society, with preparatory exercises in environmental perception. The objective of the course is to broaden one's perception about the Indian environment in terms of inter-relationships and inter-dependence of its physical components; the ability to meaningfully interact with people while learning from shared experiences of the people from diverse environments; and the ability to study Indian traditions and the multi-layered nature of the Indian culture. It also helps develop the ability to approach and mix with people in the environment and to share experiences and learn directly as they happen in life.

In the present context, urbanisation has been accelerating around the globe as people move from rural areas to urban areas for economic advancement, creating urban development that sprawls into the countryside. Urban design and planning has attempted to shape urban development as cities have expanded, but it has done so primarily from an urban perspective. Areas of transition from rural to urban and land uses at the urban/rural edge in the peri-urban landscape require the lens of spatial arrangement from both urban and rural perspectives to shape, manage, and preserve the ecosystems that people depend upon (Thorbeck & Troughton, 2016). Issues that the rural areas are facing in the contemporary situation are of profound demographic, economic, cultural, and environmental change, creating considerable challenges and stress for the people of the rural areas and on the ecosystems upon which they depend for their livelihood and quality of life.

With India having a large rural population, the role of design to solve the problems of rural areas needs to be emphasised. It is through this design discipline, which brings a design thinking and a problem-solving process of design to rural issues at both the macro and micro levels while making connections between urban and rural futures, that today's rural problems can be solved. Rural design is a way to understand the dynamic behaviour of natural and human systems, and to unify and conceptualise the complex and dynamic reality of sustainability in integrating humans, animals, and the environment in both rural and peri-urban areas. We are living in a time of rapid change and rural design is needed to make connections between urban and rural futures at the urban/rural edge, and in the process it can help minimize

the negative impacts of change while increasing the positive impacts with economic resiliency, social interaction, and appreciation for diversity in art and culture (Thorbeck & Troughton, 2016). Thus, the student is faced with diverse information which needs to be identified individually with one's Self. The concept of universality that was existent in the modern design education cannot be applied to the present context of design education in India. This diversity in the environment needs the student to be able to perceive and comprehend the Other differently in diverse situation. Consequently, the relationship between the Self and the Other develops according to the environment and the Self can be identified in diverse ways for the development of the Self for the designer. The development of this ability of identification of the Self in relation to the diversity in the Other in the Foundation Design Education would help students in developing a critical design principle of empathy for the Other, and in the process broaden the perception of the environment to the Self for the designer.

5.3.6 Ability to Work Across Disciplines

6	Ability to Work Across Disciplines	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
12.	Ability to deal with a variety of perceptions			00:03:55 00:04:35 00:44:55	00:16:50 00:17:32					
16.	Ability to draw on information from other disciplines	01:25:40		00:24:16		00:23:10				

Table 5.6
Abilities Cluster 6: Ability to Work Across Disciplines

The ability to work across diverse disciplines helps in the receiving the diverse perceptions of the environment. It consequently develops the ability to deal with a variety of perceptions, the ability to draw on information from other disciplines, and the ability to work with a team of experts in different fields and to give them credit (Table 5.6). An interdisciplinary program across design can be worked out with disciplines such as technology and liberal arts, to provide actionable skills, design vocabulary, and aesthetic appreciation of the design thinking and practice. It is observed in the past decade [that] “an explosion of educational programs has

promoted and integrated the methodologies of design thinking across a wide variety of curriculum. This movement has cast a welcome light on the power of creative processes and helped facilitate innovative solutions across disciplines” (Nae, 2017, p.835). Faculty and students in the sciences, humanities, business, and technology fields now have the resources to explore new possibilities [as] “design thinking, combined with scientific and technological thinking, allows us to explore the new frontier of design and innovation and to link design to the future through achieving the balance of desirability, possibility, and feasibility.” (Nae, 2017, p.835). A cross-disciplinary model in the traditional foundation curriculum offers students a broad number of subjects

taught as standalone subjects and serve to create introductory skills that are directly applicable to the core vertical skill set or act in support of the overall educational experience. This model is typically represented by foundation art courses for design students, humanities requirements, and math and science general education for technical degrees. The benefit of this model in creating a strong skill base along with creating a diverse knowledge base for future horizontal skill development is well established and incorporated into most higher educational programs.” (Nae, 2017, p. 839).

There are different types of cross-disciplinary practices in design education: inter-disciplinary; multi-disciplinary; and trans-disciplinary. Multi-disciplinary describes situations in which several disciplines cooperate but remain unchanged, whereas in the inter-disciplinary practice, there is an attempt to integrate or synthesise perspectives from several disciplines. Trans-disciplinary, on the other hand, involves a transgression or transcendence of disciplinary norms, sometimes in the pursuit of a fusion of disciplines, an approach oriented to complexity or real-world problem-solving (Love, 2002; Design Council, 2010).

A cross-disciplinary approach can be seen in NID's foundation education through the inter-disciplinary practice of two courses in Science and Liberal Arts (SLA). The SLA 1 course, which is an introduction to the Indian culture, “sensitises students to the concept of Indian visual culture, cultural aesthetics, and cultural practices” (NID, 2010)⁵². The objective is [to] “awaken

⁵² Documentation of pedagogy and students’ work of Foundation Programme, NID, was shared during the 50 years celebration of NID, by the Late Prof MP Ranjan of NID, with participants during the conference ‘LOOK Back – LOOK Forward: HfG Ulm and Basic Design for India’, Kolkata, 2010, of which, the researcher was a participant. Samples from the works of Foundation Design Education at NID are used here for the discussion.

an interest in the aesthetic criteria of Indian visual art forms, generate a discussion on ‘tradition,’ and study the multi-layered nature.” The SLA 2 course, on the other hand, is an approach to the Indian society, where the course helps “students to describe the category of the user of designs in the Indian social context” (NID, 2010)⁵³. The objective is to introduce students to the historical and social aspects of India’s social life, and sensitise them to see it closely, while introducing students to the social science skills.

The course aims to focus on the visual aspects of the Indian culture with a special reference to the distinction between *classical* and *traditional*. The course examines the notion of *Indian* and *culture* and what it really means whenever there is a reference to the tradition of Indian aesthetics. It seeks to problematise the issues within a broad framework of traditional theories—from urban to rural to tribal. The course also seeks to enquire about the concept of *Indianness* and raises questions for our identity.

There is also a course in Film Appreciation, where films, with their built-in interdisciplinary stance and a pronounced influence on the contemporary society, are a unique medium to understand the organic interplay between skillsets and life. This course helps one understand cinema—one of the most popular forms of narrative entertainment. Such a course can provide a view of the tradition, technology, and variety of the filmed images and its organic relationship with the world around, and introduce the complex, inter-disciplinary landscape of the film language.

In Liberal Arts, the Self in general perspective, is a set of perception of oneself in relation to the Others and the social system. The Self is social as it is constructed due to an interaction with the Other, and the perception of the environment where the individual is an active participant. In design education, this understanding of the Self in relation to the Other and the Society, will have a powerful influence over the development of the process of design and the consequence of it. Yet, the understanding of the Self in science, where the individual is a scientist/practitioner/researcher, does not directly engage or associate with the Other. The Other is not in interaction with the scientist who identifies the Self with the use of creativity and technological advances in the process of problem solving. Here, the Self is identified more with

⁵³ Same as above.

technology in the process rather than the Other. Thus, the ability to develop cross-disciplinary approach during the foundation course will be helpful in the development of the Self in relation to the Other, and also in creativity with the technological advances.

5.3.7 Ability to Engage in Holistic Thinking

7	Ability to Engage in Holistic Thinking	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
41.	Ability to connect local issues in the global context, world view and value system							00:51:55		00:23:50 00:26:15
47.	Ability to think holistically						01:00:30			

Table 5.7
Abilities Cluster 7: Ability to Engage in Holistic Thinking

With the level of technology employed in design becoming more sophisticated and critical, the demand and expectations for manufactured products continue to grow. Therefore, in educating young designers, the education philosophy employed in teaching product design, demands an input from both technological and humanistic perspectives (Koohgilani, Khan, and Parkinson, 2012). As discussed in the earlier section, a cross-disciplinary approach provides holistic development of the student in design education.

Holistic thinking implies development of the ability to connect local issues in a global context, having a world view, and a value system, and the ability to think holistically in general. It is all the more necessary in today's times as the society and environment have been highly influenced by a global culture. In the process, however, one must first try to understand an environment like India's which has strong traditional roots. Despite a severe interpolation of the western or popular global culture in the Indian societies and environment which has taken place in the recent times, as compared to the earlier times, the traditional culture too has not ceased to exist. It is important that students learn to think critically and creatively, make connections, and develop a holistic approach. The ability to understand connections between

traditions and global influence can be done effectively with a study of the history of culture and society, and a gradual influence of the popular culture on both urban and rural societies. Holistic learning can be developed in several spheres, such as between various disciplines, cultures, technologies, medium of representation, etc. As discussed earlier, the ability to develop an open mind for learning would help in the development of the ability to learn in a holistic way, in any given environment: from a natural to a built environment; from an urban to a rural environment; from a traditional to a modern environment; from a disaster struck to a smart environment; from a resource-rich to resource-scarce environment, and many more diverse environments.

5.3.8 Ability to Research and To Imagine the Future

8	Ability to Research and to Imagine the Future	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
2.	Ability to gain insights		00:42:50							
3.	Ability to reflect		00:43:20							00:46:00
54.	Ability to reflect and research, to imagine the future, to see patterns and to analyse and reason									00:46:00

Table 5.8
Abilities Cluster 8: The Ability to Research and to Imagine the Future

In design, there is a demand for the use of different skills and different types of knowledge, and it is research and imagination which are crucial for a student to be able to become a successful designer. Development of these abilities has been addressed in foundation courses in different ways, such as through the design process, perception, conceptualisation, etc. It is also important to explain how these abilities are keeping pace with the immense development speeds of technologies and societies. It is stated that, “Imagination is essential because design is only called for if the future is unknown. If we already know what we need to know, there is no necessity for ‘designerly thinking’” (Baynes, 2010, p. 14). The ability to gain insights, the ability to reflect, and the ability to reflect and research, to imagine the future, to see patterns, to analyse and reason help in the development of the ability to research and to imagine the future.

It is necessary to develop the ability to research along with the other skills. In order to keep pace with the present times, the ability to imagine the future needs to be incorporated in the foundation course, or at least introduced for the students of the present generation. It can help to develop the relationship of the Self with the Other and the environment to understand the past, the contemporary, and eventually imagine the future with adequate research and identification of the Self with the future, keeping in mind the past and the contemporary needs of the Other and the environment. Here, the Self is related with the Other in different time periods for a better identification of the Self that gets reflected in the design process and the design outcome.

5.3.9 Ability to Connect the Designer Self to the Other

9	Ability to Connect the Designer Self to the Other	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
11.	Ability to be humble, empathetic	02:21:35 01:25:40	00:29:00		00:11:20					
24.	Ability to be passionate about one's choice of profession						00:14:30 00:14:45 00:44:00	00:42:15	00:27:45 00:28:32 00:29:26	00:38:55
28.	Ability to self-critique dispassionately								00:50:40	
30.	Ability to be able to sustain/financially support oneself						01:26:40			
37.	Ability to have an ethical understanding of the responsibility to the user						00:04:00 01:48:35			
38.	Ability to be humble							00:39:02		
48.	Ability to look at a project from a human being's point of view rather than technically						01:01:00 01:06:15			
51.	Ability to find a balance between commercial activities and intellectual needs						01:46:55			
55.	Ability to develop an intuitive attitude									00:46:00
29.	Ability to work in difficult scenarios							00:08:30	00:55:50	00:25:30

19.	Empathy and emotion in the design process							00:13:50		
31	Connection to Self							00:40:43 00:41:27		

Table 5.9
Abilities Cluster 9: The Ability to Connect the Self to the Other

The clusters of abilities identified by design educators, interviewed and discussed above, as relevant to the contemporary needs have established a lacuna in the Foundation Design Education. The previous chapter too established the same. The last cluster of abilities, tabulated here, addresses this very same lacuna.

This cluster of abilities with a reference to the Self, focuses on the development of diverse identities that would help in forming relationships between the Self and the Other, and the recognition of the Self through a connection with the Other. Yet, to develop such a connection and subsequently identify one's Self in the design process, the individual requires some basic human emotions, intellectual capacity, and conceptions to connect oneself to the Other and to gather the knowledge of the environment.

These abilities are crucial for the connection of the designer's Self with that of the Other's, and have been present and addressed in the process of the design practice and education. The ability to be humble and empathetic; the ability to be passionate about one's choice of profession; the ability to self-critique dispassionately; the ability to be able to sustain/financially support oneself; the ability to have an ethical understanding of the responsibility to the consumer; the ability to look at a project from a humanistic point of view, rather than to view it through a technical lens; the ability to find a balance between commercial activities and intellectual needs; the ability to develop an intuitive attitude; and the ability to work in difficult scenarios: These abilities describe in a holistic way the attitude and approach that a designer or a student of design should develop in order to learn and develop the abilities that had been discussed above.

This final cluster of abilities, recommended by design educators, certainly validates the lacuna in the Foundation Design Education and establishes the importance of acknowledging and understanding the notion of the Self for the designer and of the Self-Other relationship.

The objective of the research as stated at the beginning of the thesis:

The objective is to design a pedagogy in Foundation Design Education that prepares students to envision solutions through novel interactions and relationships in order to meet real and perceived needs and respond with a certain intention by engaging in a well-planned research and deeply thought-out inquiry. The project implemented is a pedagogy that prepares students to understand and empathise with Others by first developing an understanding and sensitising of the notion of the Self for the designer. The attributes of the Self lie in the abilities that are developed during the courses in the Foundation Design Education. (Chapter 1, Introduction to Thesis).

It is proposed that an emphasis on understanding the notion of the Self for the designer and the Self-Other relationship in foundation courses can enrich the design education. Positioning the Self and the Self-Other relationship central to a Foundation Design Education can make the programme more humanistic or human centred. The Research Questions iterated:

Research Question 1

How has the definition of design evolved over time?

– How has design education been able to keep up with the change, specifically the Foundation Design Education? (This is answered through a review of literature, historical study of modern design education, and through a documentation of the works of foundation design students.)

Research Question 2

What is the current foundation design education and how does it respond to the current needs?

– Based on the evolving meaning of design, what are the significant gaps or lacunae in the current Foundation Design Education? (This is answered through interviews [published] and interactions with design educators and practitioners at various forums that establish lacunae in Foundation Design Education.)

Research Question 3

What critical abilities do students of Foundation Design Education need to develop in order to empower them to respond to the multiple needs of the society?

– How will the inclusion of the Self in Foundation Design Education sensitise students in a holistic manner and make the programme more human centred? (This is answered through a review of literature of the Self in disciplines other than design; through interviews of design educators from NID and IDC. It will also be addressed through insights from students of a pilot project conducted at the Indraprastha Institute of Information Technology, Delhi [IIIT] in the next chapter.)

Research Question 4

How will an introspection of the Self for the designer lead to a better understanding of the Self-Other relationship, which in turn will lead to design processes that are more responsive to contemporary challenges in the society, industry and environment?

– How can the Self-Other relationship in design be made central to the courses in a more humanistic Foundation Design Education? (This will be answered through the results of a pilot project conducted at IIIT in the next chapter.)

5.4 Pilot Project for a Foundation Design Education

The opportunity to implement a relevant curriculum for a Foundation Design Education in an engineering institute came from the Indraprastha Institute of Information Technology (IIIT-D), New Delhi, India. IIIT-D, a state university was established by an Act of Delhi Government in 2008. In 2016, the Human Centred Design Department at IIIT-D introduced a new programme, B.Tech. in Computer Science and Design. The faculty in this department specialised in areas such as HCI, UX/UI Design, Mobile Systems and Applications, Middleware, ICT for Development, HCI, Mobile Computing, Systems, and their areas of interest were AI for Social Good, Public Health, Education, Mobile Crowd Sensing, Wearables Computing, Ubiquitous Computing, Tangibles Interfaces, Interaction Design, Gestural Interactions, Education

Technology, Rapid Prototyping Techniques, NLP, Computer Vision, Machine Learning, Healthcare, Social Media Analysis, New Media Design VR, AR, Volume Visualisation, 3D Reconstruction, Animation Film Making, Gaming, Digital Sound Engineering & Design, Concept Art, IT & Indian Service Economy, Sustainability and Lifestyle Change, Civil Society and the State, and more. Clearly, there was a gap and requirement for a Foundation Design Education relevant to the current needs. Development of the proposed abilities for students in Foundation Design Courses at the IIIT-D is interconnected, as well as focused on the development of the Self and the Self-Other relationship. Therefore, in the development of the course structure, there is a holistic emphasis on the connection of the designer Self with the Other, and with the development of all the abilities that are considered crucial or critical.

The Foundation Programme at NID (2017) includes a theory course called Design Overview. This course helps students “understand the idea of design and different definitions of design. It introduces the origin of design and the difference between craft, design, and art. It will introduce students to the basic process of design & encourage them to recognize the significance of courses offered in a Foundation Programme.” The larger purpose is [to] “instil values, ethics, and responsibilities observed in design, and to further understand and appreciate the interdisciplinary nature design.”

Clearly, the current programme at the NID mentions these aspects by stating the aim to enhance the ability to appraise and practice integrity, honesty, civic responsibility, and ethics. Other abilities recommended by design educators in Table 5.9 certainly add value by addressing them through discourses, while teaching and applying them in the academic practice. The course objectives, to a great extent, have addressed the abilities required to acknowledge the notion of the Self for the designer and develop a connection of the Self with the Other, but not in an explicit way.

5.5 Conclusion

Thus, to conclude, it can be stated that Foundation Design Courses developed at the Bauhaus have, under the direction of different design educators, influenced the development of various Foundation Design Courses globally, and at the HfG, Ulm, specifically, where the educators

were originally trained at the Bauhaus. Thereafter, to keep pace with the transition in the periods and changes in the socio-political situation, the course structures were modified at the HfG, Ulm. In the Indian context, while the Foundation Design Courses at the NID have seen a western influence, the curriculum also manages to address the traditional culture. The NID curriculum carries certain Bauhaus elements, but it was initially modelled on the HfG, Ulm, where the faculty from India also studied. The Foundation Design Education at NID has addressed the significance of understanding the Other for design courses such as Environmental Exposure and Design Process.

It appears that responding to the Other is an important attribute in the act of design as design is often intended to improve some aspect of our external world. An understanding of the Self for the designer, however, is often not explicitly emphasized as a design method in the design pedagogy. The absence of the addressal of the Self for the designer is noted in an underplay of the subjective, in a quest for an objective analysis. While the Other is given importance, there is no mention of the abilities that develop the Self and the Other relationship, or the development of the notion of the Self in relation to the Other.

The following chapter will discuss the implementation of objectives for the development of the abilities in the Foundation Design Courses at a technology institution, where design collaborates with technology in responding to the problems and issues in society. This is described through a discussion of the course structure, assignments, and projects given to the students for an overall development of the abilities, keeping in focus the notion of the Self for the designer and the developing an understanding of the Self-Other relationship.

Chapter 6

A Pilot Project In

Contemporary Foundation Design Education:

Introducing the Notion of the Self for the Designer, and

the Self-Other Relationship in Design Education

6.1 Introduction

As discussed in the preceding chapter, a Foundation Design Education that has been carried out from the time of the Bauhaus, is significant in building the base of a design knowledge and approach. The Other has been addressed and witnessed from the course structure and the assignments in Foundation Design Courses both in the west and at the NID. The Self for the designer, however, in relation to the Other has not been taken into consideration while training design students in the basics of design education. The Self for the designer needs to be addressed with a broader purpose of understanding the Other. This would help in design responses that comply with the needs of the Other and the environment. It is for the understanding of the Other and the identification of the Self in the complexities of the present environment, that design students need to develop different abilities to help them develop the notion of the Self for the designer. Previous chapters discoursed responding to the Other as an

important attribute in the act of design, as design is often intended to improve the aspects of our external world. An understanding of the Self is often not explicitly emphasised in design methods or processes; in fact, design processes often seek to underplay the subjective, in their quest for an objective analysis (Bholey, Kapadia, Katiyar, 2014). The present chapter attempts to understand how the notion of the Self, the Other, and the relationship between the two play out in a contemporary Foundation Design Education. It seeks to understand how the Self-Other relationship is reflected in the assignments developed for the foundation courses in design. The chapter illustrates that a better understanding of the Self and the Self-Other relationship can possibly lead us to design methods that are more effective in their responses to the contemporary issues.

6.2 A Foundation Design Course and the Self-Other Relationship

This chapter outlines a pedagogy for a Foundation Design Curriculum that is relevant in a contemporary scenario. In a world where a wide range of challenges are becoming a shared predicament and the established paradigm of defining a designer's role is evolving rapidly, this study elucidates the need for a pedagogical framework to help design students understand the role they will play in a design practice. To add to this, with the rapid change of scale at which problems came to be defined, especially within societal and environmental contexts, it is imperative for designers to extend their approach beyond disciplinary skills to gaining a deeper understanding of the context, in an effort to create effective impact through design action. The idea of a design education is meant to shape the mindset of young designers as they prepare for the professional world outside. The pedagogy in Foundation Design Education facilitates students to understand their role, define their engagement, and pre-meditate the role they wish to play as designers and catalysts, in shaping a future towards a better societal equilibrium. It is within this context that the relationship between the Self for the designer and the Self-Other relationship—two deeply integral parts of any design action—is developed.

In this evolving ecology, in addition to serving as creatives, the role of the designer is transformed to incorporate additional roles: that of being a collaborator, facilitator, catalyst, and a co-creator. This chapter also demonstrates how this pedagogy helps students develop an understanding of the design action, not so much from a position of *designing for* the Other, but

from the position of *designing with* the Other. The Other, in design typically is referred to as users, stakeholders, target audience, actors, customers, clients, etc. in context to both commercial and non-commercial scenarios.

If design and designers are to move away from their traditional roles in creating artefacts, systems and services to expanding their footprint in addressing other areas like, experiences, education and complex issues [wicked problems], like the Sustainable Development Goals, they will need to acknowledge that their role is only a part of a shared responsibility between the stakeholders and experts from other disciplines. In examining these societal issues that pose tremendous challenges from a local to global scale, the methodologies for collaboration will fundamentally need to be empathetic, inclusive, and democratic in nature. Modulating the intricacies of these collaborations through an understanding of the Self-Other relationship can add value to the success of design solutions.

Based on the findings of the study, a pilot programme was initiated to attempt framing a relevant Foundation Design Education that responds to the current climate of design, within a technical academia. Design today is considered to be an innovative way to address a wide range of problems, and therefore can be adapted to be taught in different academic domains. Top-tier colleges like Stanford, Harvard, and MIT teach design to students of different disciplines.

As mentioned in the first chapter, in today's context, to be human, is the designer's prime responsibility. Design education needs to train students to understand what it means to be human in the 21st century. To be human today is to include the viewpoints and positions of people like women, children, underprivileged persons, differently abled persons, LGBT, geriatrics, etc., who, continue to struggle to be considered an equal human. To be human today is to acknowledge that man is not the centre of the universe. As designers we need to expand our understanding of what it means to be human in the current context to include communities, industries, nature, environment and the planet. It needs to begin with the Self.

Foundation Design Courses in design education offer an approach of learning design that equips design students to be appropriately prepared to address the problems and issues of the society and industry when they graduate. Students need to develop basic skills, acquire a wide arena of knowledge, and nurture a range of abilities that would prepare them to practice as professionals engaging in design actions of the future. Central to all that is an understanding of what it means

to be truly humanistic, by connecting the Self to humanness. Students receive complete training in basic skills and design awareness, delve into different contexts and concerns, explore different design approaches and perspectives, understand design concepts, engage in cross-disciplinary knowledge acquisition, and develop the notion of the Self for the designer and nurture the Self-Other relationship.

Learning processes have multiple dimensions of developing abilities: The ability to Acquire Skills, Gain and Apply Knowledge, Understand Context, Make Connections, Sensitise the Self, Empathise with the Other, and Understand the Self-Other Relationship in design processes and methods. One might have the knowledge about certain phenomenon or a social reality, but it is not necessary that the person has really learnt about that particular phenomenon or social reality. It is like having a piece of information without any use. Unless we sensitise ourselves towards that particular knowledge and translate it into our behaviour, that knowledge will remain static and confined to our brain cells. Often, even after being sensitised towards that knowledge and translating it into behaviour, one may lack the skill to translate it into action. Learning, however, is not complete till it has journeyed through multidimensions or layers, keeping the Self central to the process by weaving it into the pedagogical aids, and enabling students to develop a prolific understanding of the concept of humanistic approaches in design. Herein lies the criticality for the designer to understand the notion of the Self for the designer and the relationship of the Self with the Other.

In the course of the foundation year, students are offered new challenges that nurture their creativity, improve their critical independent thinking, hone their skills, develop a holistic Self and eventually provide a comprehensive understanding of the Other. Attention is given to exploring different approaches to design processes and conceptual thinking based on specific context, which students are then able to develop further in the chosen design course.

6.3 Opportunity to Introduce a Foundation Design Education at an Engineering Institute

In 2014, a Design Manifesto was prepared by the Ministry of Human Resource Development (MHRD) of India, in consultation with reputed institutions of the country, for a design-enabled

technical education in India. The stimulus for the Design Manifesto (2014) comes from the search for a new inclusive epistemology and an introduction of design education in institutes of higher learning in India. Much has been discussed and discoursed at conferences and seminars since then, but there has been very little precedent for executing these ideas.

In the past, the IT industry has worked in silos, where decisions on product specifications and features were taken by the business management team, software development was done by engineers and customer satisfaction was managed by the marketing team. Design too, in the past, played a role in making things *look pretty*. Today, with an evolving definition of design, designs of products are better, designs of interfaces are more user-friendly, and designs of processes and services are more effective. Design is claimed to add value to technology. The 2015 Design-in-Tech report⁵⁴ attributes design's rise in value to tech as due to mobile devices and the mass-consumerization of computing. Technology, today has moved from *tech-led* to *experience-led* digital products and services. Design today involves collaboration among engineering, business, marketing, and co-creating with the stakeholders and the end user. The veer towards fuzzy boundaries calls for a better understanding of the Self-Other relationship, which can possibly lead to design methods that are responsive to contemporary issues in a more humanistic way. Design has evolved from *designing for the people* to *designing with the people*. Translating this to a Foundation Design Education, students need a pedagogy that helps them develop critical abilities to understand the Self-Other relationship, which can lead to design actions that are more responsible in nature.

The opportunity to implement a relevant curriculum for a Foundation Design Education in an engineering institute came from Indraprastha Institute of Information Technology (IIIT-D), New Delhi⁵⁵. IIIT-D, a state university, was created by an Act of Delhi Government in 2008. Since then, it has gained a high degree of respect within the academic community, and is widely regarded as one of the top institutions in the country for research and education in IT areas, in particular, Computer Science and Engineering (CSE) and Electronics and Communications Engineering (ECE). Later, keeping Computer Science central, newer programmes were initiated like Computer Science and Applied Mathematics (CSAM), Computer Science and

⁵⁴ <https://designintech.report/2015/03/15/design-in-tech-report-2015/>

⁵⁵ <https://www.iiitd.ac.in>

Bio-Sciences (CSB), Computer Science and Social Sciences (CSS) and most recently, since 2017, Computer Science and Design (CSD). Education at IIIT-D is progressive, involving cutting-edge technology and positions the user as central. The mission and vision of the institute is to work in areas that are socially relevant, industry facing, and globally connected.

The B.Tech. in the CSD programme is conducted by the Human-Centred Design Department. The faculty in this department specialises in areas such as HCI, UX/UI Design, Mobile Systems and Applications, Middleware, ICT for Development, HCI, Mobile Computing, Systems, and areas of AI for Social Good, Public Health, Education, Mobile Crowd Sensing, Wearable Computing, Ubiquitous Computing, Tangibles Interfaces, Interaction Design, Gestural Interactions, Education Technology, Rapid Prototyping Techniques, NLP, Computer Vision, Machine Learning, Healthcare, Social Media Analysis, New Media Design, VR, AR, Volume Visualisation, 3D Reconstruction, Animation Film Making, Gaming, Digital Sound Engineering & Design, Concept Art, IT & Indian Service Economy, Sustainability and Lifestyle Change, and Civil Society and the State, and more.

6.3.1 The CSD Programme Structure at the IIIT-D

The B.Tech. programme at the IIIT-D follows a pedagogic structure of having a set of seven Core Courses in Design that span over the semesters 2, 3, 4 and 5 (Table 6.1).

SN.	CORE DESIGN COURSES	SEMESTER
1.	Introduction to Engineering Design (IED)	2
2.	Design Drawing & Visualisation, (DDV) <i>Foundation Design Course</i>	2
3.	Visual Design & Communication, (VDC) <i>Foundation Design Course</i>	3
4.	Design Processes & Perspectives, (DPP) <i>Foundation Design Course</i>	3
5.	Human-Computer Interaction (HCI)	4
6.	Research in Social Science & Design (RSSD) <i>Foundation Design Course</i>	5
7.	Design of Interactive Systems (DIS)	5

Table 6.1
Foundation Design Courses in Semester 2 and 3

In addition to these seven Core Courses the Design programme, there is a set of 14 Core Courses in Computer Science that span over the semesters 1, 2, 3, 4, and 5 (Table 6.2).

SN.	CORE COMPUTER SCIENCE COURSES	SEMESTER
1.	Introduction to Programming	1
2.	Digital Circuits	1
3.	Maths I	1
4.	Systems Management	1
5.	Data Structures and Algorithms	2
6.	Maths II: Probability and Statistics	2
7.	Computer Organization	3
8.	Advanced Programming	3
9.	Maths III: Set Theory	3
10.	Analysis and Design of Algorithms	4
11.	Operating Systems	4
12.	Database Management Systems	4
13.	Computer Networks	5
14.	Technical Communication + Environmental Studies	5

Table 6.2
Core Computer Science Courses in Semester 1, 2, 3, 4, and 5

Other Core Courses consist of Social Science, Advance Maths, and Communication Skills, and span the semesters 1, 2, 3, 4, and 5 (See Table 6.3).

SN.	OTHER CORE COURSES	SEMESTER
1.	Communication Skills	1
2.	HSS	2
3.	HSS/Maths IV	4
4.	Elective	5

Table 6.3
Other Core Courses in Semesters 1, 2, 4, and 5

Once the Core Courses are over, the remaining courses are offered as Electives in semesters 6, 7, and 8. Additionally, B.Tech. Projects that can span over one, two and three semesters are offered (See Table 6.4).

SN.	ELECTIVE COURSES	SEMESTER
1.	Remaining HSS (Humanities & Social Sciences) courses	6, 7, 8
2.	A minimum of 4 electives in CSE	6, 7, 8
3.	A minimum of 4 electives from Design	6, 7, 8
4.	B.Tech. Project, which is compulsory for this program	6, 7, 8
5.	Remaining credits will be Open Electives	6, 7, 8

Table 6.4
Elective Courses in Semesters 1, 2, 4, and 5

Of the seven Core Courses in Design, three consist of the Foundation Design Education. These take place in the second and third semesters. Rest of the Core Courses in Design take place in the fourth and fifth semesters.

Semesters six to eight offer a minimum of 4 electives in Computer Science Engineering and minimum of 4 electives in Design, the remaining HSS courses, a B.Tech. Project, which is compulsory for this program, and Open Electives, and Internships, allowing significant flexibility to the students in designing their curriculum and specialization courses (See Annexure 5).

6.3.2 Implementation of a Foundation Design Education in CSD at IIIT-D

Technical or engineering academia follow pedagogic frameworks which vary significantly from the ones used by the Design academia. These differences can be perceived as challenges and constraints while framing the curriculum. As mentioned earlier, at IIIT-D, the CSD courses are divided among Design, Computer Science, and Humanities & Social Science. No design course is offered in the first semester as the first semester of all engineering institutions have common engineering courses for all engineering disciplines. Of the ten courses in semesters two and three, only three are allotted to the Foundation Design Education.

Typically, a Foundation Design Programme in a Design institute entails approximately 1,020 contact hours over a span of two semesters. Based on the existing pedagogic framework at the IIIT-D, the time allotted to the Foundation Design Education was 250 contact hours over a span of two semesters.

The Foundation Design Programme at the NID conducts eighteen courses. Of these eighteen courses, two (Basic Materials & Methods and Combination of Material) are removed from the

Foundation Design curriculum for CSD at the IIIT-D as they are offered later as elective courses for students who want to specialise in product-focused design. The remaining sixteen courses are re-examined keeping in mind the abilities that were critical for CSD students and the time constraints (See Annexure 6).

The Foundation Design Curriculum for CSD at the IIIT-D was modified into three Foundation Design Courses to adjust for the engineering academia. The scope of the three courses are:

Design Drawing & Visualisation

1. Design Overview; 2. Drawing Methods; 3. Drawing Systems; 4. Sources of Drawing;
5. Introduction to the Indian Culture; 6. Drawing Out of Thoughts (Part 1): Integrating the Visual Language with the Textual Language in Addressing the Self and the Other; 7. Journals; 8. Design Project.

Visual Design & Communication

1. Basics of Visual Design; 2. Visual Design in Communicating Ideas; 3. Visual Design in Different Media of Communication; 4. Introduction to Concept of Context; 5. Info Graphics; 6. Drawing Out Thoughts (Part 2): Articulating Thought Processes and Encoding to Visual Design; 7. Journals; 8. Design Project.

Design Processes & Perspectives

1. Problem Area: Identification and Investigation; 2. Analysis, Synthesis and Problem Statement Formation;
 3. Ideation and Solution Scoping; 4. Evaluation and Testing; 5. Design Perspectives;
 6. Drawing Out Thoughts (Part 3): Articulating Design Processes and Design Perspectives in Problem Solving;
 7. Journals; 8. Design Project.
-

As mentioned earlier, since the academic structure at the IIIT-D is different and the time allotted to conduct this course is compressed, it is important that assignments effectively develop critical abilities that were identified during the course of the study. Initiating the relationship of the Self and the Other remains central to all the three courses developed for the Foundation Design Education at the IIIT-D. The three courses are integrated with each other. The concept of integration is explained later. The three courses encompass all the skills, knowledge, and abilities that CSD students need to acquire, learn, and develop. Details of the three courses are given below (See Table 6.5).

FOUNDATION DESIGN COURSE CONTENTS AT IIIT-D (250 Hours)		
Design Drawing & Visualisation (DDV)	Visual Design & Communication (VDC)	Design Processes & Perspectives (DPP)
1. Design Overview I. Difference between Art, Craft, & Design in Society II. Introduction & History of Professional Design & Design Education 2. Drawing Methods I. Freehand Drawing i. Basic Drawing Exercises ii. Human-Form Drawing iii. Object Drawing iv. Nature Drawing v. Perspective Drawing II. Freehand Precision Drawing with Grid i. Isometric Drawing/Analytical Drawing III. Precision Drawing with Tools i. Geometrical Construction (2D) ii Possibility of a One-Day Workshop in 3D Geometry iii. Orthographic Drawings 3. Drawing Systems I. Isometric Views II. Orthographic Views III. Perspective Views 4. Sources of Drawing I. Drawing from Observation II. Drawing from Memory III. Visualisation Drawing IV. Abstract Drawing 5. Introduction to the Indian Culture I. Integrated into Freehand Drawing II. Integration Continues in Later Courses 6. Drawing Out of Thoughts 1: Integrating the Visual Language with the Textual Language in Addressing the Self and the Other I. Mind Maps: Introspection & Extrospection of the Self and the Imaginary Other. II. Study of the Other 7. Journals Articulating Learnings by Engaging in Reflective Thinking, Critical Thinking, and Nurturing Curiosity.	1. Basics of Visual Design I. Elements of Visual Design II. Principles of Visual Design III. Theories in Visual Design i. Semiotic Theory (Theory of Signs) ii. Perception Theory (Visual Organisation, Perceiving Visual Field, Figure-Ground Perception) 2. Visual Design in Communicating Ideas I. Typography II. Visual Identity Design i. Delineating the Identity ii. Symbol & Logo Design III. Graphic Representations IV. Communication Theory 3. Visual Design in Different Media of Communication I. Print Medium II. Digital Medium III. Photography IV. Videography 4. Introduction to Concept of Context Design for Social Change: Composite Heritage as a Tool for Conflict Transformation and Violence Prevention I. Context of Conflict II. Concept of Composite Heritage 5. Info Graphics I. Types of Info Graphics II. Graphic Representation of Data 6. Drawing Out Thoughts 2: Articulating Thought Processes and Encoding to Visual Design I. Mind Maps: Study of the Perception of Visuals by the Self and Other II. Self-Other Relationship in Communication 7. Journals: Articulating Learnings by Engaging in Reflective Thinking, Critical Thinking, and Nurturing Curiosity	1. Problem Area: Identification and Investigation I. Context and Levels of Complexity II. Field Research and Observation III. Data-Collection 2. Analysis, Synthesis and Problem Statement Formation I. Organising and Categorising Data II. Objective Examination III. Articulation of a Problem Statement 3. Ideation and Solution Scoping I. Exploring Creative Thinking Experiences II. Proposing Universal and Sustainable Solutions 4. Evaluation and Testing I. Activities Involving the User (Card Sort, Usability Testing, Onboarding, etc.) II. Step by Step Prototyping III. Next on Agenda/Way forward. 5. Design Perspectives I. Sustainable Design (Self Study) II. Participatory Design (Skype Class) III. Universal Design (Skype Class) III. Slow Design (Self Study) IV. Responsible Design (Self Study) 6. Drawing Out Thoughts 3: Articulating Design Processes and Design Perspectives in Problem Solving I. Mind Maps: Scoping of Problems and Problem-Solving processes II. Self-Other Relationship in Design: User-Centric Design 7. Journals: Articulating Learnings by Engaging in Reflective Thinking, Critical Thinking, and Nurturing Curiosity
8. Design Project Integrating Drawing with Thinking Processes: Meaning/Sense Making, Analytical Thinking, Collaborative Thinking, Creative Thinking, Co-Creating, Communicating.	8. Design Project: VDC + DPP Combined Integrating Process Oriented Design Thinking with Visual Design: Meaning/Sense Making, Analytical Thinking, Collaborative Thinking, Creative Thinking, Co-Creating, Communicating, Problem Solving • Foundation Design Courses in Design Schools (e.g., NID) • Additional Inputs Included for CSD students (@ IIIT-D)	

Table 6.5
 Course Contents of Foundation Design Courses at the IIIT-D
 BLUE TEXT: Foundation Design Courses in Design Schools (e.g., NID)
 GREEN TEXT: Additional Inputs Included for CSD students (@ IIIT-D)

6.3.3 Implementation of the Findings from the Study

Four critical findings of the study were kept in mind while implementing the Foundation Design Curriculum:

1. The study of the Foundation Programme at NID, as explained in the previous chapter, established that no part of the NID curriculum was found to be redundant or outdated. The course content of a heritage Design institution needed to be preserved. For the students of the CSD programme at the IIIT-D not to be at a disadvantage, they needed to be given the inputs that are imparted to the Foundation Programme students at the NID. What was critical was to look at the relevant abilities that students needed to develop in a contemporary Foundation Design Education. Based on the list of abilities that emerged from the study conducted with design educators, assignments were developed keeping the profile of CSD students in mind. Several critical additions were made to maintain the relevance of the Foundation Design Curriculum. Some of these additions were woven into the course while some were introduced as workshops. For example, the CSD students at the IIIT-D receive inputs in Typography, Visual Identity, Photography Videography, Storytelling, etc., as they needed to apply these in their subsequent core courses which are offered immediately after the Foundation Design Course. Advance-level inputs of some of these are offered as Elective courses later in the academic programme.

2. The study also established the emphasis on skills in Foundation Design Education. The concerned voices of design educators from the previous chapters recommend a shift of this focus to a more humanistic education. Furthermore, there is no evidence of the minimum duration required for all the skill courses in Foundation Design Education. The Foundation Programme at NID originated with a three-semester model. It was reduced to a two-semester model in the 1990s. There has been no study done to claim that there could be no further foreshortening.

In order to fit the Foundation Design Curriculum into a shorter duration, to fit the academic framework of an engineering institute, various techniques were explored. Since the course duration is short, tools and techniques were designed to help students learn the range of skills and understand design concepts within the constraints of time (See Table 6.6).

TOOLS TO AID LEARNING IN COMPRESSED TIMELINES		
DDV	VDC	DPP
Drawing Assist: An acrylic clip board that aids in seeing, perceiving & drawing contours and understanding concept of perspectives in the environment. (See Figure 6.1)	Shared Learning: Dividing a list of assignments among group members and sharing learnings from each other.	Collaborative Learning: Addressing problems in a team by dividing responsibilities, combining skills, cross pollination of ideas, and co-learning while working.
Journal: Introspections that include reflective thoughts, critical thoughts and research. A conscious articulation of the learning process on a regular basis.	Journal: Introspections that include reflective thoughts, critical thoughts and research. A conscious articulation of the learning process on a regular basis.	Journal: Introspections that include reflective thoughts, critical thoughts and research. A conscious articulation of the learning process on a regular basis.
Common Feedback: Critique of students' work displayed where students learn from feedback given to others.	Common Feedback: Critique of students' work displayed where students learn from feedback given to others.	Common Feedback: Critique of students' work displayed where students learn from feedback given to others.
Individual Written Feedback: Since there is little time for 1:1 verbal feedback.	Individual Written Feedback: Since there is little time for 1:1 verbal feedback.	Individual Written Feedback: Since there is little time for 1:1 verbal feedback.

Table 6.6
Learning Tools for the Foundation Design Courses at the IIIT-D



Figure 6.1
Drawing Assist to aid seeing, perceiving, analysing and understanding theories.

3. The study of the interviews of design educators presented recommendations which are critical and required to be woven into the fabric of the curriculum for a more Foundation Design Education. These recommendations, discussed in the previous chapter, are a set of abilities that are critical for Foundation Design students to develop during their learning period. The recommendations of design educators were made requisite and integrated into all the Foundation Design Courses. As mentioned, it is critical that assignments are developed based on the abilities that students needed to develop.

4. The study identified a gap from the interviews (See Table 6.6). This lacuna was kept central to the Foundation Design Curriculum while developing it. The study suggested that a better understanding of the Self for the designer and the Self-Other relationship, when introduced into the pedagogy of a Foundation Design Education, can possibly lead us to design methods that are humanistic and more responsive to contemporary issues. The notion of the Self is kept central to all the courses. It is believed that it facilitates an understanding of the Self-Other relationship and is referred to as a constant to enable students internalise the concept and their importance.

Given below are the abilities that emerge from interviews with design educators (See Tables 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, and 6.15). The abilities are clustered into nine groups:

1	Ability to learn with an open mind without fearing to make a mistake	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
1.	Ability to adapt to a different system of learning			00:05:15						
40.	Ability to be curious & questioning							00:40:02		
53.	Ability to develop a risk-taking approach									00:11:15
42.	Abilities to inculcate interpersonal skills						00:10:48 00:12:35			
25.	Ability to work on different projects/assignments simultaneously (multitask)								00:32:25 00:33:30	
46.	Ability to have the right attitude to finish work						00:30:52 00:31:33			
44.	Ability to manage time and finish projects/assignments						00:29:30 00:30:14			

Table 6.7
Ability to Learn With an Open Mind Without Fearing to Make a Mistake

2	Ability to Engage in Thought Processes	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
10.	Ability to articulate a thought process				00:41:40					
13.	Ability to think in a context				00:41:40 00:43:40					
14.	Ability to think conceptually					00:22:40				
15.	Ability to think critically			00:25:08						

Table 6.8
Ability to Engage in Thought Processes

3	Ability to Solve Problems	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
9.	Ability of developing a thought process of problem solving	01:25:40			00:04:15 00:41:40					
21.	Ability to generate appropriate responses/solutions to the situation/product/service	01:27:40 02:00:20								
43.	Ability to work at day-to-day solutions as design problems						00:12:35			
22.	Ability to apply and connect skills and knowledge in a given context							00:32:08	00:20:14 00:21:10	
26.	Ability to find multiple solutions to a problem								00:35:50	
18.	Ability to visualize									
39.	Ability to work with hands							00:39:35		
17.	Ability to use technological tools					00:23:30				
52.	Ability to know your tools/software						01:50:25			
45.	Ability to present effectively						00:29:30			

Table 6.9
Ability to Solve Problems

4	Ability to make a Positive Change	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
5.	Ability to make a contribution towards improving the quality of life	01:30:35	01:03:30		00:01:05					
6.	Ability to achieve something meaningful in life				00:03:45					
8.	Ability to adapt to the environment and socio-economic reality			00:23:32 00:44:55	00:04:15					
23.	Ability to identify a problem as opposed to be given a problem								00:23:55	
27.	Ability to find a challenge								00:49:50	
34.	Ability to look into sustainable issues in Design							00:08:30		
35.	Ability to identify and perceive social concerns							00:09:58		
36.	Ability to identify and address wicked problems/difficult issues/complex concerns and add value to society						01:26:40	00:09:58 00:13:50		

Table 6.10
Ability to Make a Positive Change

5	Ability to Solve Real Problems at both Urban and Rural Levels	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
4.	Ability to work out at a grass-root level		00:46:55	00:22:22						
7.	Ability to take on a bottom-up approach			00:21:30 00:25:40	00:02:28					
20.	Ability to adopt an indigenous approach			00:26:20 00:28:40						
33.	Ability to work in diverse situations/groups							00:09:58	01:01:35	

Table 6.11
Ability to Solve Real Problems at both Urban and Rural Levels

6	Ability to Work Across Disciplines	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
12.	Ability to deal with a variety of perceptions			00:03:55 00:04:35 00:44:55	00:16:50 00:17:32					
16.	Ability to draw on information from other disciplines	01:25:40		00:24:16		00:23:10				

Table 6.12
Ability to Work Across Disciplines

7	Ability to Engage in Holistic Thinking	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
41.	Ability to connect local issues in the global context, world view, and value system							00:51:55		00:23:50 00:26:15
47.	Ability to think holistically						01:00:30			

Table 6.13
Ability to Engage in Holistic Thinking

8	Ability to Research and to Imagine the Future	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
2.	Ability to gain insights		00:42:50							
3.	Ability to reflect		00:43:20							00:46:00
54.	Ability to reflect and research/to imagine the future/to see patterns/to analyse and reason									00:46:00

Table 6.14
Ability to Research and to Imagine the Future

9	Ability to Connect the Designer Self to the Other	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
11.	Ability to be humble, empathetic	02:21:35 01:25:40	00:29:00		00:11:20					
24.	Ability to be passionate about one's choice of profession						00:14:30 00:14:45 00:44:00	00:42:15	00:27:45 00:28:32 00:29:26	00:38:55
28.	Ability to self-critique dispassionately								00:50:40	
30.	Ability to be able to sustain/financially support oneself						01:26:40			
37.	Ability to have an ethical understanding of the responsibility to the user						00:04:00 01:48:35			
38.	Ability to be humble							00:39:02		
48.	Ability to look at a project from a human being's point of view rather than technically						01:01:00 01:06:15			
51.	Ability to find a balance between commercial activities and intellectual needs						01:46:55			
55.	Ability to develop an intuitive attitude									00:46:00
29.	Ability to work in difficult scenarios							00:08:30	00:55:50	00:25:30
19.	Empathy and emotion in design process							00:13:50		
31	Connection to Self							00:40:43 00:41:27		

Table 6.15
Ability to Connect the Designer Self to the Other

According to many respondents, it is critical that the Self for the designer is acknowledged and identified. The human being is now a user to study. This clearly shows a separation of a person, who is trying to help another, who is differently privileged. The Other is a product of study, which is far removed from an empathetic relationship with the designer self. No clear attempt is made to define the own Self. This difficulty is not true only to design but also to science and technology, which claims that it works for people at large (e.g., Biotech works towards food for everyone, Computer Science works towards good health for all, etc.).

In a complex and unjust world of inequalities, the ideal scenario of equality and equal opportunities are a constant challenge. A challenge in both the Self for the designer and in the Self-Other relationship. It is important for the designer to be an egalitarian. In modern democratic societies, the term ‘egalitarian’⁵⁶ is often used to refer to a position that favours, for any of a wide array of reasons, a greater degree of equality of health, wealth and equal opportunities across humans than currently exists (Arneson, 2013).

The goal of egalitarianism is to achieve in principal a working framework of socio- economic-political arrangement that will bring about the elimination of all types of inequalities. The foundation of such a goal demands that humans be treated equally except when there is an overriding justification for allowing inequalities. (Afolayan, 2015).

It is important for designers to be aware of array of terms, concepts, arguments, and assumptions that are not always obvious about developing an understanding of concept of egalitarianism. Furthermore, it is important for designers to practice egalitarianism for an ethical consideration of human well-being and improved quality of life for human beings.

Egalitarianism is significant because it provides the moral framework that links the personal and the public spheres in a manner that aids in policy developments in healthcare, education, employment opportunities, and so on (Afolayan, 2015). Understanding and practicing the concept of egalitarianism would not only help designers recognize their own locus and privilege vis-à-vis the Other but also be less prescriptive in their approach in design responses.

⁵⁶ An egalitarian favours equality of some sort: People should get the same, or be treated the same, or be treated as equals, in some respect. An alternative view expands on this last-mentioned option: People should be treated as equals, should treat one another as equals, should relate as equals, or enjoy an equality of social status of some sort. Egalitarian doctrines tend to rest on a background idea that all human persons are equal in fundamental worth or moral status (Arneson,2013).

By identifying one's own socio-economic standing and therefore one's own desires into focus, the claim to serve the less privileged ought to be examined more clearly. Are designers actually doing that, or is it a remnant of an old idea that was there then but does not really exist now? A closer look at student projects could differentiate real design from superficial design. For example, safety issues on a railway station motivate a student to design a futuristic signage design as a proposal for a project, clearly indicating a superficial approach to design. On the other hand, a realistic approach would include looking for answers to uncomfortable questions like how many people die on the local trains in Mumbai every day, why the trains are so overcrowded, why the population is increasing rapidly, why do designers not face these issues themselves, etc. As per the statistics provided under an RTI query, apart from 6,989 passengers who died after falling from trains, 22,289 passengers succumbed while crossing the tracks (trespassing)⁵⁷.

Respondent mentions, "*Roti, kapada, makan* (food, clothes and shelter) is a human need—it is as basic as that, and if people are not finding that interesting...they have a wrong idea." If one can view the problem from the inside rather than as an outsider, the real problem could be better addressed. An absolute lack of awareness of the main issues shows how we are missing the point, when we equate design to superficially understood problems. A real design problem would be like, for example, in the design of cities, which is not like the recent trend of designing Smart Cities but perhaps, design with questions like what are alternative cities? Why is there so much migration into cities for better opportunities? Do designers have the ability to examine deeply and perhaps, as an example, link the problem of safety issues on a railway station to that of mass migration? Are designers able to recognise what real questions are? As human beings how do we, as designers, see the world? As designers, do we really feel empathetic to someone who is differently privileged and not just a study of a user?

One of these essential features of good design, which is brought in nearly every discussion/conference on the designer's role and impact in recent decades, is empathy: the capacity to place oneself in another's position, or the capacity to understand and identify what another person is experiencing *from within the other person's frame of reference*. In essence, for a design to be good and for a designer to be able to truly justify his intervention, he must

⁵⁷ <http://indianexpress.com/article/cities/mumbai/deaths-due-to-fall-from-overcrowded-mumbai-local-trains-go-up-reveals-rti/>

himself be the end-user, and this can happen only when the designer is himself a part of the problem for which a solution is being designed. While courses such as environmental exposure and user-studies are an attempt to cultivate this sense of empathy and sensitize the designer Self, these inputs need to be sustained throughout the designer's training from the Foundation Program through his tenure in his chosen field of specialization. Thus, is there a need for design assignments in Foundation Design Education that will help develop the notion of the Self for the designer?

The core of the thesis is an attempt to understand how the notions of the Self, the Other, and a relationship between these two plays out in a Foundation Design Education. It appears that responding to the Other is an important attribute in the act of design, for design is often intended to improve some aspect of our external world. An understanding of the Self is often not explicitly emphasized as a design method; in fact, design methods often seek to underplay the subjective, in their quest for an objective analysis. Interviews with design educators provided insights based on their experiences in education. These were clustered as sub-abilities under an overarching umbrella of understanding the relationship of the designer as Self and the Other. These abilities were kept central in three courses: DDV, VDC, and DPP. At the end of each course, as part of the study, students volunteered to identify these abilities and map them back to their assignments.

6.3.4 Proposed Framework for a Foundation Design Curriculum

The research is based on the belief that a prolific understanding of the Other or user is critical for a designer, and a deep understanding of the Self for the designer facilitates this process. A design student can initiate the process of engaging in empathy by beginning to understand the Self. Designers can gain insights and share an understanding with the Other after they apply an introspective enquiry with the Self first. Design students need to experience the complex layering in every human being; the socio-economic, cultural, educational, political, and philosophical amalgamation in a person. Most students have never attempted to explore these multi-layered dimensions within themselves.

The notion of the Self for the designer is woven into the fabric of a Foundation Design Education early in the curriculum. It is persistently interlaced into lectures, discussions, and

practical assignments such as drawings, visualisations, ideation, journals, design process, and design research. Design students come with their own set of experiences, biases, and knowledge. They need to expand and push beyond their empathic horizon and align to the Others' situation and cultural cues shaped by multiple dimensions of their lives. The course helps in developing abilities that facilitate design students in sensitising themselves to enable them to work with the Other, and to make improvements in the society in a holistic manner.

The DDV, VDC, and DPP courses are not conducted as siloed courses. Foundation Design Courses are developed keeping in mind the level of progression that takes place from one semester to the next, and especially makes sure that the courses progress systematically. Hence the courses are integrated, which means, one course seamlessly progresses into the next (See Figure 6.1).

For example, when students attend the DDV course in semester two, they are gradually introduced to the elements of VDC and DPP towards the end of the course in the form of a project. The VDC and DPP courses run parallel in semester three. In the second half of both the courses, they merge into a single live project where students apply all that they have imbibed in the three courses in a real project with actual clients. Elements of RMSSD and HCI are also introduced in VDC and DPP, and students apply a holistic understanding of all their learnings in the final project. Students learn to apply learnings from one course to another keeping the Self-Other relationship central. Once they are able to make a habit of it, it stays for life. Initiating an understanding of the relationship of the Self and the Other remains central to all the courses developed for a Foundation Design Education. This is stressed upon significantly in the first course, DDV, with the assumption that it will get ingrained in the students' thinking process and that they will begin to apply it to the subsequent courses of VDC and DPP.

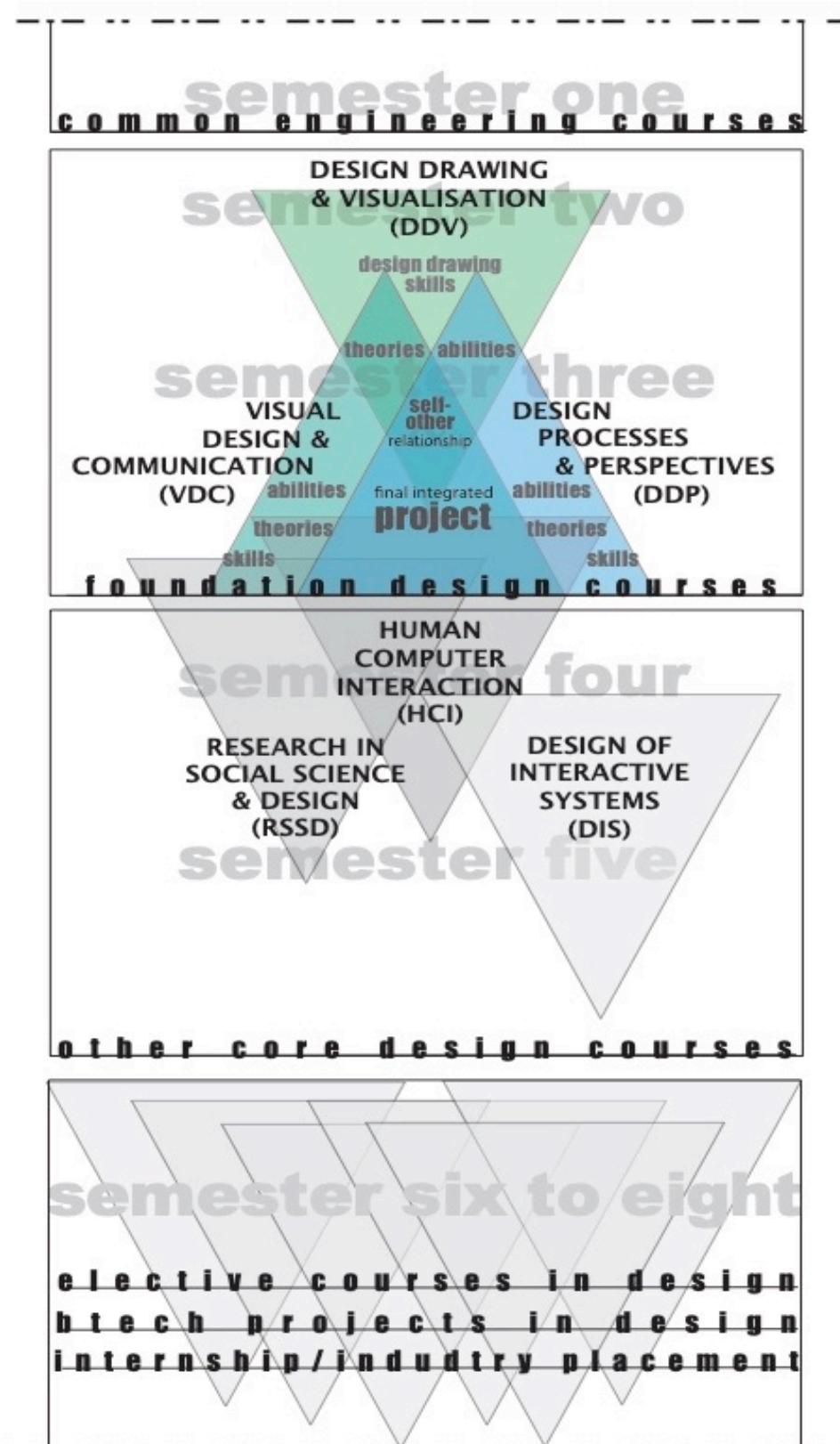


Figure 6.2
Seamless Overlaps and Transitions of Courses in the Foundation Design Education

6.4 The Design Drawing and Visualisation (DDV) Course

6.4.1 Introduction to the DDV Course

The DDV course in the Design Course at the IIIT-D is the first course for students to develop one's Self with the understanding of the Other. Design Drawing is described as “based on the premise that drawing is central to the design process, this course focuses on drawing as a medium for observing, representing, conceptualizing, analysing, visualizing, and communicating design ideas. The emphasis is on drawing by hand, which is the most direct and intuitive means we have to express our visual thoughts and perceptions. In direct response to our visual thoughts and perceptions, we develop an understanding of spatial concepts and the critical ability to think and visualize in three dimensions through the tactile nature of drawing. This course fosters understanding of drawing and sketching as a means to develop observational skills through the study of the environment and as a tool for visual representation, ideation/conceptualization, visualization and communication or presentation of design ideas through sketching and drawing from both observation and memory.” (See Annexure 7).

Further, the part on Visualization Drawing is described as “Visualization is an act of thought or reflection. In design, we speculate and visualize what might be possible in the future. Drawing gives material existence to our conceptions so that they can be seen, assessed, and acted upon. The drawing out of these ideas, whether executed quickly or slowly, roughly or carefully, is necessarily speculative in nature. We can never determine beforehand precisely what the final outcome will be. The developing image on paper gradually takes on a life of its own and guides the exploration of a concept as it travels between mind and paper and back again. Drawing from the imagination addresses issues that arise as we think in a speculative manner to stimulate the design process, develop our design ideas through drawing, and plan how to present our design proposals in the best possible light. This course gives the students an overview of the generative and developmental stages of the design process and drawing as distinctly speculative in nature. Thoughts develop as a drawing progresses, which can alter perceptions and suggest possibilities not yet conceived.” (See Annexure 7).

6.4.2 Objectives of The DDV Course

The objectives are planned in a manner that sustain the relationship of the Self and the Other as the primary focus. The assignments conducted, maintain the focus of the objectives by developing certain abilities in the students. First, the “students will develop the skill and ability to observe and visually represent all the elements in their environment with a focus on human forms, objects and nature and the way they interact.” Second, the “students will inculcate skills and develop the ability to explain the importance of precision in design through drawings using instruments/tools and the concept of geometrical forms and configurations of forms through basic geometrical patterns on 2D surfaces.” Third, the “students will develop the ability to discuss orthographic projections of forms through Technical Drawings and Isometric Views of forms through Analytical Drawings and use these as a tool for visual understanding and visual representation.” Fourth, the “students will develop the ability to analyse visual structure of 3D forms on 2D surfaces with an understanding of spatial concepts.” And fifth, the “students will develop the ability to analyse complex images and in turn develop the ability to create mental imageries and visualise concepts.” (See Annexure 7).

In order to achieve the objectives, students are first introduced to drawing and its significance, by sensitising them to observe accurately, perceive drawing as tool to develop a plethora of abilities, and represent visuals accurately. See Table 6.7 to 6.15 for a list of abilities discussed earlier.

Rather than conceiving courses in Foundation Design Education as a set of assignments that have sustained themselves for decades, assignments are planned based on abilities students need to develop. Since the time allotted to conduct this course is compressed, it is important that assignments effectively develop critical abilities that were identified during the course of the study. Initiating the relationship of the Self and the Other remains central to all the courses developed for the Foundation Design Education.

6.4.3 Description of the DDV Course: The Assignments

Assignments are meant for determining the student's activities that support learning. They facilitate development of skills, methods, theories, concepts, and knowledge for the students. Careful planning and implementation of assignments is necessary to fulfil the course objectives and help students understand drawing as a tool to observe, document, process, analyse, communicate, visualise, ideate, and conceptualise. Assignments in the Foundation Design Course are started from week one itself, starting from basic drawing assignments.

The assignments in the DDV course are clustered together to impart learnings (as an amalgamation of developing skills, knowledge, abilities, and a sensitisation of the designer-Self for a better understanding of the Self-Other relationship) in categories as:

- Drawing Overview
- Drawing Methods
- Drawing Systems
- Sources of Drawings
- Introduction to the Indian Culture
- Drawing Out of Thoughts: Integrating the Visual Language with the Textual Language: A Study of the Self and the Imaginary Other (See Annexure 8 and 19).

6.4.4 Initiation to Drawing: The Cognitive Process

The DDV course is initiated with sensitising the students to connect with their emotions. Students experience the cognitive process of representing emotions through abstract visual markings. The objective is to introduce the students to the brain-eye-hand-visual representation relationship. This activity aims to demonstrate to the student that the visual language exists in all human beings. Not only is a person able to represent emotions with abstract visual markings, but others are able to make meaning of these drawings. Drawing is not always a prerequisite for students who join a design school. Drawing is a learnable skill (Edwards, 1979, 2008). Adapted from Betty Edward's *Drawing Out Insights*, this activity aims to reassure many engineering students who fear drawing, or are apprehensive about their ability to draw or who think they cannot draw, that everyone can learn to draw.

The students are asked to first shut their eyes, recount any one emotion (e.g., anger) and think back to the last time they had experienced this emotion and attempt to relive the moment for about a minute. Then they open their eyes and allow their hands to draw using pencil on paper without any conscious intent. The emotion experienced, sends a message to the arm, down to the hand holding a pencil, and makes markings on a paper which is equivalent to the emotion. Students are cautioned not to try to visualise beforehand what the completed drawing should be. The emotion experienced, sends messages to the hand to apply or not to apply pressure on the pencil: dark lines, light lines. It controls the speed of making the markings. It prompts the quality of the markings: thick lines, thin lines, jiggered lines, smooth curvy lines, lightly filled spaces, dark filled spaces, etc. (See Figure 6.3.)

The drawings of students as part of the Pilot Programme were displayed for all to *read*. Although there were infinite variables, there were significant broad similarities within the same emotion. The drawings made the emotion visible and readable, thus establishing a natural existence of a visual language.

This was the first exposure of the students to connect to their inner Self and to the visual language. They also realised the potential of the tool that they used to express an emotion in a tangible visual form. According to one student, “We developed an understanding of our subconscious mind. We have a logical explanation of why certain strange things happen, thanks to our subconscious. We became more understanding of emotions, right from the basic to more complex ones. We explored the different relations with certain words, moods and visual marking.” Students became aware that there was a logical explanation to the visual markings which accurately reflected their inner emotions in their Self.

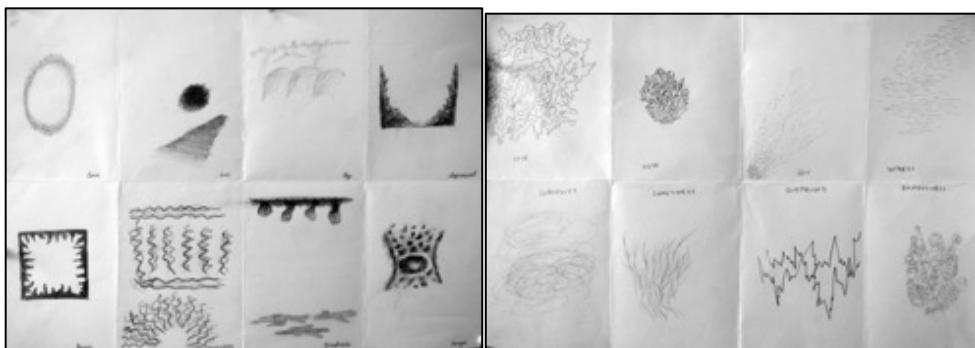


Figure 6.3
Drawing Out Emotions

6.4.5 The Drawing Methods

The objective for coining the nomenclature Drawing Methods was to inform students of methods of drawings and their unique features. The Drawing Methods are categorised as Freehand Drawing, Precision Drawing with Tools, and Freehand Precision Drawing with an Isometric Grid. Students are made aware of the strengths and functions of each type of drawings so they can make informed choices when they apply drawing as a tool in design. Each method of drawing develops many different abilities in a design student.

Freehand drawing is an important skill to learn in the Foundation Design Education. Other than the skills that are developed like eye-hand-coordination and control over medium of drawing, this also develops several abilities. It develops many critical abilities beyond traditional abilities to observe details; perceive forms on 2D surfaces; 3D spaces and perspective; and proportions. Traditionally, it also develops the ability to represent images, ideas, concepts, visualisations, and articulate thinking processes. With the introduction of the Self and the Other, students develop attributes like patience, a curious mind, attention to details, and a connect to the Self and the Other, where the Other can be a human or an artefact.

Precision drawing with tools is another important skill to learn in the Foundation Design Education. Geometry is derived from the ancient Greek words, *geo* which means earth and *metron* which means measurement. Geometry is omnipresent in both in our natural environment and in our build environment. Fractal Geometry as it exists in nature is unique in its way of scaling. Geometry helps students understand the concepts of proportions, scale, and grid. Students are introduced to techniques which examine geometric characters like dots, lines, planes, vertices, edges, surfaces, etc., with the highest level of precision. It trains the student to realise the meaning of precision where accuracy is not negotiable, and introduces the student to the concept of perfectionism which will be applied at decisions they make in their future. It develops the ability to describe and construct shapes, tessellate patterns, and analyse their interrelationships. It sensitises the students to the hidden geometric structures in nature. With the introduction of the Self and the Other, students develop an ability to seek connections in relationships, especially while addressing duality in geometry. The Self and the Other are woven into the concept of interrelationships between elements in geometry.

Freehand precision drawing with an isometric grid is yet another important skill to learn in the Foundation Design Education. It develops the ability to scale up ideas, concepts, and visualise them without distorting the drawing. Like the toy building blocks, Lego, Isometric Drawing helps in scaling, duplicating, and multiplying visualised spaces, artefacts, and more. Unlike the drawing of a perspective view, Isometric Drawing does not take distance into consideration and distort the drawing. It prepares the student to work in virtual spaces. With the introduction of the Self and the Other, students develop an ability to seek connections in complex relationships not just along the X and Y axis, but also along the Z axis and make sense of them.

6.4.6 The DDV Assignments

The assignments in Freehand Drawing begin with a series of basic drawing tasks where students learn to explore and develop a comfort level with the tools and materials. They explore the human body, with a pencil and the human eye as a tool. They explore the wide range of possibilities that the human-tool symbiotic relationship offers. Students experience a conscious relationship between the parts of their human body. Said a student as part of the assignment for the Pilot Programme, “We developed much better hand-eye coordination.” In the process, students also experienced the tool as an extension of their physical Self.

Students discovered qualities in their Self that they begin to nurture when they engage in drawing as an activity. One student commented that “We became more patient and realised the importance of practice/iterating over the same thing.” Students continued the journey of slowly being cognizant of the various facets of their Self. “We often tend to be impatient and want immediate results of our action, but what we need to learn is that our small efforts count up to make a bigger change.”

Students also claimed, “We have become more observant and tend to notice and understand the concept behind things we see every day.” They began their journey of sensitisation and learned to apply theory and practice to their environment—both built and natural, a small step towards connecting the inner thoughts of the Self to the outside world. This outside world, which they begin to acknowledge, comprises other humans, nature, objects, architecture, etc.

As the assignments progressed, so did the consciousness of the Self. One student observed while drawing objects, “We developed curiosity. We started looking at how different materials are made and used. We became more aware of production processes. We started looking at everything as a result of so many steps. For example, we would earlier use a mug, taking it for granted. Now we have learnt to appreciate the product that is in front of us. We think of the people, places and materials involved in the production process.” Students developed a questioning mind while engaging in drawing of objects in the built environment. “We have become more critical too. We now look at products and try to figure out flaws.” A questioning mind ignites a plethora of possibilities. It also discourages the Self to take things for granted or recognise personal biases.

While engaging in exploring different methods of drawings, students were encouraged to continue to nurture the observant Self. They began to train their eyes to pay attention to details. When they progressed from freehand drawing to precision drawing, they developed a discipline towards accuracy and no tolerance for errors. One student shared, “We realised the importance of details. We became more meticulous with our work. It took us various attempts and a lot of precision to maintain the angles. Taking any shortcut like extending the line blindly to complete the work in lesser time meant going off by a degree or two. But every small error of even a degree kept getting magnified and made the overall drawing off by many degrees as we reached the end.”

6.4.7 The Drawing Systems

The Drawing Systems are categorised as Perspective (View) Drawing, Orthographic (View) Drawing, and Isometric (View) Drawing. Assignments build understanding of these different views as part of developing both observation and visualisation skills.

Once these skills are developed, students are encouraged to align their thinking to the Self and the Other. They begin to associate these as different views or different perspectives of people and life. According to one student, “We became observant. We started noticing perspective in everything around us. We appreciated the importance of a universal system of drawing. However, we started looking at different systems of representation as we look at different

languages and started learning them. We applied these fundamentals to different ways of viewing things in life and realised that people can have different perspectives in the way they see things or approach things.”

Another student claimed that, “Learning about Orthographic Views made us begin to see things from different sides...in fact from all sides and even the side that is not visible. We realised that we are able to conjecture on what we cannot see by carefully analysing what we can see.” She goes on to say that, “We also realise that we could apply this learning to everything in life. It opened our eyes to the infinite possible ways of viewing.”

6.4.8 The Sources of Drawing

The Sources of Drawings are categorised as Drawing from Observation, Drawing from Memory, Drawing from Imagination (Visualisation), and Abstract Drawing. Students were initiated to the concept of observation with the assignment to draw their own portraits. This is the first time most students attempt to draw their own faces by looking into a mirror. It is said that the mirror reflects reality. The students train themselves to look at their physical self and attempt to draw what they see and not what they would like to see. The students learn to see their own faces dispassionately, and represent it in a drawing, keeping in mind of all the relationships and proportions between the elements of the face. According to one student, “It was difficult at first, because I wanted the drawing to make me look good. I realised on close observation, that my face was not symmetrical. I began to make connections between different parts of my face. I noticed many details that I had never observed. This made me realise that I should not assume two situations in the same context to be identical.” Another student admitted that the assignment instilled the need to develop patience while relooking and reiterating the drawing. Thus, understanding the need to develop the attitude to delve into the depth of a given situation. (See Figure 6.4.)



1st Attempt



2nd Iteration



3rd Iteration

Figure 6.4
Drawing of Self Portraits from Observation

Of the many skills that students developed was to progress from observational skills to reflective and speculative skills. Students were encouraged to explore the Self as well as retrieve information of the Self from the past to be able to think about how the Self has evolved and to explore what they aspire to be in future. One student reflected, “We differentiated between reflecting from memory to speculating the future. Usually we are comfortable in representing what we see as observation but now we also learnt to visualise things that are yet to take place in the future.” Students are introduced to Drawing from Memory and Drawing from Imagination with the activity of drawing their Self as a five-year-old from past memory and as

a seventy-year-old Self from a visualised future. Students are introduced to the Mind's Eye (See Figure 6.5.) According to the Merriam-Webster dictionary, Mind's Eye is the mental faculty of conceiving imaginary or recollected scenes. Students, exposed to the many facets of drawing, began to perceive drawing as a tool to develop observational skills, reflective skills and speculative skills, to visually represent past and future experiences and understand the concept of visualising images. They were able to do so in a short period of time by using the Self as the central subject.

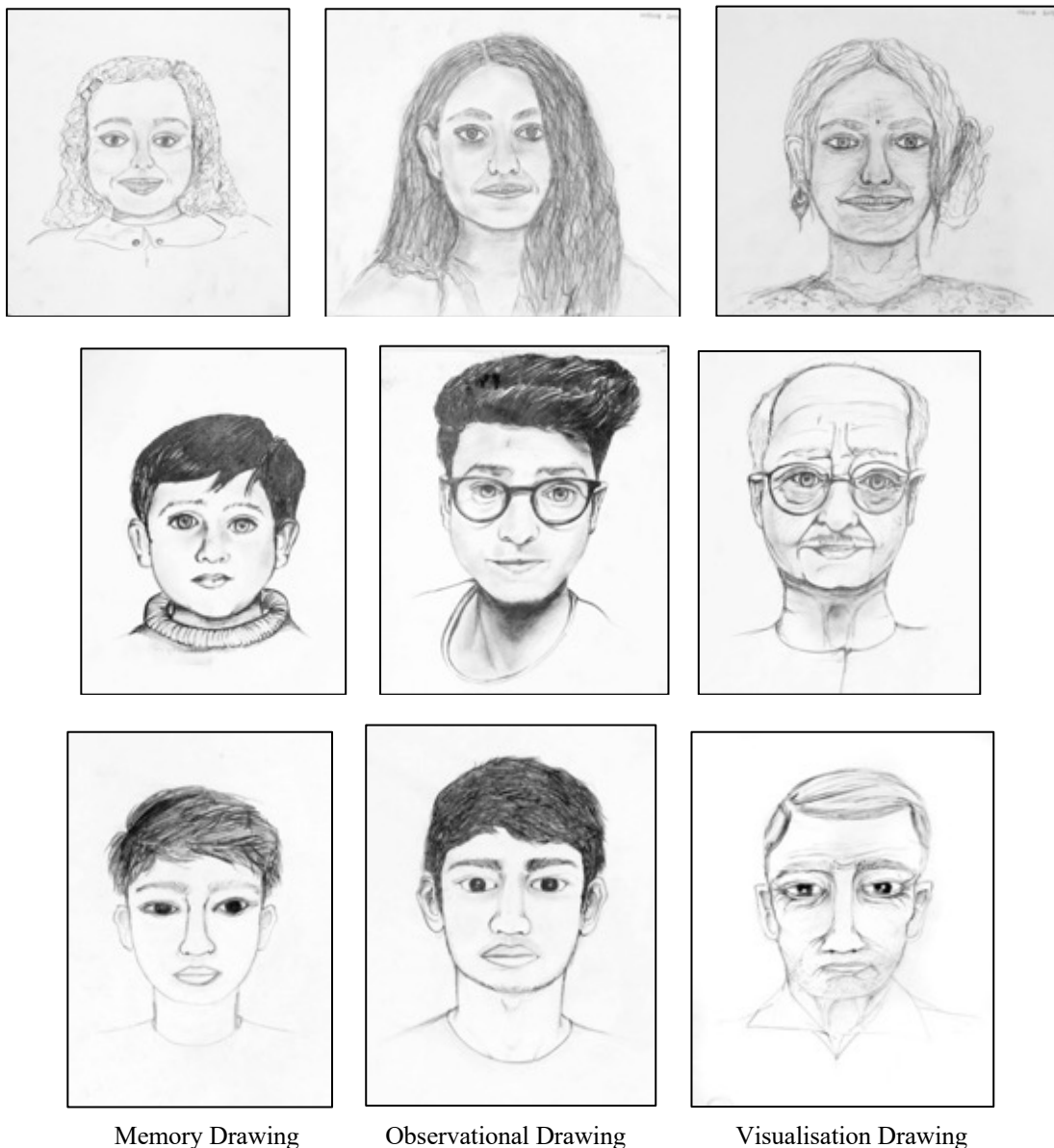


Figure 6.5
Drawing from Memory, Observation, and Imagination

Speculative skills are built upon to develop an understanding of the concept of abstraction. Abstract Drawing is also introduced in a manner through the Self. The assignment required the student to visualise masks in abstraction based on the attributes that describe their Self (See Figure 6.6). Students begin to relate to the visual language and communicate through their drawings. According to one student, “We became more confident in using drawing to communicate ourselves.” Another student comments that “We differentiated between drawing as just art and drawing as a tool for communication. We, however, developed individualistic styles of drawing and writing. We built our own quick ways and tricks of certain tasks. We developed unique styles of work that somewhat reflected our personalities. A deep understanding of the Self helped to develop an individual style.” They went on to explain that “Ability to personalise a generic mood or trait, for example, for a word like ‘moody,’ we all had similar drawings but each had some unique character that brought out the individual’s personality.”

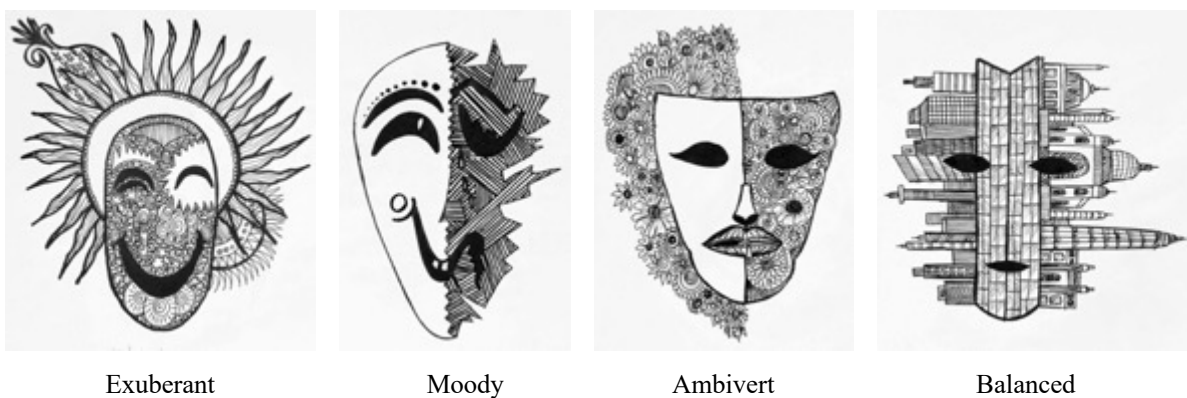


Figure 6.6
Abstract Projection of the Self

6.4.9 An Introduction to the Indian Culture

Drawing is not taught in isolation. A cultural context is woven into the drawing assignment as lectures and discourses, once the students achieve a comfort level in drawing. Culture by definition has a wide range of meanings. At one level, it refers to the customary beliefs, social

forms, and material traits of a racial, religious, or social group. Or it can mean the characteristic features of everyday existence (such as diversions or a way of life) shared by people in a place or time, such as the term *popular culture*. At another level it can refer to a set of shared attitudes, values, goals, and practices that characterizes an institution or organization, such as the term *corporate culture*. On yet another level, culture can refer to the set of values, or social practices associated with a particular field, activity, or societal characteristic, such as the term *culture of materialism*. Culture also refers to a taste in fine arts, humanities, and the broad aspects of science as distinguished from vocational and technical skills, such as the phrase *a person of culture*. Rogoff (1990) argues the roles of the individual and the social world are mutual and not separable, as humans by nature engage in social activity with their contemporaries and learn from their predecessors. It could then regard the immediate cultural contexts, in which children are involved in problem solving, in collaboration with others (in Piaget's terms), influence the process by which children's thinking develops.

Groups	Members	Traditional Artefact
Group 1	Manavjeet Singh, Sarthak Arora, Shourya Pathak, Siddharth V	Karha: A Religious Artefact from Punjab
Group 2	Jasmine Kaur, Rachit Bhayana, Aneesha Lakra, Nishant Grover, Advika Singh	Kirpan: A Religious Artefact from Punjab
Group 3	Ritwik Kar, Tanupriya Das	Shakha Paula: A Religious Artefact from Bengal
Group 4	Arunesh Singh, Smera Goel, Rishab Devgan, Rakshita Anand	Mauli: A Hindu Artefact
Group 5	Himanshu Yadav, Kshitij, Sonali S, Harsh	Chandi Ki Thali: A Hindu Artefact
Group 6	Bhavya Chopra, Kushali Vernma, Sidharth Sadwani, Aditya Rastogi	Rudraksha: A Hindu Artefact
Group 7	Angad, Udbhav, Kirti, Gagan, Shivam	Martaban: Earthen Storage Jars from Haryana
Group 8	Kunal Anand, Nikhil	Mitti Ka Gharah: Earthen Vessels from Haryana
Group 9	Rishi Raj Jain, Mukul Tomar, Utsav Singhla, Bhunesh	Okhal: A Grinding Tool from Haryana

Table 6.16
Drawing Upon the Culture

Students are asked to bring two categories of artefacts, one traditional that relates to their cultural heritage and one contemporary artefact with a personal attachment (See Table 6.16).

The choices of traditional artefact appear to be based on relationships within family and communities. They all have a strong connect to the Other while addressing the culture and not so much to the Self. For example, two students whose mothers are from Bengal, brought the *Shakha and Paula*, the red-and-white bangles married women in Bengal wear. They were unable to identify any artefact that belonged to themselves. Many students claimed to have discussed with the family before making a choice. They appear to depend on how the family interprets culture.

There were a significant number of religious artefacts. It appears that students make a strong association of religion with culture. A significant number of students brought the *Kada*, the bangle worn by those who follow the religion of Sikhism and the *Kirpan*, a dagger carried by Sikhs as part of a religious commandment. Many artefacts were common because of regional or vernacular reasons. A significant number of students brought kitchen utensils that were typical of the state they belonged to like the *Martaban*, the earthen storage jars, and the *Okhal*, the grinding tool. While drawing these artefacts, students are encouraged to not only observe but to also look beyond the obvious. For example, one student commented, “While drawing the *Kada*, I realised that most of them look alike. But when I looked at other students drawing the *Kirpan*, almost all looked different from one another.” So, what makes certain aspects of an artefact from a particular culture the same and what makes another artefact project wide variation?

The choices of contemporary artefact have a strong flavour of universal choice. Most students chose their mobile phones. There appeared to be a unanimous statement that the mobile phones are the single most important artefact for students. That was one of their realisations. While drawing their phones, they realised, “All our mobile phones look exactly like each other with variations of size and scale. However, everyone’s interface was different. All of us try to customise our phones to our needs.” So how does the culture play a role here?

Students become aware of the cultural context on their environment and in what they draw. Discourses on values and attitudes are encouraged while they draw their artefacts. Students discuss how they form these beliefs and are influenced by the culture. Design Drawing is used to enable among students an understanding of the cultural context in any scenario. They begin

to articulate the influence of culture on their Self. According to them, “We became more conscious and aware citizens. Our interest in current affairs increased. We became more aware of social problems and developed the desire to work towards solving them. A lot of times while researching, we came across various instances where we felt there was injustice and we believe that knowing about a problem is the first step towards solving that problem.” They went to claim that, “We developed an analytical and open mind. We started looking at any situation from every possible perspective. We started deeply analysing every possible aspect of a situation. We developed a curious, inquisitive mind. We started asking questions. We started looking at the who, what, why, when, where, and how of everything and every situation.” They begin their journey on perceiving the Other and start to understand the concept of the Self and Other relationship in a cultural context. Students appeared to have begun a journey in making sense of the relationship of the Self and the Other.

It appears, however, that students required more inputs on the Indian culture, to better understand the Self-Other relationship in a cultural context. Based on this observation, a one-day workshop is organised during the next VDC course.

6.4.10 Drawing Out of Thoughts: Sensitising the Self Through a Process of Introspection & Extrospection

The process of empathising with the Other in design begins with the understanding of the Self. Self-Concept refers “to the composite ideas, feelings, and attitudes people have about themselves” (Hilgard, Atkinson, and Atkinson, 1979: p. 605). Self-Concept is also defined by Purkey (1988) as the sum of a complex, organized, and dynamic system of learned beliefs, attitudes, and opinions that each person holds to be true about his or her personal existence. It could then regard Self-Concept “as our attempt to explain ourselves to ourselves, to build a scheme (in Piaget’s terms) that organises our impressions, feelings, and attitudes about ourselves” (Woolfolk, 2001, p. 120). The process of understanding the Self can begin with looking into one’s own attributes. It is, beginning with looking within, in order to look beyond.

The assignment encouraged the students to embark upon an introspective journey into the Self, in search of attributes. These could be based on personalities, characteristics, attitudes,

aptitudes, strengths, weaknesses, passions, dislikes, etc. Students were given the activity to create a Mind Map of them Self as an introspective process of analysis, where each keyword was to be deeply expanded upon. They were encouraged to include aspects like strengths, weakness, passions, fears, anxieties, aspirations, desires, dreams, etc. The students began by centring their thoughts with an exercise of deep breathing for five minutes in an uninterrupted space of peace and quiet with their eyes shut.

The students engaged in an exhaustive mapping of their understanding of their Self. Unravelling through the inner Self involves the courage to connect to our own vulnerability, worthiness, resilience, trust and much more (See Figure 6.7). Students realised, “We discovered that multi-dimensional mapping created multi-layered connections within ourselves. It was like peeling through an onion.” Students had a new-found awareness of their own humanness.

Next, the students journeyed outside of the Self through a process of extrospection, to interact with the world around (See Figure 6.7). Students engaged in an exhaustive mapping of the Self to the Others, starting with the immediate family and gradually moving outwards to the extended family, community, society, environment, nation, the planet, and ultimately the universe. They were encouraged to include their thoughts on and interactions with the social, cultural, political, economic, educational, technological, and environmental issues. Students realised that, “We began to make connections between our Self and the Others in our lives in the process of extrospection.” This appeared to be a conscious attempt to understand the Self-Other relationship.



Figure 6.7
Introspection of the Self



Figure 6.8
Extrospection of the Self

Students submitted their assignments, along with their views on what aspects they had developed, and their opinions on the abilities attached to the assignment. Some of the reflections are, “We developed a better understanding and knowledge of the Self. We examined our strengths and our weaknesses alike. We developed individualistic styles of drawing and writing. We built our own quick ways and tricks of certain tasks. We developed unique styles of work that somewhat reflected our personalities. All of us used different methods to represent the attributes we had come up with. We developed a curious, inquisitive mind. We started asking questions. We started looking at the who, what, why, when, where and how of everything and every situation. Whenever we thought of an attribute, we asked these questions to further expand upon what we meant by this.” Students continued the exhaustive mapping to include their aspirations (See Figure 6.9 and 6.10). They were encouraged to think of their dreams, fantasies, caprices, hopes, and whims that were independent of the realities of life.

This assignment appeared to be an important part in building the identity and an understanding of the Self. This assignment engaged students in developing multi-layered variety of abilities. A student shared, “We developed a curious, inquisitive mind. We started asking questions. We started looking at the who, what, why, when, where and how of everything and every situation. Whenever we thought of an attribute, we asked these questions to further expand upon what we meant by this.”



Figure 6.9
Introspection, Extrospection and Aspirations of the Self



Figure 6.10
Introspection, Extrospection and Aspirations of the Self

6.4.11 Drawing Out of Thoughts: Empathising with the Other

After the Mind Map of the Self, students were given the task of creating an exhaustive Mind Map of the Other. This entailed identification of a personality from the news and a small research was done. Students read more articles on the issue, spoke to people, and imagined the Other. The main person in the issue, either the victim or the culprit, was kept central, and a mapping of the attributes was done where each keyword was expanded upon (See Figure 6.11 and 6.12). Students began the journey to connect and understand the Other. Students claimed that, “We all took the concept of victim/culprit in our manner and represented our work accordingly. We realised before we could put ourselves into someone else’s shoes, we needed a fair amount of research to understand how things could’ve been for the person in question.”



Figure 6.11
Study of a Victim, Gauri Lankesh, Whose Murder was Extensively Covered by the Press

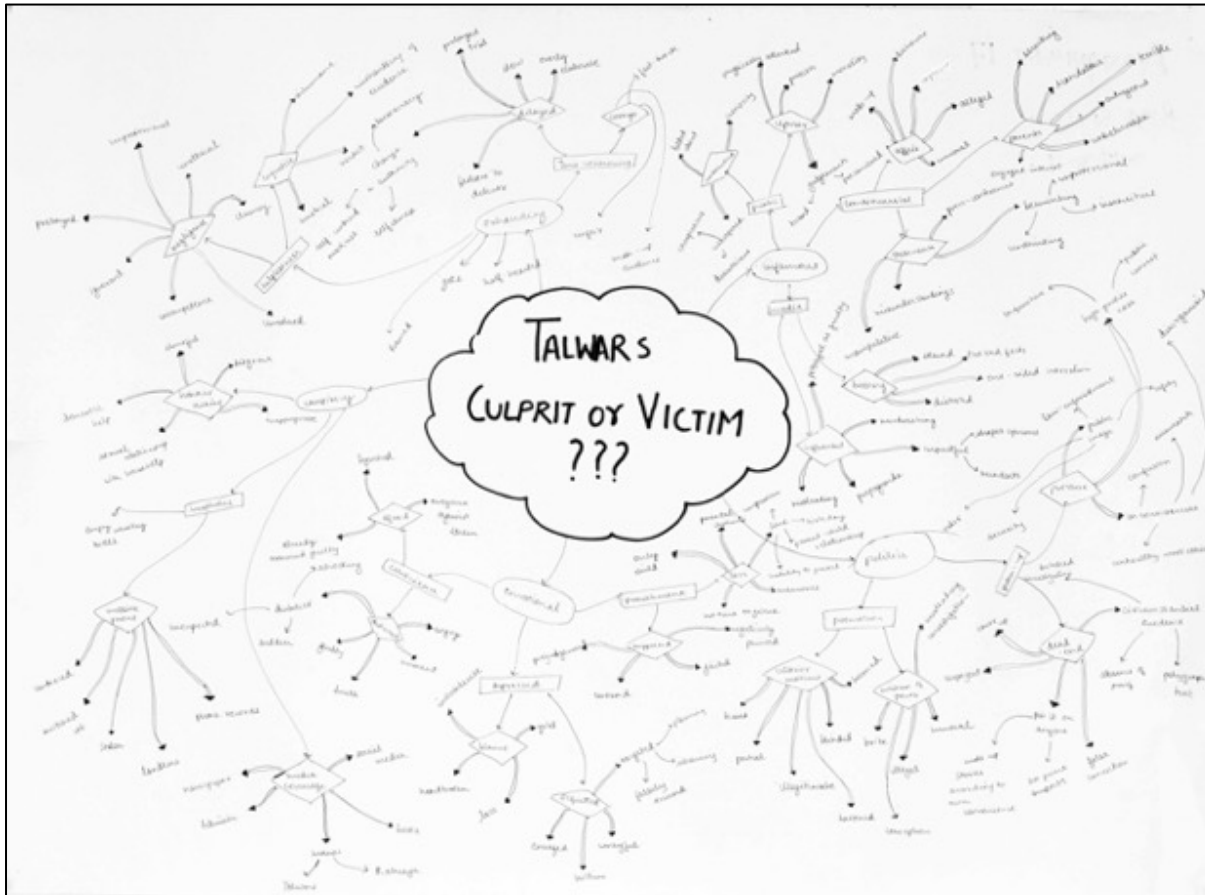


Figure 6.12
Study of the Talwars, Accused of Killing Their Daughter, was Extensively Covered by the Press

Having done an introspective exercise of the Self, students were able to frame questions in their interviews with the Other in ways which they had applied to their own Self. They were able to delve deep into the Other as they did to their own Self. The interview was conducted while one or more student sketched the Other. Students used drawing as medium to connect with the Other. According to the students, they observed that the Other was comfortable being sketched while answering their questions. Some students claimed that they were able to access insights to the Other which may not have been possible if they had not gone through the processes of introspection with themselves. One group of students, who interviewed a *Maali* (gardener), said that at some point of the interview, he mentioned that his favourite sports was hockey and that he always made it a point to watch the game on television. Upon gentle iterative probing, students realised that the *Maali* considered hockey a national game and that was reflective of

his pride for the nation. The Other, the students discovered, was a deeply patriotic person in an unobtrusive way. It appears that students may not have accessed this insight of the Other, had they not experienced questioning their Selves. Patriotism is not a visible quality, nor it is an obvious question to ask.

In another case, the students interviewed an administrative office bearer, known as Santosh *Bhaiya*, (*bhaiya* stands for elder brother, a respectful term for addressing an older person), who they had never paid attention to (See Figure 6.13). Students were amazed to find through their drawings a multitude of facets of this Other. With multiple sketches and iterative probing, students discovered this Other, who silently played many crucial roles in their lives which they were not even aware of. As one of them described, “I would have never known what a warm, talented, loving and diligent person he is. He considers all students his family—such is his love for the institute and we hardly noticed him.” It appears that the zealous introspective journey which the students had initiated continued to aid in an empathetic understanding the Other.



Figure 6.13
Study of the Other Human

6.4.12 Drawing Out the Human-Object Interaction: The Built Environment

A series of activities were given to the students revolving around man-made objects. Here, the object is perceived as the Other and students are encouraged to speak to the object. Students are cajoled to not perceive inanimate objects dispassionately. A paper cup was selected for its

simplicity, yet because it could be analysed in multiple ways (See Figure 6.14a). It has different meanings in different context. It offers the students to ask a wide range of questions (See Figure 6.14b). One student shared, “The exercise was representative of our thought process. When coming up with intangible attributes, we tried to come up with different scenarios that could connect with a paper cup and we all tried to represent it using just words using our own styles and our own set of connects.” Another student’s insights, “Deeper understanding of the intangible attributes that can be associated with an object, especially the ones around human interactions, in a social, emotional, and cultural context. We pushed ourselves to come up with scenarios and put ourselves in other people’s shoes so that we could understand the worth of an object as common yet as an essential paper cup. It could mean a mode of employment, for advertising, part of some old memories, etc.”

As the discussion progressed, they claimed, “We became more critical. We started analysing products and bringing out what could be changed and why (See Figure 6.14c). We became more aware of production processes. We started looking at everything as a result of so many steps. We realised that whenever a product is made, there are so many interactions that need to be taken into consideration and there needs to be a perfect balance of the attributes of the product with its interactions for it to be an efficient product.”

Students began to question all about the objects. “We developed curiosity. We started looking at how different materials are made and used. We looked at different ways to represent different textures and reflective properties of the material. We used shading to depict the texture of wood, light and dark lines to show reflecting material, etc.”

Students also learned to develop a questioning mind along with learning the drawing techniques, “We learnt minimalism. We learnt to put across more details using the least amount of markings in the drawing. We learnt how to show texture, reflective properties and opacity of material by using minimal strokes, and when possible without shading.”

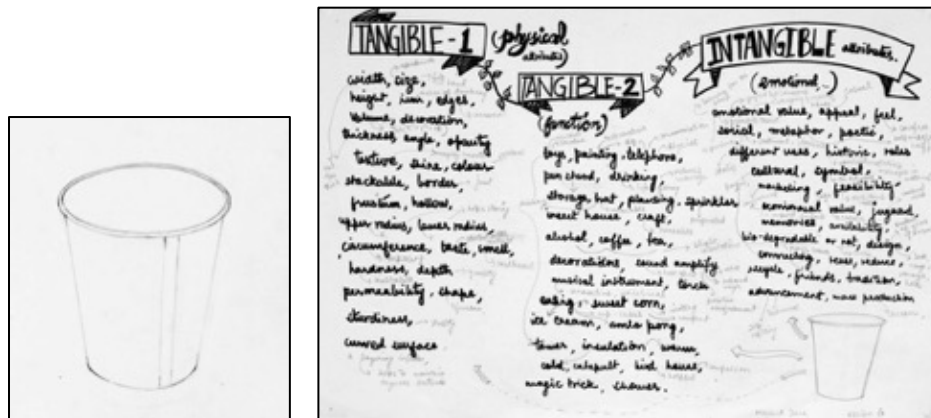


Figure 6.14a

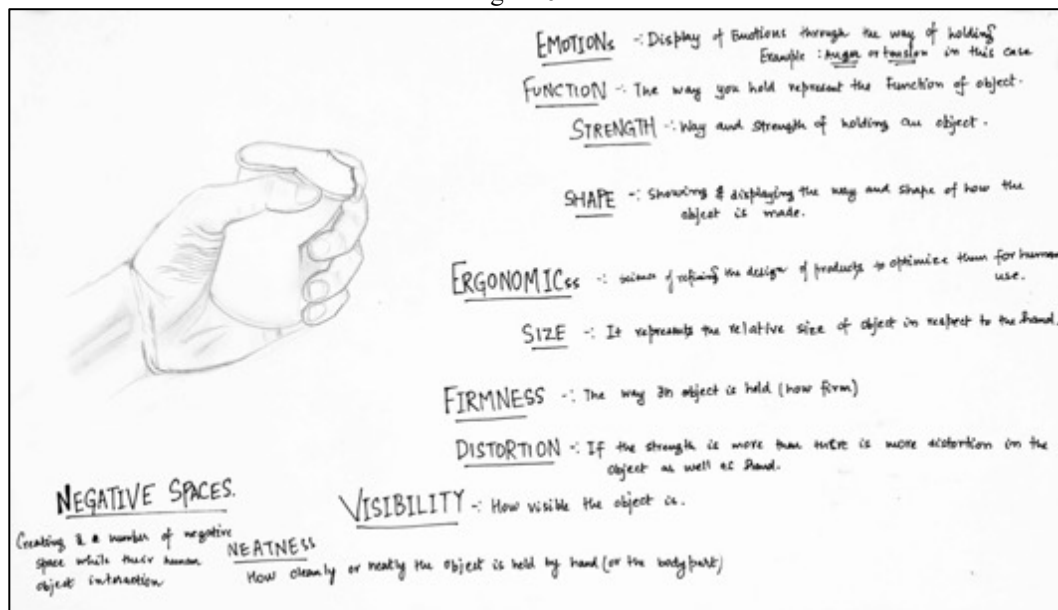


Figure 6.14b

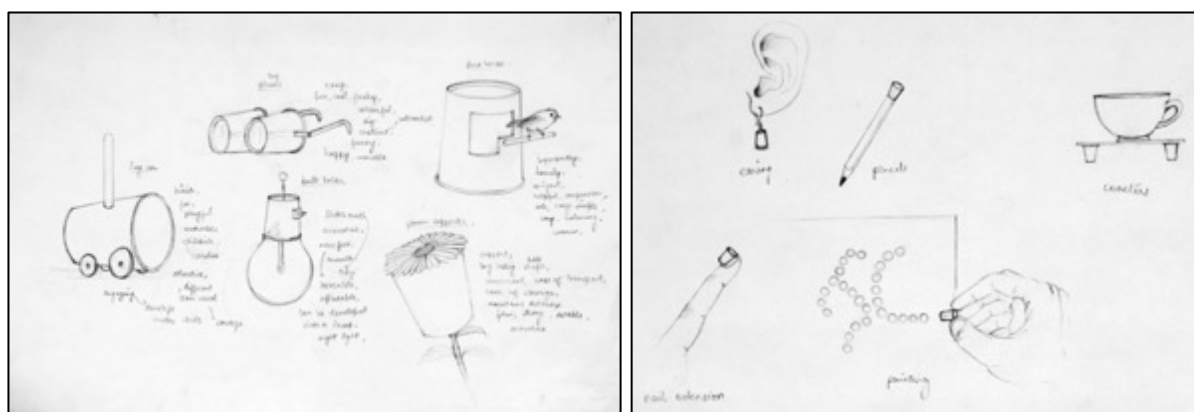


Figure 6.14c

a, b, c: A Study of Objects as the Other in the Built Environment

6.4.13 Final Project in The DDV Course: A Study of the Self-Other Relationship in Contemporary Times

The Final Project aims to develop in the student, an understanding of the relationships between systematic, process-oriented problem-solving methods; visualisation; and design drawing. This visualisation process in DDV is relational between a concept and its visual representation, brought together in a dynamic way. The final project in DDV allows the students to explore and discover, with guidance from the facilitators, different paths in design processes, transforming conceptual thoughts and ideas into tangible representations. Since this is their first, the project is conducted in the studio.

The account below describes the final project that integrates all the learnings of assignments done by students in the first year of the undergraduate CSD programme at the IIIT-D. As a part of the course titled Design Drawing and Visualisation, students were asked to select an issue of concern or a problem that they felt significantly perturbed about. The project also encouraged the students to explore the Self-Other relationship. Based on an earlier experience to understand the Other, many students attempted to be the Other. Students were grouped into teams of five members each, and an area of concern was selected by each team (See Table 6.17).

Groups	Members	Issues of Concern: Identification of Problem Areas
Group 1	Smera Goel, Jasmine Kaur, Tanupriya Das, Arunesh Singh, Siddhart V	Women's Safety in the City
Group 2	Muskan Aggarwal, Dhruv Yadav, Siddharth S, Himanshu Yadav, Harsh Kumar	Gender Issues in Urban Spaces
Group 3	Sonali Singhal, Utsav Singla, Srijan Jain, Ritik Garg, Rishab Devgon	Problems the Aging Population Face in Metro Cities
Group 4	Manavjeet Singh, Aman Aggarwal, Bhavya Chopra, Kushali Verma, Sonali Supriya	Farmers' Distress
Group 5	Rachit Bhayana, Advika Singh, Shourya Pathak, Bhunesh, Shivam	Problems in the Sports Arena
Group 6	Rishi Raj, Arnav Tandon, Ritwik Kar, Rakshita Anand, Pragya Singh	Problems in Urban Transportation
Group 7	Aneesha Lakra, Kshitij Agarwal, Nishant Grover, Rachit Mittal, Snigdha Gupta	Drug Abuse Among the Urban Youth
Group 8	Shrikant Garg, Shivang Saigal, Manak Bashist, Kaiman Yadav, Peeyush Jain,	Health Care in Metro Cities
Group 9	Aditya Rastogi, Abhishek Anil, Sarthak Arora, Manan Jain	School Education
Group 10	Udbhav Gupta, Harman, Om Khandad, Aditya Sharma, Gagan Malik	Crime in the City
Group 11	Rushil Thereja, Kunal Anand, Nikhil Yadav, Mukul Tomar, Kirti Gautam	Religious Intolerance & Conflicts

Table 6.17
Drawing Out Issues

Of the 11 areas of concern, some choices appear to be spontaneous based on their own experiences (Women's Safety in the City; Gender Issues in Urban Spaces; Problems the Aging Population Face in Metro Cities; Problems in the Sports Arena; Problems in Urban Transportation; School Education). Rest of the choices students made after scouring the news world. The choices they made reflect in the manner in which they understood the Self-Other relationship while engaging in the Final Project.

The students were not introduced to any theories of design methods. They were, however, encouraged to go through a process of investigating and making sense of the identified problem. Theories like Activity Theory, Critical Theory, etc, were not introduced and concepts like Speculative Design, Persuasive Design, Design Methods, etc., were not discussed formally. Interestingly though, it appears students went through processes that could well be framed into theories and concepts. The Final Project used the Self-Other relationship to introduce students to Design Processes and Perspectives using Design Drawing to identify, scope, analyse, discourse, ideate and communicate.

Students who selected problem areas based on their own experiences, visualised their Self as a stakeholder. Some even related their Self as the central stakeholder. In a sense, the Self is the Other but students who identified a real problem from the news, attempted to be the Other. In both the cases, they all tried to bring their understanding of the Self-Other relationship to develop the character of the Other, the central stakeholder in the problem.

Taking the example of the group who worked on geriatric issues, the group identified the issue of concern from their personal experiences (See Figure 6.15). Students claimed they were aware of the problems that an aging population faces in urban spaces among people and families they know. They began their investigation with their own elders in the family. Students engaged in a deep emotional connect with the central stakeholder in their study. One student, during the final presentation of the project claimed, "I can feel my grandfather's emotions when I speak to him. And when I try to capture these emotions in a sketch, I feel one with him." Another student wondered, "Why do I take my grandparents for granted? Why do I not pay attention to the elderly people in my life?" It appears that when students consciously sensitised their Self

and were aware of the Self, they were able to identify important aspects of their lives. This in turn appeared to affect their ability to engage in a meaningful relationship with the Other. This experience of the Self-Other relationship appeared to have an effect on their design-thinking process. One student professed, “I feel the connect and want to understand the core of the problem so I can devise solutions that will be effective in real life and not just for an academic requirement.”



Figure 6.15
Drawing out the Self-Other Relationships in Issues of Human Society.

During the final presentation, students claimed that the core of the problem was *loneliness*. They inferred that people had little time to spend with the aging population. A short research on the Others in the society who were neglected brought forth an interesting idea for a solution. Amongst the several who were neglected in the society, they identified orphans as the ones who could play a symbiotic role in addressing the issue of *loneliness* among the aging population. The grandparent-grandchild (GP-GC) relationship is a very special one. When grandparents provide child-care for grandchildren or become surrogate parents to their grandchildren, they have a greater-than-average opportunity to bond. Based on a literature study on this GP-GC

relationship, this group of students went ahead and worked out a systemic solution to address the core issue of *loneliness* experienced by both the aging population and young orphans. The students used storytelling as a method to promote their solution. They adapted the *Kaavad*⁵⁸ style of storytelling as an effective interactive medium of communication in a steady process of revealing.

For further studies, the students identified young parents as the central core who appeared to shake the ecosystem of a family. On one end, they rejected their new-born babies while on the other end of the landscape, they neglect their aging parents. This was identified as the next potential area of study and problem solving (See Figure 6.16 & 6.17).



Figure 6.16
Drawing out the Self-Other Relationships in Issues of the Human Society

Students experimented with different drawing styles and techniques to present the process they had gone through to address the problem. They explored graphic facilitation, illustrative typography, mind mapping, etc. They also explored poetry as a communication medium to emotionally engage the audience.

⁵⁸ Kaavad, a colourful wooden toy like a box is actually a shrine, wherein live the stories. Mostly, the stories come from the epics of Ramayan and Mahabharat. Sometimes, there are other stories from the local folklore like stories of locals saints or heroes. You can also think of it as a moving temple. In Mewar, the home of the tradition, it is primarily used to tell family stories including genealogies.

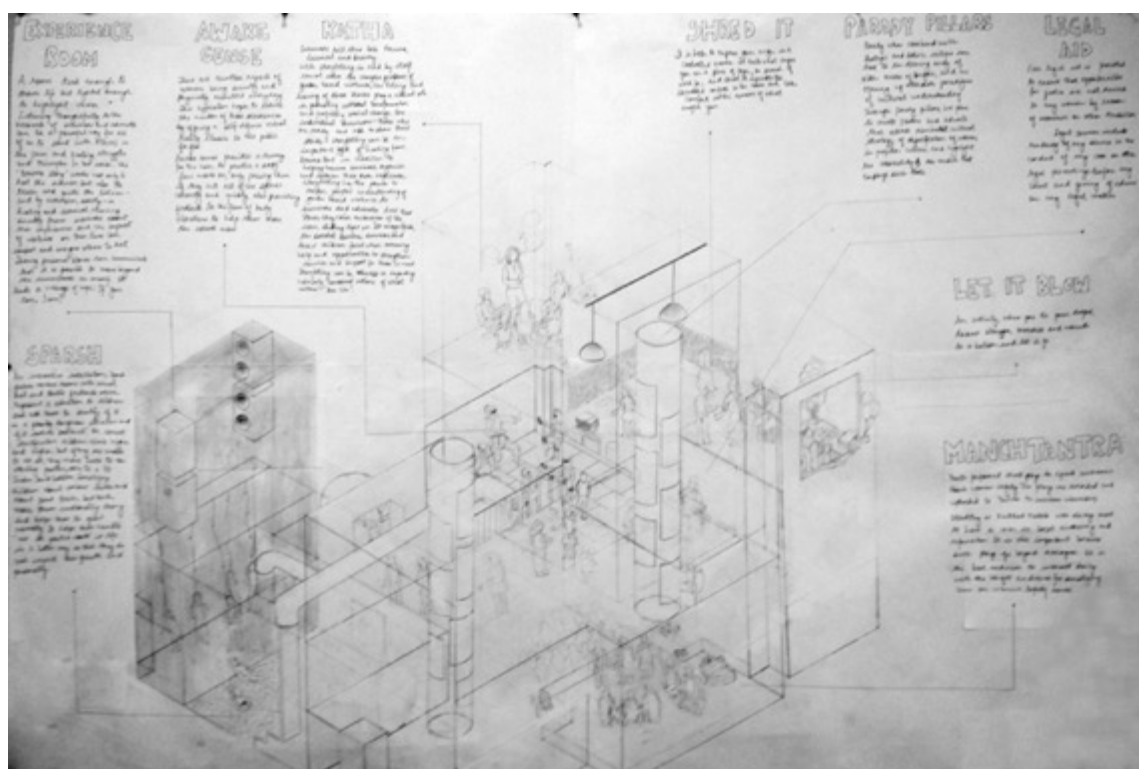
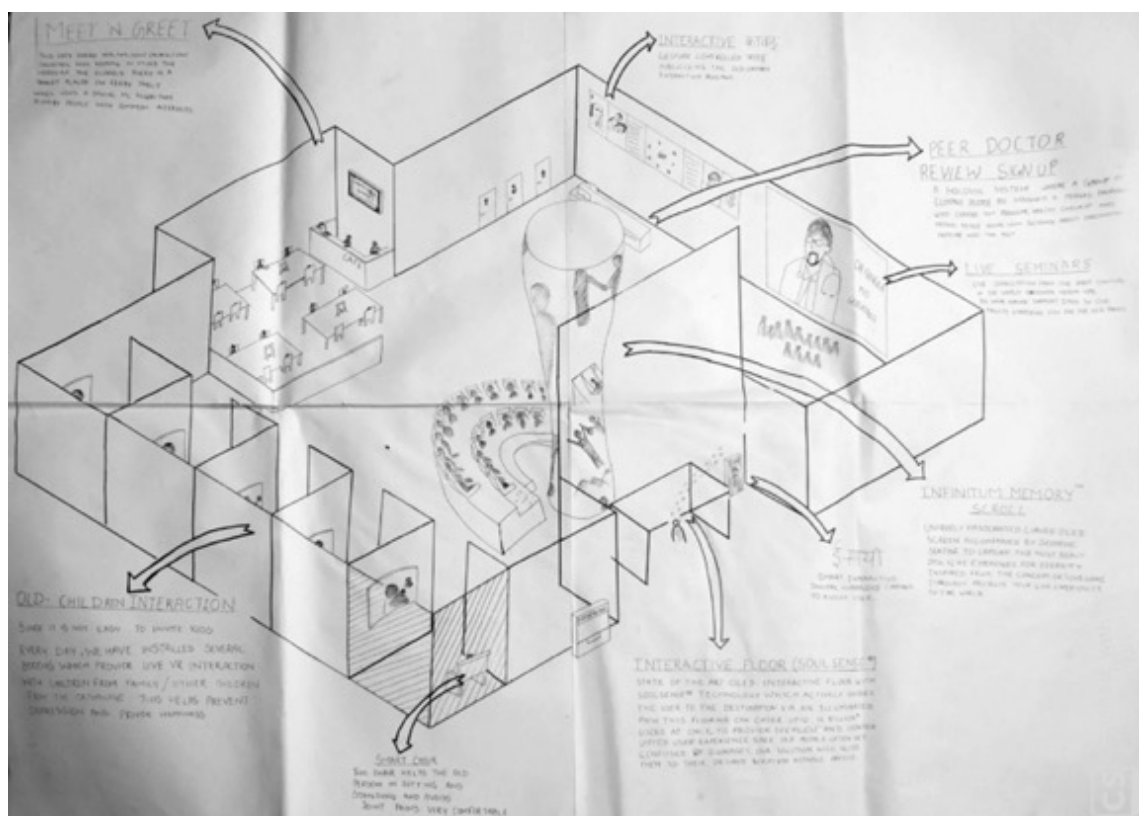


Figure 6.18a (previous page) and 6.18b (above)
Drawing Solutions in 3D Spaces

Students experienced four sectors of learning by understanding the Self-Other relationship:

1

Understanding the Self-Other Relationship to Engage in Character Development
Character Development as a Tool to Understand the Stakeholders

Students applied prior learnings from a workshop on Character Development to understand and identify the personality. They then attempted to probe deeper to understand the Other as they did of themselves.

2

Understanding the Self-Other Relationship to Make Sense of the Problem
Coining a Problem Statement to Scope the Problem

Students began to understand the relationship between the Self and the Other. They applied their understanding of their Selves as a springboard to dive into the esoteric persona of the Other.

3

Understanding the Self-Other Relationship to Scope the Solutions
Story telling as a Tool to Engage the Other

Students proceeded to engage in the arena of ideation in their quest for solution possibilities. They explored storytelling as a tool to engage the Other.

4

Understanding the Self-Other Relationship Speculate a Design a Solution System
Speculative Design as Process to Design Multiple Solutions

Students visualised a systemic response to a problem, involving a series of solutions, collectively addressing different facets of the problem. They used their understanding of the Self-Other relationship to scaffold the solution system. Students also speculated how the study can be taken forward.

Students used graphic facilitation method to draw out all the stages of the process they engaged in the problem solving. They used this method to analyse data, process thoughts, visualise solution and do much more (See Figure 6.19).

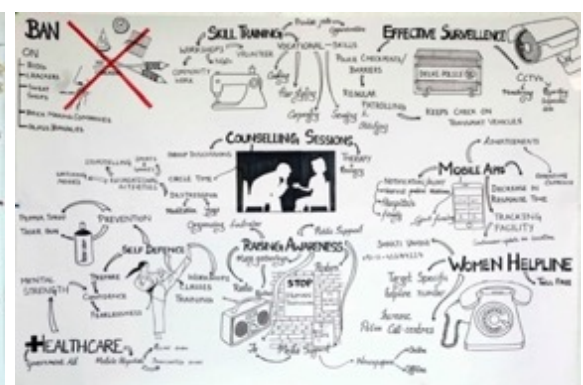
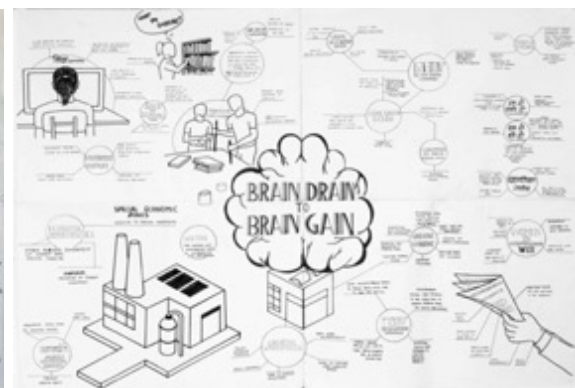


Figure 6.19
Visual Mapping of Information of Issues in Human Society

6.4.14 Conclusion to the DDV Course

Design Drawing helps a design student develop a wide range of abilities. Design Drawing is a tool used to sensitise oneself; to attempt an understanding of the Other like one understands oneself; to introspect within oneself; to develop observational skills; to develop a curious mind that encourages asking uncomfortable questions; to translate thought processes into visuals; to identify the Self in the environment; to identify issues of concern in the environment; to recognize the complexity of the Other in the environment; to learn the role of culture in the environment; to process information from the environment; to organize information or data from the environment; to make sense of the information or data from the environment; to develop the ability to ideate; to develop the ability to present ideas which have the potential to translate as responses to issues and concerns identified in the environment; to develop the ability to narrate visually; to appreciate the significance of the visual language. In other words, it is not about drawing pretty pictures but about using drawing as a powerful tool to engage in design action.

The DDV course follows many of the Foundation Design Course guidelines that had been started at the Bauhaus and the HfG, Ulm, and also much of the NID. Apart from making it relevant with the contemporary period, the objective and method of the course, at its core, lie in the understanding and development of the Self for the designer by understanding the Other. The identification of the Self for the designer was not focussed on or given any recognition in other Foundation Design Courses till the present time. Similar materials, tools, and methods were used but for the development of the ability of the students in sensitising and empathising towards the Other, for their own development.

On conclusion of the course, students understand how DDV will help them in the next courses, that is VDC and DPP. In the final project, students are introduced these courses informally. This helps students see value in conscious application of learnings of one course to another.

Students also prepare for VDC and DDP courses by initiating an understanding of the Self-Other relationship. They work in the studio but prepare themselves with the ability to work in real situations and with people outside the studio in the next semester.

In conclusion, it appears that the DDV course initiates a conscious development of the abilities that sensitise students to place the Other in the centre of all issues. Students consciously begin to develop multi-dimensional abilities that scaffold themselves as an intricate support to the Self for the designer. As future facilitators of change, students use design drawing as a tool to embody humanistic attributes of empathy, ambiguity, and diversity.

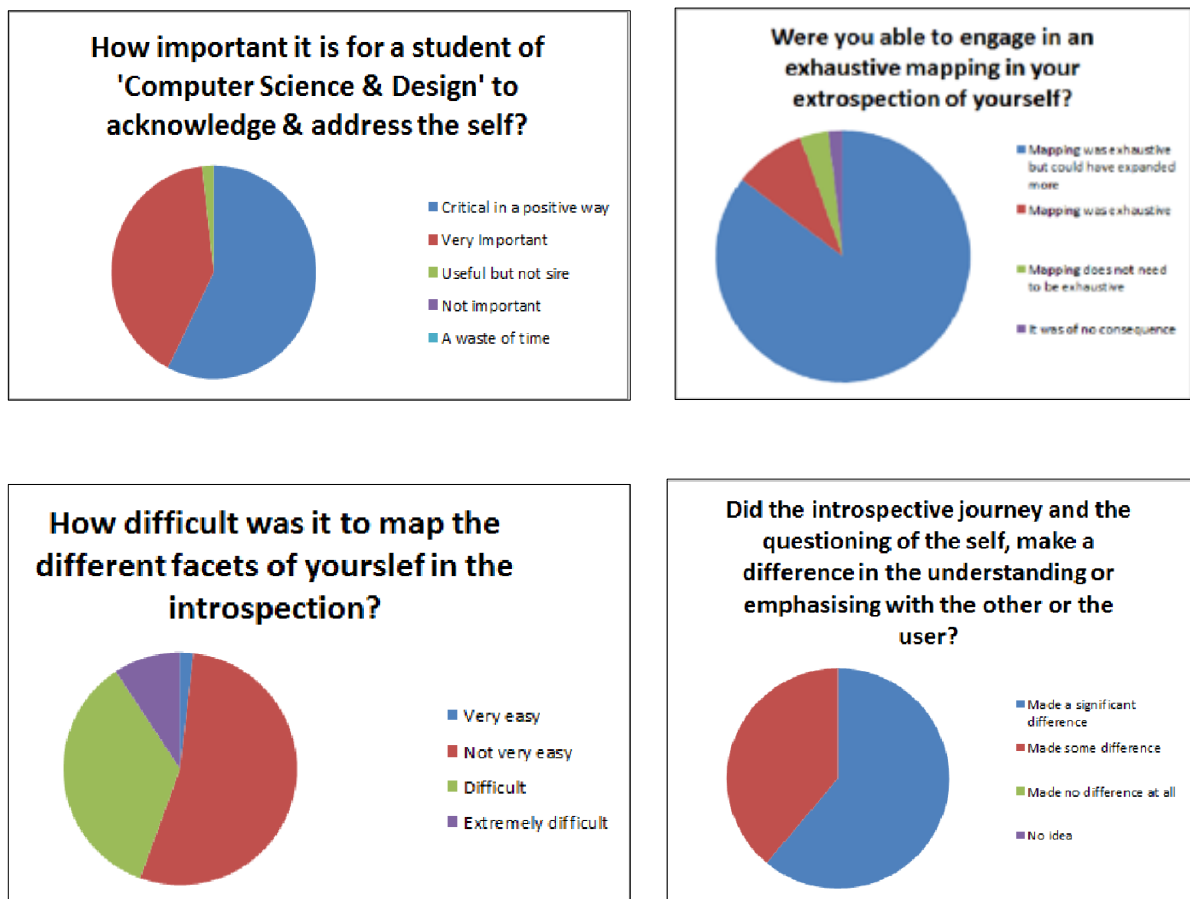


Figure 6.20
Design Drawing as a Tool to Embody the Human-Centred Attributes of Empathy, Ambiguity, and Diversity

Note: Once the DDV course was over, four students volunteered to:

1. List exhaustively the abilities that they had developed from all the assignments in the DDV course. Their quotes were compiled from their daily journals that they maintained through the course.
2. Map the assignments that they did to the list of abilities that had been recommended as being critical to a Foundation Design Education.

3. Articulate the learnings and insights from the assignments, and reflect on the Self and begin to comprehend the Self-Other relationship for the designer.

6.5 The Visual Design & Communication (VDC) Course

6.5.1 An Introduction to the VDC Course

The Visual Design & Communication (VDC) Course is introduced to students on the completion of the DDV Course, by conferring the importance of understanding the visual language and its relation in context to the nature and environment. The course description of Visual Design' states that, "Based on the premise that Visual Design is a discipline of design that applies the principles of visual language for better analysis and understanding of design problem and solution, this course focuses on the elements and principles of the visual language and their semantic use. A multi-disciplinary domain, design consists of aesthetics, architecture, products, communication, processes, systems, technology, business/commerce, ramification on environment and society, and demands a clear understanding of design fundamentals. Apart from the thorough knowledge of core concepts, design also requires the representation of concepts visually to make effective or functional communication and iteration of ideas. For creative skills and aesthetic sense, one must clearly understand the use of basic design elements and their applications for a particular design solution. For a designer to communicate more concisely and in a visually appropriate manner, it is necessary to use commonly understood principles, perspective and design layout standards. Together, these conventions constitute a visual language, and help to ensure that the drawing is clear and relatively easy to understand" (Annexure 11).

Visual Communication is described as "the concept and science of Visual Communication is introduced as the relationship between human information processing, with an emphasis on processing of visual information and design of messages. It includes visual perception, Gestalt laws of organization, semantics, working memory (STM & LTM) and their implications on communication. The course also introduces students to the fundamentals of Typography, Photography, and Videography. The Typography course introduces students to the basic elements and principles of Typography and its application in effective product interface and

communication. The Photography course introduces the students to photography as a medium of visual language and its applications in visual design. The Videography course introduces the students to the effective interplay between visual, audio, text, and motion and its application in effective communication. In today's world that is crowded with visual stimulus, it is important to cut through the noise and be able to decipher, capture, and create visual images that communicate effectively.” (Annexure 11).

6.5.2 Objectives of the VDC Course

The objectives of the VDC course can be compiled as: – development of the ability of the students to create visual compositions using basic elements and by applying appropriate principles of visual composition to communicate ideas; development of the ability of the students to perceive, visualize, and communicate visual elements as visual narratives; development of the ability of the students to apply the dynamics of visual design in Typography and Photography; development of the ability of the students to address simple communication problems through a visualization process and construct mental imageries; and development of the ability of the students to plan, develop, design, and execute communication products (Annexure 11).

The course corresponds with the contemporary times in order to develop creative skills through communication with the Other and the environment by visual means. Perception, visualisation, and communication are the attributes used to develop the notion of the Self by communicating and understanding the Other. The significance of communication between the designer and the Other is emphasised for a more empathetic attitude towards the Other. Processing of visual information helps students develop the designer Self, and at the same time, in the comprehension of the Other.

6.5.3 Description of the VDC Course: The Assignments

As mentioned earlier, assignments are meant for determining student's activities that support a process-oriented approach to learning a visual language. It progressively develops the skills of

the students on one track and introduces theories and concepts on another; develops an attitude on yet another and develops a better understanding of the Self-Other relationship which possibly leads to design methods that are responsive to contemporary issues.

Careful planning and implementation of assignments is necessary to fulfil the course objectives and help the students develop critical abilities. The assignments in the VDC course are clustered together to impart learnings (as an amalgamation of developing skills, knowledge, abilities, and a sensitisation of the designer-self for a better understanding of the Self-Other relationship) in the categories of:

1. Basics of Visual Design
2. Visual Design in Communication
3. Different Media in Visual Communication
4. Social Communication
5. Infographics
6. Drawing Out Thoughts: Decoding Visual Design, a Study of the Perception of Visuals by the Self and Other

Since the contents of the course outweigh the time allotted to it, students are asked to work in groups and engage in shared learning. Shared learning is the process of working as a team to achieve a common objective. Team members share knowledge and learn from each other, and do so in a shorter period of time.

6.5.4 An Initiation to the Visual Language: Perception Versus Recognition

The VDC course starts with sensitising students to the visual language. Students experience the difference between perception and recognition of visuals by attributing words/description to shapes. The objective is to introduce students to the similarities and differences in perception of visuals between the Self and the Other. In the previous DDV course, students learnt that a visual language exists in all human beings. This activity aims to demonstrate to the students that visuals can be perceived differently based on their individual associations. It establishes the criticality that exists in developing an understanding of the relationship between the Self and the Other in

Visual Design. This activity aims to show engineering students that what they perceive may not necessarily be the same as what the Other perceives.

Students form a group of five each, and select a category of shape: 1. Natural Realistic Form; 2. Man-Made Realistic Form; 3. Symbolic Form; 4. Letter Form; and 5. Abstract Form. Each group carries out a study to document perceptions of six different respondents. These respondents vary from non-literate to academicians; from very young to elderly; from rural bred to city bred; from labour-intensive blue-collared professions to white-collared executives, etc. Students become aware that certain categories of shapes differ in their perception and in the interpretation between the Self and the Other. There are exceptions, however, and students are able to identify certain universality in the visual language where under certain circumstances, the Self and the Other align their perceptions.

6.5.5 The Basics of Visual Design

The elements and principles of design are omnipresent in all components in life, and can be referred to and implied within an environment. Students study or visually explore various uses, interpretations, and dimensions of the basics of visual design. Students continue to keep the Self-Other relationship central to understand these factors. To understand how humans, perceive and respond to visuals, students need to begin with the basic elements of the visual language. Humans also interpret visuals in varying possibilities since their living and working environments consist of infinite visual statements. Thus, making visual principles of organisation is another important concept to understand in order to create effective communications for the Other. Visual organisational principles are used to structure the relationship among visual elements in a narrative composition.

Students are introduced to the basic elements and principles of design through their existence. They recognise, identify, and record elements of visual design (dots, lines, shapes, patterns, textures, and colour) in the environment by taking photographs of each element from the natural environment (micro and macro) and the man-made environment (micro and macro) (Figure 6.17). Students begin to experience these elements in life and interpret them as the Other, in order to relate and make meaning of them. According to one student, “We experienced the

abundance of visual information in our surroundings that is otherwise left unnoticed. We became more aware of our surroundings as we started observing the visual elements in the environment. Earlier, we didn't really notice them or paid attention to, but now we usually notice these elements every time we see them, in the nature as well as in the built environment." Another student claimed, "We became more understanding of the presence and significance of the elements of visual design. We have come to realise that elements of visual design are everywhere around us and very important for us. They make up any object, and without them, the object does not have any essence. The elements are irreplaceable. We cannot take out dots from a sprinkler and replace them with a texture. The dots are playing the role of a passage which cannot be served through any other element. We realized how the elements contribute to the uniqueness and form the characteristics of natural and man-made things. This made us wonder about its existence."

The Other need not necessarily have to be a human Other. In the previous DDV course, students were able to perceive objects as the Other. By perceiving elements of design in the environment as the Other and approaching their understanding by addressing the Self-Other relationship, students are able to take their learning to a higher level. They are able to question and not just accept the knowledge, "We started questioning the presence of specific elements like dots, lines, etc., in a certain object, both natural and built. We now wonder whether the object could serve its purpose with some other type of element just as well, or even improve it. For example, we thought why a table surface has a certain texture, say smooth. Then we wondered if it would be better with another variant of the same, like less or more smooth. Will it improve its functioning and will it serve its purpose better? We became more curious and examined, which led us to sensitize ourselves to our surroundings."



Figure 6.21
A Record of the Elements of Visual Design (dots, lines, shapes, patterns, textures, and colour) in the Environment.

By perceiving the elements as the Other and understanding them by addressing the Self-Other relationship, students address the notion of perceptions. According to a student, “We realised the role of perspective and point-of-view in identifying the shape as a particular element. The same shape can be perceived as a dot as well as a shape depending on the distance between it and the viewer. The size of the elements/objects surrounding it is also an important deciding factor. For example, a leaf can be considered as a shape or form, but if viewed from a distance the leaves seem to be dots forming a part of a tree that can be considered as a texture.” Another student elaborates with, “We realized that every experience has various interpretations or meaning to it other than the most obvious observation. It is a good practice to view everything from different angles and perspective to gain as many insights in a situation that we can and explore it to the most.”

Developing a questioning mind makes it easier for students to understand the elements of design through their functions. Students engage in visually representing the functions of the dots, lines, shapes, patterns, and textures by drawing quick thumbnail sketches. They applied their learning

in the DDV course to their understanding of the visual language, “We underwent a change in our thinking/mindset that the elements of visual design can only be used for sketching. We started to understand how the basic design elements can be used to communicate ideas and express oneself.”

Even though the Self-Other relationship here describes the elements of design in the environment as the Other, students don’t lose sight of the human Other. One student interpreted the Other interestingly as her teammate in the framework of shared learning, “Along with this, we also realised the importance of people and a team, as every individual has something to contribute. Each person has a different point of view of analysing the issue at hand and might give a whole new perspective of thinking to us.”

The understanding of the Self-Other relationship enabled students to understand the elements of design through their emotions. Students learnt to express emotions with dots, lines, shapes, patterns, textures, and colour through visual and textual representation by taking personal artefacts (traditional or modern), and listing out a set of emotions that each artefact aroused, or inspired, or could be associated with (See Figure 6.22). According to a student, “While writing down the emotions that the artefacts aroused, we realized that how these small non-living things can have such a huge impact on us and how they can make us develop these massive amounts of emotions and feelings.” Another student said, “We have become aware of how humans have evolved and developed themselves by observing elements of visual design in modern pieces of equipment. The perfection in the use of elements of visual design in modern equipment tells us about it.” Articulating their thoughts on emotions expressed through visual compositions of elements, “We realised humans associate certain emotions with certain visuals. We end up using these visuals according to the emotions explored attached to any memory. We realised how there could always be different interpretations of the same idea or how the same visual can be manipulated to convey different messages. This led us to understand the importance of taking different approaches to any situation or problem. For example, a composition of dots may show sadness, but another composition of the same dots may represent energy and excitement.”

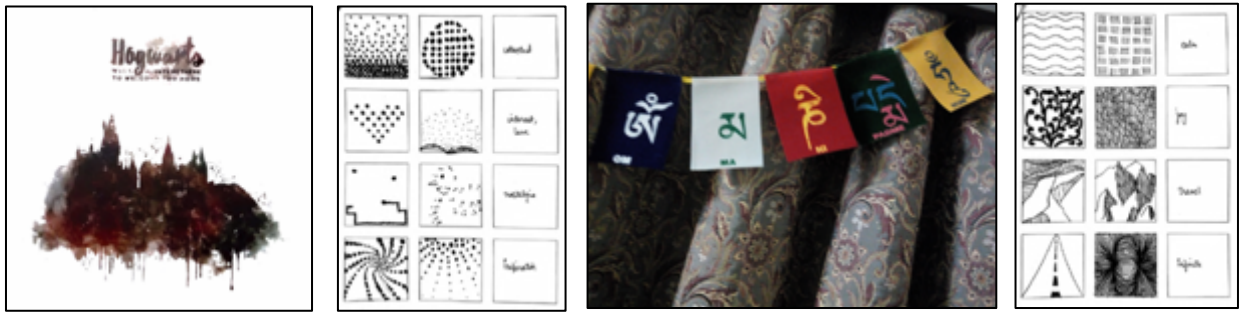


Figure 6.22
Drawing Out Emotions Through Visual Representations

According to the students, this Self-Other relationship aroused certain inclinations, “Our inner Self became more questioning and inquisitive. Now on looking at any object, we dissect the choices a person made and analyse them. We try to find the reason or the function behind each detail. An inquisitive nature goes a long way for a developing individual, as such a mind will always keep looking to learn more from every experience it gets. In addition, we are constantly required to make decisions throughout our lives, and this helps us gain insights and knowledge for those to come in future.” One student profoundly articulated his learning as, “This observation also made us critically think about our existence. In comparison to all the celestial objects in this vast universe, we are just fleeting flecks. Our time of existence might seem like mere seconds in comparison to the lifetime of the earth itself.”

It appears that students were able to recognise and identify the elements in the environment effectively within a short span of time by acknowledging these elements as the Other and consciously building a relationship with their Self. All assignments in understanding the elements of design are not discussed here but the insights and articulations of students’ learnings, keeping the Self-Other relationship central, can be seen in Annexure 13.

Students continue to learn about the principles of design, keeping the Self-Other relationship central, where the Other can even be the planet Earth. Their insights are recorded and can be viewed in Annexure 14.

6.5.6 Visual Design in Communicating Ideas

Students of the CSD course need only a basic-level introduction to the course in Visual Communication, as unlike in Design schools, they are not offered any such specialisation. As designers, they would at the least be expected to know how to use design to communicate effectively. Basics of Typography, Graphic Representations, Visual Identity, and Communication Theory are introduced to the students. While addressing these topics, the Self and the Other are kept central. Students become aware, through a series of assignments, that the Self and the Other may project or perceive visual information in different perspectives. Therein, it reinforces the importance of developing a relationship between the Self and Other which can possibly lead to design processes that are responsive to issues (See Figure 6.22).

A student, upon working on the assignment on Typography, commented, “Typography helps me connect with the viewer/ audience...even emotionally connect.” Another student noticed that, “Typography also helps connect a certain text with other text, just like we connect ourselves to the Other.” He went on to say that, “we can lead them (the Other) to read certain text first using the hierarchy in size, colour, etc., without explicitly telling them to do so.” Students experience a responsibility to the Other while learning the concept of information hierarchy. While learning about the design of symbols and logos, a student remarked, “It is essential to create a connect with the Other as a designer. When we need to represent their identity, we must know and understand them, what they do and wish, so as to completely do justice with what they want to depict and so we can depict it and enhance their purpose and essence in that picture.” Students, in introspection, admitted “We developed empathy and an emotional connect with the Other.” Another student went to the extent of admitting that, “We developed an intuitive attitude while working with Others.” The student, however, did not elaborate upon this.



Figure 6.23
Visual Design in the Communication of Ideas

6.5.7 Visual Design in Different Medium of Communication

Every assignment the student undertakes, builds a connect with the Other. Each medium of communication brings the student closer to understanding the different facets of the Self-Other relationship.

Photography and videography offer the students tools to engage with the Other through a narrative medium (See Figure 6.24). Besides learning all about the technicalities of the medium, students learn to use these as tools to also engage the Other using narratives. Keeping the Self-Other relationship central, aids the students to respond to the assignments more effectively. During both the Photography and Videography modules, students are able to learn all aspects of the medium and understand concepts of storytelling within a narrow duration of time by focusing on the Self-Other relationship. According to a student, “We learnt how to convey a message through a photo-story and understanding how the viewer will proceed through each photograph in the sequence.” Students realised that not only did [they] “realise photographs can be very useful in communicating our thoughts.” but also [they], “understood how to communicate through simple visuals and learnt how to guide the viewer's eye-trail by using principles of composition in our visuals.”



Figure 6.24
Exploring the Self-Other Relationship Through Photography

From their feedback, it appears that students claimed a sensitisation that reflected in the Self for the designer, “We became more sentient towards the beauty around us as now we could see it more easily.” A continuous focus on the Self-Other relationship appears to have developed the ability to articulate their learnings from the assignments.

Print and digital media introduce students to two diversely different medium of communication. In this day of digital technology, it would be easy to claim that the print media is outdated and focus on the digital media. But print media is still the single most important medium of communication that can reach every person in this country. This is a nation of over a billion people and a nation of diverse Others. Cultivating a habit of developing a relationship with the Other, helps students to understand how different medium work with different audiences and users.

Students attempted to apply all their learnings to make Posters, a Documentary Film, and a Narrative Film with a social message.

6.5.8 An Introduction to the Concept of Context: Cultural, Social, Economic, Political, Historical, etc.

The VDC course is not conducted in isolation. Context is woven into assignments as lectures and discourses, once students understand the basic concepts of the visual language. Context is the surrounding circumstances of any artefact, action, situation, or in this case, communication. The circumstances might be physical, historical, social, political, cultural, emotional, etc. The communication could be visual, oral, written, or in any other form such as an event, an idea, a ritual, etc. Without context, information can be misinterpreted. With context, information can be understood. The designer uses context to determine the user’s intent, or why a situation is occurring, and uses this to encode some action in the application that helps to satisfy this intent.

Context helps the student to perceive information; organise content; decide what media to use; navigate through the surrounding information; discriminate between what is important/appropriate and what is not; give the Other an idea of who and what; adapt to the

surroundings; and research and understand the message, idea, event, etc. Context is the intended meaning of a message or information relative to function or experienced action.

Everyone has a unique understanding of the world. This comes as a result of the variety of experiences that we've had over a lifetime. All these experiences come together to form our perspective of the world, which likewise determines how we interpret and understand things within our environment. Unless we are able to put our visuals into a context that is specific and clear, we will unfortunately fail to communicate the intended message. The difference between content and context is critical to understand. Context is the surrounding information. Content is the subject matter. The same content can have a totally different meaning (or function), if put in a different context. An understanding of the Self-Other relationship helps students understand these concepts.

Students were asked to bring two artefacts that meant something special to them, an old artefact with a heritage value and a modern one with a technological marvel. The old artefact that most students brought belonged to an elderly member of the family. Most of them selected their smartphones as the modern artefact. In both cases, in perceiving an artefact as the Other, students were able to sensitise their Self to the elements that circumscribed them. Students were asked to sketch the two artefacts and reflect on them. On probing, one student reflected, "We developed a deeper understanding of our connections and interactions with our surroundings and our possessions. We developed a connect with our culture, history, and livelihood. On introspection, we came to understand our roots more deeply through our artefacts. We could appreciate how far we have come as humans, by studying the modern objects in our lives and the way we are heading on. This makes us aware of loads of opportunities to still improve our lives and make a difference with." Another student wrote in her journal, "We became more sensitized to our emotions and learnt how to express them through visuals articulately. We were constantly asked to think if the thing that we were trying to depict through our visual was actually being effectively interpreted by the Other or not? Was there any better way that we could do so more effectively and clearly?" Another student elaborated with, "We realized that every experience has various interpretations or meaning to it other than the most obvious observation. It is a good practice to view everything from different angles and perspective to gain as many insights in a situation that we can and explore it the most. This led us to understand the importance of taking different approaches to any situation or problem."

A discourse among students discussing each other's sketches raised more insights. It appeared that keeping the Self-Other relationship central helped them articulate their learnings of the basic concepts.

6.5.9 Conclusion to the VDC Course

VDC is not an easy course to assimilate and even more difficult to apply. Given the limitation of time to comprehend concepts and apply appropriately, a significant number of students struggled to apply their learnings in Visual Design in the two different media of communication, that is, print and digital. The nuances of the grid, information hierarchy, and visual communication require several rounds of iteration which physically needs time to process. It appears bleak while addressing the course but it was observed that students, given an exposure of the subject, developed the desire to take their learnings further. A few students joined the institute's Communication Cell and began to take up assignments to design its communication material such as Annual Reports, Posters, Announcement Leaflets, Announcements on the social media and websites, etc. When asked, students claimed that, "We felt that since we knew the theories and understood the concepts, we needed to practice to get better, and joining the Communication Cell gave us that opportunity." Another group of students applied for the position of Teacher's Assistant (TA). This is a responsibility and commitment that is equivalent to four credits or one core course. In their statements of purpose (SOP), they claimed that they see a dual opportunity here. On one hand, they are able to introspect on the Self and accept areas where they need to work more, "I applied for the position of TA for the purpose of revision of design concepts and basics, looking at new work will help me in expanding my current thinking process. Watching the students do the same tasks I did might help me understand and introspect my own designing process and further refine it." Another student claimed, "I also feel that by being a TA, I will get to revisit myself and improve upon my own learnings as well." Clearly students found an opportunity to improve their Self in this domain.

On the other hand, some students believed that they could use their own experience of their Self and be able to understand the problems of other students and help them effectively. As one student wrote in her SOP, "I wish to take up the duty of a TA as I personally faced a lot of questions during my time as a student of VDC, most important being, 'why are we doing this

course'. I think having done the course, I can provide suitable and much required insights to my juniors so as to how these courses will be instrumental in all of their upcoming projects, etc. Furthermore, I would like to give back to this institution in all the ways possible and being a teaching assistant will help me fulfil my responsibility towards this institution. Another student described the Self-Other relationship, "I want to work with juniors and see their perspective and thinking during the course to broaden my knowledge about design processes. I want to learn how the actual process of teaching advances internally throughout the semester and want to have some teaching experience by working with the instructors." One student aptly summarised this as—I look at this as an opportunity to not only assist you and my fellow juniors but also build up and improve on my concepts as well.

To conclude, the VDC course confers the importance of understanding the visual language and its relation in context to the nature and environment. It appears that students understand that to communicate more concisely and in a visually appropriate manner, it is necessary to use commonly understood principles, perspectives, and design layout standards. Together, these conventions constitute a visual language, that helps ensure that the visual communication is clear and relatively easy to understand. Students understand that the significance and emphasis of communication between the designer and the Other is for developing a more empathetic attitude towards the Other. Processing of visual information helps students develop the designer Self, in the comprehension of the Other, at the same time.

6.6 The Design Processes & Perspectives (DPP) Course

6.6.1 An Introduction to the DPP Course

The DPP Course is followed at the completion of the DDV course and is covered in parallel with the VDC course. The course is described as an introduction, "to the theoretical and practical aspects of design evolving processes. The course presents the varied palette of design from design of physical objects, to design of human-computer interactions, to design of services, to design of micro systems and connected/complex systems. It offers tasks that initiate the process of learning fundamental skills such as observation & representation, investigation, analysis, synthesis, conceptualization, reflections, projection, visualization &

representation. Topics such as Design Processes, Design Perspectives, Design Context & Concerns, Problem Solving Methods, Idea Generation, User-Focused Thinking and Basic Communication are covered during the course. It also introduces students to various stages of problem-solving process from problem identification to investigation and analysis of needs as well as tools and techniques used for generation, iteration, evolution and communication of ideas and design concepts. This course helps sensitize students to study the social, cultural and physical environment in which his/her design has to operate, so that the design has a meaning or relevance to the people concerned. Broadly, the course gives students the opportunity to develop essential design thinking skills such as exploring the designed space to identify problem, applying the design thinking process to problems, visualizing design solutions, refining final designs and communicating ideas in a visually appropriate form through assignments and projects.” (Annexure 15).

6.6.2 Objectives of the DPP Course

The objectives set for the course are: development of the ability to identify, reflect, analyse, and evaluate an issue or problem, keeping subjective views of all stakeholders in mind, in order to develop insights which can help develop a well-defined problem statement; development of the ability to empathise with the Other while developing the ability to reflect critically on the designer’s Self, thus developing the ability to create scenarios and initiate, express, and communicate concepts; development of the ability to select methodologies and develop processes in problem solving and apply it to simple problems; development of the ability to engage in complex problem solving and to create collaborations, by engaging in planning and generating design solutions in a more holistic approach, which includes all stakeholders, systems, communities and complexities of issues (Annexure 14).

Through the course, students are able to explore different perspectives of design thinking and address an empathy towards the Other. This results in the development of the ability to identify, analyse, and evaluate by having a broader perspective of the problem. It can be considered as a reflexive practice or creator of meaning, or even as a problem-solving activity to understand empathy, and in consequence reflect on the designer Self. Communication perceptions and collaborative engagements in complex situations can be developed and thus create a

relationship between the Other and the designer Self in order to create the design. A better understanding of the course and its implementation for the development of the ability of an understanding of the Other and the development of the designer Self can be done with an exploration of course assignments given to the students.

6.6.3 Description of the DPP Course

As mentioned earlier, assignments are meant to determine a student's activities that support a process-oriented approach to problem solving. It systematically leads the student through a series of stages that are involved in responding to the issues of concerns. It continues to progressively train students to an understanding of the Self-Other relationship, which leads to design methods that are responsive to contemporary issues.

A careful planning and implementation of assignments is necessary to fulfil course objectives and help students develop critical abilities. Assignments in the DPP course are clustered together to impart learnings (as an amalgamation of developing skills, knowledge, abilities, and a sensitisation of designer-self for a better understanding of the Self-Other relationship) in categories as:

1. Problem Area: Identification, Investigation, and Problem Statement Formation
2. Analysis and Synthesis of Research Findings
3. Ideation and Solution Scoping
4. Evaluation and Testing
5. Design Perspectives
6. Drawing Out Thoughts 3: Articulating Design Processes and Design Perspectives in Problem Solving

Once again, since contents of the course outweigh the time allotted to it, students are asked to work in groups and engage in shared learning. Shared learning is the process of working as a team to achieve a common objective. Team members, who share knowledge and learn from each other, do so in a shorter period of time. Students go through two kinds of problems—Micros or

a Simple Problem, and Macro or a Complex Problem—to get a sense of a systematic problem-solving process.

As a warm up exercise, students were asked to identify problems at different levels from micro to macro. For each level, students were to map the 4/5 W's and an H to one in each of the above category (See Table 6.18).

1	Five Personal Problems (Introspect the Self)
2	Five Problems from five People from your Community (Extrospection with Others)
3	Five City-Level Problems (Self and Others)
4	Five Problems from the Newspaper from anywhere in the World (Others in the World)
5	Five Problems from the Planetary Crisis (Self as part of the Planet)

Table 6.18
Recognising Simple to Complex Problems

Students begin with their Self and move outwards through society, environment, and planet. As mentioned earlier, the notion of the Self is not new for these students. By now students are familiar with the concept of the Self-Other relationship. According to students, “This assignment led us on a journey into ourselves. We explored the Self in a more intricate way. We could introspect and learn about our weaknesses and strengths and be more self-aware while searching for mini problems in our lives. We were able to differentiate real needs from created needs that emerge from materialism.” Another student reflected, “By diving into other peoples’ problems, we were able to sympathise with them. But later we understood that there was a significant difference between sympathy and empathy. It was easier to sympathise and feel pity than to empathise. However, once we began to understand the concept of empathy, we had a better understanding of what situation they were dealing with. In this process we could build a stronger rapport with the person. We experienced an emotional bond.” This *emotional bond* is something that students experience for the first time in their life. Students went on to expand upon this, “As problems turned from micro to macro, we realised that our bond with the problem also starts to loosen. So, this assignment gave us an outlook that we give undue importance to the problems that happen in our vicinity but we seldom consider the problems that leech us on a much grander

stage. This assignment was a true eye opener on our all-consuming self-involved lifestyle. Now designing solution for real world problems is something that is on our future agenda.” This awareness, coming from a third-semester student, irrespective of the discipline, appears to be possible because of a learning pedagogy which is centred on the understanding of the relationship of the Self and the Other, which will possibly lead them to design processes that are responsive to contemporary issues. These students also claimed that the assignments had been an *eye-opener*.

Finally, at the end of the assignment, while addressing problems at the city and global levels, students claimed that, “By exposing ourselves to the problems at the city and global levels, we realised the gravity of the issues and could inculcate a sense of social responsibility and awareness in ourselves. While we are out there fighting for tangible, we break the impeccable intangible bond that we have with each other. This assignment as a whole was a true game changer for us due to a self-realization on our part.” Social responsibility is a concept that is not easy to inculcate. An articulation of it is a positive initiation in a student’s life journey.

6.6.4 Problem Area: Identification, Investigation, Problem Statement, and Scoping the Context

The process of problem identification involves development of clear, straightforward problem statements that can be linked directly with the specific goals and objectives already identified. An integral part of the Design Thinking process is the definition of a meaningful and actionable problem statement, which a design student will focus on solving. Students engaged in simple research methods to scope the problem. One student commented, “By being at the problem site, we felt more connected to both the environment and the people. By having a deeper look at the problem, we were able to put ourselves in the stakeholders’ shoes and look at the problem with a different perspective altogether.” During investigation, not only were they able to connect with the Other, the students claimed, “This not only broadened our horizon but also made us more observant. We started paying more attention to the tiniest of the details which we earlier might have taken for granted. Observing our environment allowed us to inculcate patience and an eye for detail. We also learnt to translate shortcomings as

opportunities for improvement and betterment of both ourselves and our environment.” Students became aware of their personal preferences and biases. According to a student, “Interviewing and conducting surveys allowed us to shed all our stereotypes and preconceived notions and take in information with an unbiased mind. We could be open-minded, set aside our personal preferences, and take in information in its raw form. In addition to that, successfully communicating with strangers made us more confident and was a boost to our communication skills.” An integral part of the process was the definition of a meaningful and actionable problem statement. Articulating a problem statement and scoping its context posed to be a challenge for the students. One of them admitted, “At first, the problem statement formation looked like a meaningless formality but later it proved to be a very important part because it clarified the purpose and context of the study for both, the user and ourselves. Also, it made us think more logically and plan a methodological approach to the issue at hand.”

Eventually, in the quest to scope the problem or issue, a student claimed, “Finding a problem area made me realise the areas or the conflicts I have which were different from the conflicts stakeholders have. We realised the need to develop an acceptive and confident attitude towards approaching and enquiring the stakeholders about the problem.” Students began to align their Self to the Other.

6.6.5 Analysis and Synthesis of Research Findings and Understanding the Stakeholders

After the investigation is done, is when the insights or findings from the research lead to design solutions. Developing insights about end users has proven to be an invaluable part of a design process. Generating those insights is the work of design analysis and synthesis, but unlike design research, this part of the design process is often a bit of a black box. This lack of formal definition means that analysis and synthesis activities, though immensely valuable to design work, are difficult concepts for students. One student expressed the importance of understanding the ‘Other, “This assignment was greatly aimed at understanding the Other. We were able to view the problem through the eyes of the stakeholder, who were experiencing the problem first hand. We learnt that a level of patience was required to interact with the people

who were facing the problem and how it could be frustrating for them to talk about their situation. We, by observing their daily activities, were able to sensitise ourselves towards their routine and temperament.”

By now students were adept at being with the Other. According to a student, “By inculcating a way of communication that would allow us to appreciate and respect their views, we were able to build a rapport with them. This not only helped us gain respect for them and their daily schedules, but also taught us to be grateful for the contribution of Others.” Moreover, said another student that it helped them in, “Developing a connect with the Other and understanding their point of view of the problem, which may result in improving our understanding and changing perspectives towards the issue.”

Students were able to articulate their findings swiftly using their ability to understand and see the perspective of the Other. As one student reflected, “We not only began to understand the concept of scope of design in a problem, but also the process of realisation and alertness to identify the need for a design intervention in a situation/problem. As a designer, there will be a constant requirement to scrap existing ideas and situations and revisit and rework based on dynamic and changing situations and problem areas. It helped us to embrace our flaws and work on them constructively and come up with a solution.” This reflection demonstrates a commendable articulation of students’ learning.

6.6.6 Ideation and Solution Scoping

Ideation is the process where ideas and solutions are generated through sessions such as sketching, brainstorming, SCAMPER, mind-map, etc. Once the students acquire clarity on the problem or issue that is being solved and the user’s needs, they engage in the process of generating possible solutions that respond to the needs. Students engage in divergent thinking creating a high volume of ideas. Over many iterations, they narrow down possible approaches through a process of convergence to one or two final solutions, which will be evaluated and tested. According to a student, “As a designer, there will be constant requirements to scrap existing ideas and situations and revisit and rework based on the dynamic and changing situations and problem areas. It helped us to embrace our flaws and work on them constructively

and come up with a solution.” Some students said, “We realized that sometimes good design may need to include the opinions, perspectives, and contexts from people of various strata of society and as many diverse people as possible. It helps to encompass the diverse thoughts and problems faced, and in turn help in coming up with a more expansive solution.”

It appears that while ideating, students engaged in divergent thinking but when it came to converging down to the final solution, they clearly kept the Other central. As one student articulated, “We realised that sometimes a preferred solution works over a perfect solution, as ‘perfect’ is subjective and may not be the same for both the designer and the Other. We were more sensitive towards the viewpoints of the Other and would learn from their preferences and experiences.”

It is important to look at the sociological and ecological impact of the products we design. Designing is not only about making products that satisfy the needs of your consumer. Designers also have to be well-versed with the fact that their product is contributing to the amelioration of the society as a whole. Products should not be a means to an end but a source of new and better beginnings. According to students, “So we learned that a thorough background check should be done on things that we intend to make.”

Another one said, “Thinking outside the box is not always the way forward, sometimes staying inside the box and improving the box is also a viable alternative. In this, the learning element was our realization that the box is just an element holding us back.”

Context is one of the most important elements of design. For a product to be beneficial, the context behind the product has to be understood. In order to gain maximum output from a product designed, you need to be aware about the context.

A student claimed, “We realized that it’s not always easy to scope, research, understand and contextualize a problem. Some problems are twisted and have multiple dimensions to it and the dimensions are dynamic. Hence, the solution worked out should also be multi-layered and each layer will work towards solving the problem individually and as a whole.”

6.6.7 Conclusion to the DPP Course

The overarching goal of this course is to introduce students to design processes and perspectives that respond to current issues in a systematic manner. As mentioned earlier, the study suggests that a better understanding of the Self-Other relationship can possibly lead us to design methods that are responsive to contemporary issues. It appears that the introduction of the notions of the Self, the Other and the relationship between them in these three courses, DDV, VDC and DPP, helped students in responding to the Other as an important attribute in the act of design, for design is often intended to improve some aspect of our external world. According to the students, “We realized the need to develop a thinking and creating a process by choosing sustainable options. We realized the need to develop a serving and responsible attitude towards the society. Understanding the responsibility, a designer holds to do good to the world and society by designing products or communications which are ethical and socially responsible. Understanding the responsibility of the designer to make universal designs so as not to limit their reach to a few people only.” They went on to reflect, “It is important to look at the sociological and ecological impact of the products that we design. Designing is not only about making products that satisfy the needs of your consumer. Designers also have to be well-versed with the fact that their product is contributing to the amelioration of the society as a whole. Products should not be a means to an end but a source of new and better beginnings. So, we learned that a thorough background check should be done on things that we intend to make.” It appears that students developed an awareness and a sense of responsibility through a course that kept the Self-Other relationship central in its pedagogy. Students claimed that sometimes, “Thinking outside the box is not always the way forward, sometimes staying inside the box and improving the box is also a viable alternative. In this, the learning element was our realization that the box is just an element holding us back.” Implying, the Self which is symbolised by the box need to align with the Other.

In conclusion, students empathised that the Other is also as layered a human as the Self for the designer. Students learnt that, “We realized that it’s not always that easy to scope, research, understand, and contextualize a problem. Some problems are twisted and have multiple dimensions to it, and the dimensions are dynamic. Hence, the solution worked out should also be multi-layered and each layer will work towards solving the problem individually and as a whole.”

The Foundation Design Education culminates in a final project that students undertake, in which they are offered an opportunity to apply all they have learnt in real situations.

6.7 Final Project in the VDC + DPP (Integrated): A Study of How the Self-Other Relationship in the Post-Modern Period Leads to Design Processes that are Responsive to the Contemporary Issues

The Final Project aims to develop in the student an understanding of the relationship between problem-solving processes and visual design. Unlike the final project in the DDV course, the VDC project is combined with the DPP project, offering the students an opportunity to integrate applications of all the three courses. As mentioned earlier, the Self-Other relationship is kept central to navigate through the problem-solving processes that are responsive to contemporary issues.

The account below describe the final project that integrates the learnings of all the assignments done by students in the second year of the undergraduate CSD programme at the IIIT-D, in their third semester. Students are expected to work in a real situation to experience the Self-Other relationship, to effectively use the design processes to respond to communication issues. Students were grouped into teams of four members each, and a project was assigned to each team, as given in Table below (See Table 6.19).

Groups	Students	Project
Group 1	Prakhar Goel, Nishtha Singhal, Royal Tomar,	Redesign of the Portal for Health Management Information System (HMIS) in collaboration with Maulana Azad Medical College (MAMC). <i>Final presentation was made to the Ministry of Health, Govt. of India.</i>
Group 2	Akshat Jain Shonak, Kanupriya Singh, Shruti Dabas, Jatin	

		
Group 3	Atul Anand, Dashmesh Singh, Anand, Tushar Kadian	Redesign of Visual Aids for Public Health Centres (PHC), Gokalpuri, Delhi in collaboration with Maulana Azad Medical College (MAMC). <i>Final presentation was made to the Ministry of Health, Govt. of India.</i> 
Group 4	Riya Singh, Varnika Koiran	Design of Documentary Video Films for the NGO, Institute for Social Democracy (ISD), from the video footage provided.
Group 5	Mayank Jain, Meeha Tiwari	Design of an Animated Film for the NGO, Institute for Social Democracy (ISD) on Composite Heritage. <i>Final film projected at a South Asian Peace Conference in Cambodia.</i> 
Group 6	Himanshu Singh, Nikhil, Zubair, Mayank Rohilla	Design of Documentary Video Films for the NGO, Institute for Social Democracy (ISD) on the Founder of ISD. <i>Final film projected at an Annual ISD Founder's Day in New Delhi.</i>

		
Group 7	Vaibhav Sarda, Aman Rehman, Avyakt Gupta, Kyzyl Monterio	Redesign of Posters for the NGO, Institute for Social Democracy (ISD).
Group 8	Piyush Vashisht, Himanshu Singh	Redesign of Newsletters for the NGO, Institute for Social Democracy (ISD).
Group 9	Angel Walia, Kritika	Design of Brochures for the NGO, Institute for Social Democracy (ISD).
Group 10	Sanchit, Apratim Ankit, Chirayu Prasad, Porvil	Redesign of the Website for the NGO, Institute for Social Democracy (ISD).
Group 11	Anish Bhardwaj, Aakash, Vishnu Mohan, Shivankar Ayush, Gaurav, Pushpraj, Shaurya	Design of the Website for Centre for New Media and Design (CDNM), IIIT-D

Table 6.19
Final Projects of the Students Showcased at Various Events and Platforms

As mentioned earlier, the final project in VDC and DPP integrated, required students to work hands-on with real people in real situations on real needs. The projects were sourced by the facilitator, based on a mutual understanding with the collaborators. The projects were real, however, the collaborators were aware of the limitations of a second-year student and were willing to take a chance with them. Students were given the choice of selecting the medium of the project with the help of the facilitators. Some selected based on the medium, and others selected based on the people they would be working with. The exposure students had in developing an understanding of the Other and keeping the Self-Other relationship central, appears to have given them the confidence to work with people with real problems. The students claimed, “We realised how essential it is to understand the user (almost as much as we understand our Self) as they are our final consumer. We ultimately need to deliver the required features and functions in a way that is effective and the user can benefit, otherwise the design will be redundant.” An understanding of the Self-Other relationship helped in the design process that was more responsive to the needs. One student claimed, “This helped us set aside

our ego and pride, put the user's needs and opinions over the designer's. This also helped us develop a self-critiquing attitude towards our work and made us able to let go of designs that don't work according to our personal goals, needs, or personal choices and invite different ideas and iterations that are optimal for the other." In spite of their age and early stages of education, students appeared to have developed adequate abilities to formulate their own design processes that respond to the issues they address.

Two groups of four students each worked on the redesign of the portal for the Health Management Information System (HMIS) in use at the Delhi Gate Health Centre and Gokalpuri Health Centre, in collaboration with the doctors of the Maulana Azad Medical College (MAMC), New Delhi, who are the official administrators for these centres. The HMIS is an essential component in planning related policies, which facilitate the collection and management of the health data of citizens across India. Unfortunately, little attention had been paid to the usability of the system for the health workers. Through this project, the students raised a major concern of the lack of good design in a system of national-level of importance. This deficiency of the usability interfered with the utility of the program and the quality of data collected (See Figure 6.25).

As students noted in their report, "The system's performance lags in terms of the use of information. Specially, the issues around data quality and institutional capacity have been a concern. The system is grappling with a poor data-entry status. It is found that the problems of quality data are due to the problems in work organization at each stage of information flow and data transfer. This includes collection, processing, reporting, and analysis of data. Very little attention has been paid to the user-friendliness and design for slow-speed networks. To ensure the best utilization of health IT systems, it is essential to be attentive to the IT usability, keeping in mind its intended users (medical officers, health workers, and data entry operators), the task management and the environment (organizational setup, leadership, etc.). In addition to the heuristic evaluation understanding of the workload, the work environment and satisfaction among the users of the system are required to evaluate the usability of a health IT system."

Human-Centred Design (HCD) validated methods were used for studying the system's effect on users and their cognitive tasks. In HCD, user-centred activities allow potential users to shape the design of the end product and enhance its usability. Students conducted a usability test of

the existing portal by evaluating it on the basis of Nielsen's 10 usability heuristics. Through field observations and stakeholder interviews, the students worked closely alongside the Other, to understand the mechanism of data flow at the root level. Analysing the findings of all these three HCD methods, students redesigned the HMIS Portal and presented their recommendations based on the analysis of their study to both, the collaborators at MAMC and the concerned authorities at the Ministry of Health. At both the platforms, the students' presentation was received professionally by representatives from the medical field, the administration, and the IT department.

Another group of four students worked on the redesign of visual aids for the Public Health Centres (PHC) at the Delhi Gate health-centre and Gokalpuri health-centre, New Delhi. Visual aids are an important medium of communication. As the students noted in their report, "It is easier to convey a message through pictures rather than simple text. However, many a times, it is not used effectively and ends up depreciating its value." They summarised in their report, "The purpose of this project is to analyse and find ways to increase the productivity of the visual aids used at the Delhi Gate and Gokalpuri health-centres, coming under the administration of the Maulana Azad Medical College. It will present and discuss the findings from the data collected through several methods. In the end, it delivers conclusions and recommendations based upon the findings." (See Figure 6.26). One MAMC collaborator, a medical doctor by profession, wondered aloud, "Why can't our medical students be offered a course on systematic process-oriented thinking for problem solving?" Collaborations in education and practice have huge potential to address complex problems in the society.

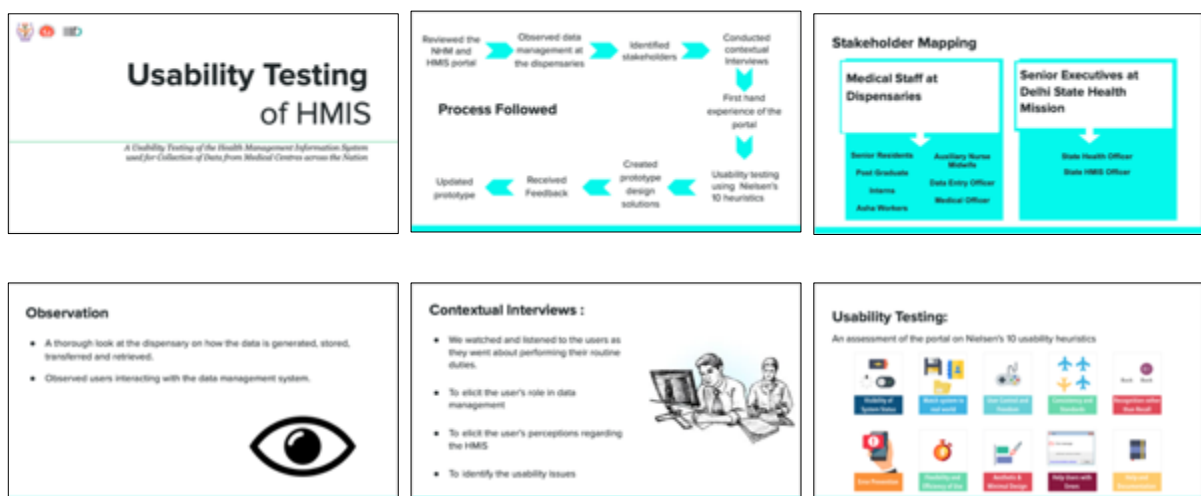
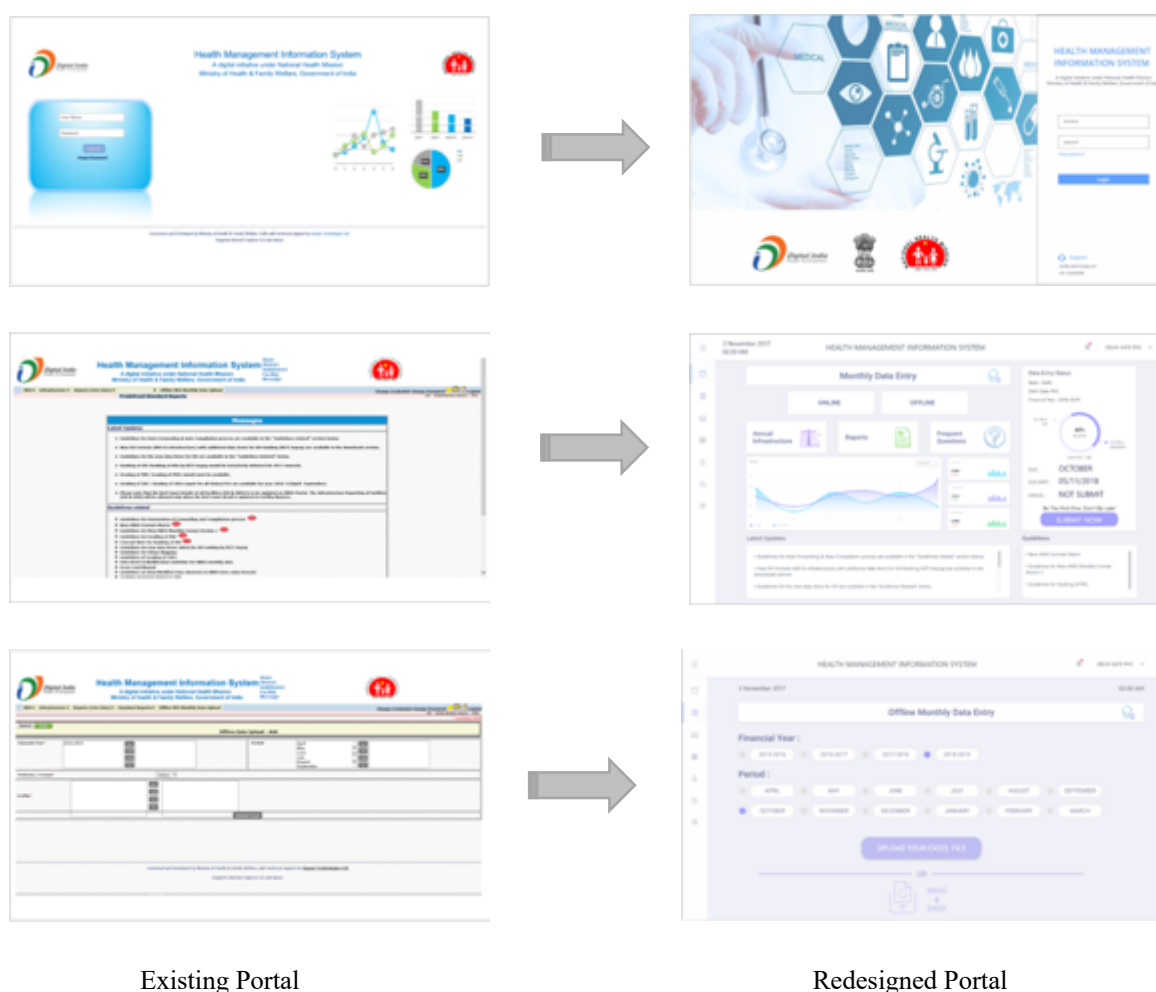




Figure 6.25
Usability Testing of the Portal for Health Management Information System (HMIS), in Collaboration with Maulana Azad Medical College.



Existing Portal

Redesigned Portal

Figure 6.26
Redesign of the Portal for Health Management Information System (HMIS) in Collaboration With Maulana Azad Medical College (MAMC)

It was no mean feat for young students of the third semester to take on such a task. An early introduction to the understanding of the Self and the Self-Other relationship, as part of design methods and processes, helped in an ease of engaging in a human-approach for the study. It appeared that a training of a better understanding of the Self-Other relationship possibly led the students to design methods and processes that were responsive to the contemporary issues and needs. It is important for young students of design to engage and work with real issues and people, early in their learning journey. It inculcates humility and empathy into their learning experiences, and encourages them to keep a connect with reality.

Another group of students worked with a Non-Governmental Organisation (NGO) called the Institute of Social Democracy (ISD) on redesigning the ISD brochure, the ISD newsletter, and ISD posters, and designing a set of video films (See Figures 6.27–6.29). Over the years, the organisation had accumulated hours and hours of footage, documenting all their events, recording interviews, talks, and speeches. Students were asked to design a set of short films that ISD could use for promotion, both to disseminate their ideology and to procure sponsors. The students worked in pairs and used typography, graphics, videography, and simple animation to add value while editing. Two films made by them were shown at two different events, one in Cambodia during a World Peace Conference (See Figure 6.27) and one in Delhi on the ISD Founder’s Day Celebration (See Figure 6.29).



Figure 6.27
Presentation of the Design Process for the NGO, Institute for Social Democracy (ISD) on Composite Heritage



Figure 6.28
Design of an Animated Film for the NGO, Institute for Social Democracy (ISD) on Composite Heritage

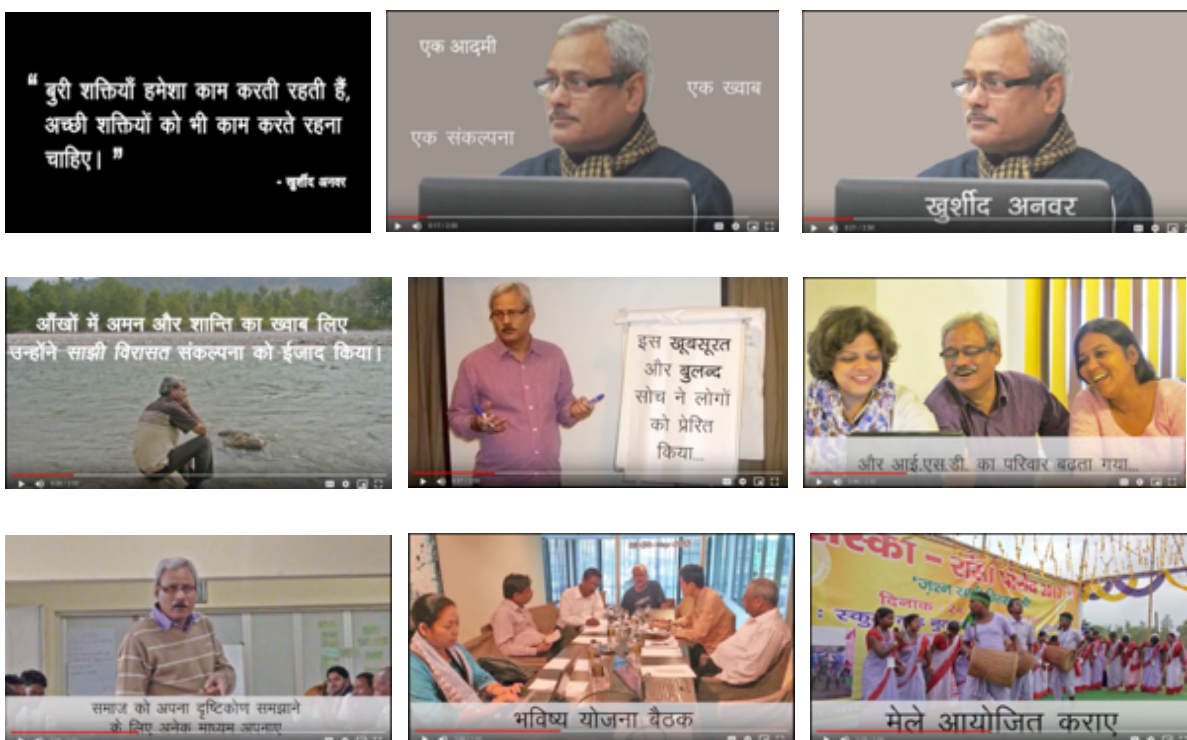




Figure 6.29
Design of Documentary Video Films for the NGO, Institute for Social Democracy (ISD) on the Founder of ISD

Three groups of four students each worked on the redesigning of ISD brochure, ISD newsletter and ISD posters. ISD had a range of publications which called for a better design. The work done on the brochures for ISD was appreciated by the organisation. A sound understanding in research, analysis of the existing product, and the ability to cultivate the Self-Other relationship played a prominent role in the design process and the recommendation of the design.

However, not all projects sang songs of success. Two groups of four students each worked on redesigning the ISD newsletter and ISD posters. During their final feedback, they were told by the personnel of ISD that while the study and analysis of the existing publication was good, the recommended designs were not better than the existing ones. This was a learning for the students. According to them, “We were able to conduct our study and analyse the data quite soundly. We were able to understand our end users and the ideology of the organisation fairly accurately.” In today’s context, user research or concept testing is a very important component in problem solving. To be successful as an intern, students need to value UX research, and have some experience in participating in it. That being said, the students later reflected that “We realise we needed more inputs in the technicalities of visual design to understand and apply the nuances of communication design.” Although the course was over after the final project, some students later signed up with the college Communication Cell and decided that one way to continue to learn more was by practicing design by working on real projects.

One of the groups worked on the redesign of the ISD website. Although the students did a thorough job of research and user study, they ran out of time when it came to the final (re)design

of the website. The students were complimented for their depth of research, analysis, and sound articulation of their findings, which would drive the design decisions.

Students must be ready for any type of curved ball thrown their way. One of the reasons for including additional courses, which are not typically a part of a Foundation Design Education, is to make students ready for a wide range of challenges. It appears from the manner in which the students engaged in the final project that it was possible to conduct a Foundation Design Education within a shorter frame of time. Further, it was even possible to enrich the course with several additional inputs without eliminating any of the basic courses of a traditional Foundation Programme, based on the requirement of the current context.

In order to make a Foundation Design Education relevant, it is vital that the courses are planned according to the design action and activity the students will engage in when they graduate and begin to practice as designers in the society. The study, has, thus far suggested that a better understanding of the Self-Other relationship can possibly lead the students to design methods which are responsive to contemporary issues.

The above projects were validated by the collaborators and a jury panel consisting of professional designers.

6.8 Conclusion To DDV, VDC, and DPP Courses

The thesis is an attempt to understand how the notions of the Self, the Other, and a relationship between these two play out in a Foundation Design Education. As discussed in the preceding chapter, Foundation Design Courses that have been carried out from the time of the Bauhaus, are significant in building the base of design knowledge and approach. The Other has been addressed in the course structure and assignments both in the West and at the NID. But, the Self for the designer in relation to the Other has not been covered in the basics of the design education. It appears that responding to the Other is an important attribute in the act of design, as design is most often intended to improve some aspect of our external world. An understanding of the Self, on the other hand, is not often explicitly emphasized in design processes or design methods. In fact, the design processes and methods often seek to underplay

the subjective, in their quest for an objective analysis. The Pilot Project attempted to describe the notion of the Self, and suggested that a better understanding of the Self-Other relationship can possibly lead us to design methods that are responsive to contemporary issues.

The idea of a design education is meant to shape the mindset of young designers, as they prepare for the professional world outside. The pedagogy in the Foundation Design Education facilitates students to understand their role, define their engagement, and pre-meditate the role they wish to play as designers and catalysts in shaping a future, towards a better societal equilibrium. It is within this context that the relationship between the Self for the designer and the Other—two deeply integral parts of any design action—is developed. Design today is considered to be an innovative way to address a wide range of problems, and therefore can be adapted to be taught in different academic domains. Top-tier colleges like Stanford, Harvard, and MIT teach design to students of different disciplines. In today's context, with the user being central, a design education needs to train students to understand what it means to be truly humanistic. It needs to begin with the Self.

Since the study of the Foundation Programme at the NID (as discussed in the previous chapter) established that no part of its curriculum was redundant or outdated, the students of the CSD programme at the IIIT-D needed to be given the inputs that were imparted to the Foundation Programme students at the NID. However, much thought needs to be given to a careful balance between development of abilities and focus on skill. A careful consideration needs to be set, encompassing basic skills, theories, concepts, tools, development of abilities, problem-solving processes, human needs, societal needs, environmental needs, industrial needs and much more. No longer can we indulge in more *re-inventing the wheel* (Trivedi, 1989) and conduct set exercises developed decades ago. Foundation design education is not merely about development of skills, but a holistic sensitisation and response to the needs of humans, society, industry, nature, environment and planet. This requires deep multidimensional engagement from both students and teachers.

Learning processes have multiple dimensions of developing abilities such as the ability to acquire skills, gain and apply knowledge, understand context, make connections, sensitise the Self, empathise with the Other, and understand the Self-Other relationship in design processes and methods. Unless we sensitise the Self towards all that and translate it into behaviour, we

may be handicapped in our roles as designers. Herein lies the criticality for the designer to understand the notion of the Self for the designer and the relationship of the Self with the Other.

The Pilot Project responded to the need for a new inclusive epistemology, and an introduction of the design education in institutes of higher learning in India. Technology today has moved from *tech-led* to *experience-led* digital products and services. Design today involves collaboration among engineering, businesses, marketing, and co-creation with the stakeholders and the end user. Design has evolved from *designing for the people* to *designing with the people*. Translating this to a Foundation Design Education, students need a pedagogy that helps them develop critical abilities to enable them to understand the Self-Other relationship that can lead to design actions that are responsive to the real needs. Technical or engineering academia follow pedagogic frameworks which vary significantly from the ones used by the design academia. These differences were perceived as challenges and constraints while formulating the curriculum. The time allotted to conduct this course was compressed (compared to design schools), but it was important that assignments effectively develop the critical abilities that were identified during the course of the study.

However, since the duration does not match, a restructuring was required. It was critical to look at the abilities that students needed to develop relevant to a contemporary Foundation Design Education, and assignments were developed keeping the profile of the CSD students in mind. Three courses were developed that included all skills, knowledge, and abilities that were crucial for a Foundation Design Education. Initiating relationship of the Self and the Other remained central to all the three courses developed for the Foundation Design Education at the IIIT-D. The three courses were also integrated with each other.

Several additions were made to maintain the relevance of the Foundation Design Curriculum. Some of these additions were woven into the course and some were introduced as workshops. In order to fit the Foundation Design Curriculum into a shorter duration, various techniques were explored. Since the time available was short, some tools and techniques were developed to help students understand the concepts within the constraints of time.

The study of the interviews of design educators identified recommendations which were woven into the fabric of the curriculum.

The research used in the Pilot Project was based on the belief that a prolific understanding of the Other or user is critical for a designer, and a deep understanding of the Self for the designer facilitates the process. Design students can initiate the process of engaging in empathy by beginning to understand the Self. A designer can gain insights and share an understanding with the Other after applying an introspective enquiry with the Self, first. Design students need to experience the complex layering in every human being; the socio-economic, cultural, educational, political, and philosophical amalgamation in a person. Most students have never attempted to explore these multi-layered dimensions within themselves.

The notion of the Self for the designer is woven into the fabric of a Foundation Design Education early in the curriculum. It is persistently interlaced into lectures, discussions, and practical assignments of the drawings, visualisations, ideation, journals, the design process, and the design research. Design students come with their own set of experiences, biases, and knowledge. They need to expand and push beyond their empathic horizon and align to the Others' situation and cultural cues shaped by multiple dimensions of their lives. The course helps in developing abilities that facilitate design students to sensitise themselves to work with the Other, to make improvements in the society in a holistic manner.

The courses, DDV, VDC, and DPP, are not conducted as isolated siloed courses. VDC and DPP courses run parallel in semester three. In the second half of both the courses, they merge into a single live project, where students apply all that they have imbibed in the three courses, in a real project with actual clients. Elements of RMSSD and HCI are also introduced in VDC and DPP, and students apply a holistic understanding of all their learnings in the final project. Students learn to apply learnings from one course to another, keeping the Self-Other relationship central. Once they are able to make a habit of it, it stays for life.

DDV is the first course for students to develop one's Self with the understanding of the Other. Design Drawing is described as "based on the premise that drawing is central to the design process, this course focuses on drawing as a medium for observing, representing, conceptualizing, analysing, visualizing and communicating design ideas."

The DDV course sensitises students to connect with their emotions. Students experience the cognitive process of representing emotions through abstract visual markings. The objective is to introduce them to the brain-eye-hand-visual representation relationship. This activity aims

to demonstrate to the student that visual language exists in all human beings. This is the first exposure to connect to their inner Self and to the visual language. Students become aware that there is a logical explanation for the visual markings which accurately reflect their inner emotions in their Self. This is the first exposure to connect to their inner Self and to the visual language.

Other than the skills that are developed like eye-hand-coordination and control over the medium of drawing, the DDV course also develops several abilities. It develops the many critical abilities beyond traditional abilities to observe details, perceive forms on 2D surfaces, 3D spaces and perspective, and proportions. Traditionally, the course also develops the ability to represent images, ideas, concepts, visualisations, and articulate the thinking processes. With the introduction of the Self and the Other, students develop attributes like patience, a curious mind, attention to details, and a connect to the Self and the Other, where the Other can be a human or an artefact.

Students are introduced to techniques which examine geometric characters like dots, lines, planes, vertices, edges, surfaces, etc. with the highest level of precision. It trains the student to realise the meaning of precision where accuracy is not negotiable, and also introduces students to the concept of the perfectionism, which will be applied at decisions they make in their future. It develops the ability to describe and construct shapes, tessellate patterns, and analyse their interrelationships. It sensitises the students to the hidden geometric structures in the nature. With the introduction of the Self and the Other, students develop an ability to seek connections in relationships, especially while addressing the duality in geometry. The Self and the Other is woven into the concept of interrelationships between the elements in geometry.

Freehand precision drawing with an isometric grid develops the ability to scale up idea concepts and visualise them without distorting the drawing. Like the toy building blocks, Lego, an isometric drawing helps in scaling, duplicating, and multiplying visualised spaces, artefacts and more. Unlike the drawing of a perspective view, an isometric drawing does not take distance into consideration and distort the drawing. It prepares the student to work in virtual spaces. With the introduction of the Self and Other, students develop an ability to seek connections in complex relationships not just along the X and Y axes but also along the Z axis and make sense of them.

Simultaneously, students also experience the tool as an extension of their physical Self. They discover qualities in their Self that they begin to nurture when they engage in drawing as an activity. They begin their journey of sensitisation and learn to apply theory and practice to their environment, both built and natural, a small step towards connecting the inner thoughts of the Self to the outside world. This outside world, which they begin to acknowledge, comprises other humans, nature, objects, architecture, etc. As assignments progress, so does the consciousness of the Self. A questioning mind ignites a plethora of possibilities. It also discourages the Self to take things for granted or recognise personal biases.

While engaging in exploring different methods of drawings, students are encouraged to continue to nurture the observant Self. Once skills are developed, students are encouraged to align their thinking to the Self and the Other. They begin to associate these different views as different views or different perspectives of people and life.

Students train themselves to look at their physical Self and attempt to draw what they see and not what they would like to see. They learn to see their own faces dispassionately, and represent it in a drawing keeping in mind all the relationships and proportions between the elements of the face. The assignment instils a need to develop patience, while relooking and reiterating the drawing. Thus, understanding the need to develop the attitude to delve into the depth of a given situation.

Students are encouraged to both explore the Self and retrieve information of the Self from the past, to be able to think about how the Self has evolved, and to explore what they aspire to be in the future. Students are introduced to Drawing from Memory and Drawing from Imagination with the activity of drawing their Self as a five-year-old from the past memory, and as a seventy-year-old Self from a visualised future. Students are introduced to the Mind's Eye. Speculative skills are built to develop an understanding of the concept of abstraction. Abstract drawing is also introduced through the Self. Students begin to relate to the visual language and communicate through their drawings.

Drawing is not taught in isolation. The cultural context is woven into the drawing assignment. Students become aware of the cultural context on their environment and in what they draw. They begin their journey on perceiving the Other and begin to understand the concept of the

Self and the Other relationship in the cultural context. In the Pilot Project, students appear to have begun a journey in making sense of the relationship of the Self and the Other.

The process of understanding the Self can begin by looking into one's own attributes. It is beginning with looking within, in order to look beyond.

Unravelling through the inner Self involves the courage to connect to one's own vulnerability, worthiness, resilience, trust, and more. Students journeyed outside of the Self through a process of extrospection, to interact with the world around. This appeared to be a conscious attempt to understand the Self-Other relationship. They are encouraged to think of their dreams, fantasies, caprices, hopes, and whims that are independent of the realities of life.

Some students claim that they were able to access insights to the Other which may not have been possible if they had not gone through the process of introspection with themselves. Students are encouraged, not only to speak to humans but to the objects too. Students are cajoled to not perceive inanimate objects dispassionately.

In the Pilot Project, students, exposed to the many facets of drawing, began to perceive drawing as a tool to develop observational skills, reflective skills, and speculative skills, to visually represent past and future experiences and to understand the concept of visualising images. They were able to do so in a short period of time by using the Self as the central subject.

The VDC course is introduced to the students on the completion of the DDV course, by conferring the importance of understanding the visual language and its relation in context of the nature and environment. A multi-disciplinary domain, design consists of, aesthetics, architecture, products, communication, processes, systems, technology, business/commerce, and ramifications on the environment and society, and demands a clear understanding of design fundamentals.

It appears that the students were able to recognise and identify the elements in the environment effectively, within a short span of time, by acknowledging these elements as the Other and consciously building a relationship with their Self.

Students continued to learn about the principles of design, keeping the Self-Other relationship central, where the Other could even be the planet Earth.

For a designer to communicate more concisely and in a visually appropriate manner, it is necessary to use commonly-understood principles, perspectives, and design layout standards. Together, these conventions constitute a visual language, and help to ensure that the drawing is clear and relatively easy to understand. The course also introduces students to the fundamentals of Typography, Photography and Videography.

The course corresponds with the contemporary times in order to develop creative skills through communication with the Other and the environment by visual means. The attributes of perception, visualisation, and communication are used to develop the notion of the Self by communicating and understanding the Other. The significance of communication between the designer and the Other is emphasised for a more empathetic attitude towards the Other. Processing of visual information helps the students develop the designer Self, and at the same time, in the comprehension of the Other.

Students become aware that certain categories of shapes differ in their perception and interpretation between the Self and the Other. However, there are exceptions and students are able to identify certain universality in the visual language, where under certain circumstances, the Self and the Other align their perceptions.

The DPP course is introduced to the students along with the VDC course. Students develop an understanding of the relationship between systematic, process-oriented problem-solving methods, visualisation, and design drawing. They are not introduced to any theories of design methods. They are, however, encouraged to go through a process of investigating and making sense of the identified problem. Theories like Activity Theory, Critical Theory, etc., are not introduced, and concepts like Speculative Design, Persuasive Design, and Design Methods, etc., are not discussed formally. Yet, students go through the processes that can well be framed into theories and concepts. Students visualise a systemic response to a problem, involving a series of solutions, collectively addressing different facets of a problem. They use their understanding of the Self-Other relationship to scaffold the solution system. Students also speculated how the study could be taken forward.

Students begin with their Self and move outwards through the society, environment, and planet. This awareness, coming from a third-semester student, irrespective of the discipline, appears to be possible because of a learning pedagogy which is centred on the understanding of the relationship of the Self and the Other, which will possibly lead them to design processes that are responsive to the contemporary issues. These students also claimed that the assignments were an *eye-opener*.

Students, eventually in their quest to scope the problem or issue, claimed, “Finding a problem area made me realise the areas or the conflicts I have which were different from the conflicts stakeholders have. We realised the need to develop an acceptive and confident attitude towards approaching and enquiring the stakeholders about the problem.” Students began to align their Self with the Other.

Students were able to articulate their findings swiftly, using their ability to understand and see the perspective of the Other. As one student reflected, “We not only began to understand the concept of the scope of design in a problem, but also the process of realisation and alertness to identify the need of a design intervention in a situation/problem. As a designer, there will be constant requirements to scrap existing ideas and situations and revisit and rework based on the dynamic and changing situations and problem areas. It helped us to embrace our flaws and work on them constructively and come up with a solution.”

The projects were real, and the exposure the students had in developing an understanding of the Other and keeping the Self-Other relationship central, appears to have given them the confidence to work with people with real problems.

The DDV course appears to be the most traumatic courses of the three. Many students come with no prior experience of drawing, with an assumption that drawing is an activity meant only for artists. Introducing the concept of the Self and the Other appears to have helped the students make sense of why, what, and how they draw, when they make the connect with the subject, that is, the Other.

The VDC course appears to be the most challenging of the three as it required many iterations for better applications, and contact hours allotted to the course were limited. However, understanding the relationships between the Self and the Other appears to have helped students

understand the concepts of visual design and visual communication swiftly. Moreover, since students worked in groups, they were able to constantly gauge differences between perception of visuals by the Self and the perception of visuals by the Other.

The DPP course appears to show very little struggle for the students. Since they had been introduced to the concept of a systematic process-oriented thinking for any design action in the DDV course, students were able to take the DPP course to a higher level of thinking. Moreover, since students had been introduced to the importance of understanding the relationship between the Self for the designer and the Other, they were able to empathise with the stakeholders and users without feeling the initial awkwardness. This understanding of the role of empathy in design appears to have led the students to design processes that were responsive to the contemporary issues. Students appear to have developed a comfort level to engage with all kinds of stakeholders.

In conclusion, students also appear to have developed the ability to approach problems of different scales and context with different perspectives and processes. They appear to be aware of conflicts among stakeholders, and are more sensitive towards the viewpoints of the Other and are able to learn from their preferences and experiences. This awareness, coming from a third-semester student, appears to be possible because of a learning pedagogy which is centred on the understanding of the relationship of the Self and the Other, which will possibly lead them to design processes that are responsive to contemporary issues.

As one student humbly shared, “Designing solutions for real-world problems is something that is on our future agenda. By exposing ourselves to the problems at the city and global levels, we realised the gravity of the issues and could inculcate a sense of social responsibility and awareness. While we are out there fighting for the tangible, breaking the impeccable intangible bond that we have with each other. This assignment as a whole was a true game changer for us due to the self-realization on our part.” (See Figure 6.30).



Figure 6.30
Me, Myself and the Self for the Designer

Chapter 7

Conclusion and The Way Forward:

The Six S Model To

Shape A Humanistic Self for The Designer

7.1 Introduction

The motivation for this thesis was to inform the design academia to add knowledge that will be of value to design educators who work in the area of a Foundation Design Education. This was explored through these research questions.

Research Question 1

How has the definition of design evolved over time?

How has the design education been able to keep up with the change, specifically the Foundation Design Education?

The evolution of design education was surveyed through a literature study that examined the nature of the Self and the Self-Other relationship from the texts of the Bauhaus and Ulm educators and from the Eameses' India Report. This was answered through a review of literature, historical study of modern design education, and through a documentation of the works of foundation design students. It is found that the influence of both Bauhaus and Ulm are apparent even today in Foundation Design Education in India. The revolutionary

educational philosophy of the Bauhaus design movement, and the unique curriculum which was learning by doing was introduced and remain part of NID to the present day. However, much was borrowed from the philosophy of HfG Ulm School of Design too, which was to build a new and markedly closer relationship between design, science and technology. This was the first manifestation of the Ulm model, which has lost none of its relevance even today. The western influence of both Bauhaus and Ulm are apparent even today in Foundation Design Education in India and finds many similarities with the Bauhaus and Ulm responses. Assignment outcomes are found to be similar to Bauhaus and HfG, Ulm outcomes. An extensive visual documentation of the existing Foundation Design Education done across five design schools found that most of the courses were common, and generally followed the NID philosophy. It also establishes the emphasis on developing skills. While developing such visual skills are important, in today's scenario, it is equally important to integrate these skills with humanistic concerns.

The social, economic and technological dynamics of the world are evolving and constantly changing the complexity levels. Design practices have attempted to keep up but it is critical to rethink educational practices for design to better respond to contemporary challenges. Foundation Design Education should train students with skills, knowledge and abilities to respond to problems, issues and challenges of present times through process-oriented critical thinking with humanistic approaches.

Research Question 2

What is the current Foundation Design Education and how does it respond to the current needs?

Based on the evolving meaning of design, what are the significant gaps or lacunae in the current Foundation Design Education?

By examining the Self and the Self-Other relationship as understood by other disciplines, such as Philosophy, Sociology, and Psychology, it is established that there is an omission of the Self in Design. The framework for a humanistic Foundation Design Education is borrowed from the field of Psychology specifically on understanding the concept of empathy and the importance

of developing the ability to empathise with the Other. Developing the ability to empathise is the first step towards understanding the Self before proceeding to understand the Self-Other relationship in design. A humanistic approach to nurture an empathic Self would necessitate that the Other include, the man-made artefact, nature, humans, non-humans, communities, environment and all else in *life*.

The need to develop a more humanistic Foundation Design Education is established as imperative through interviews [published] and interactions with design educators and practitioners at various forums that establish lacunae in the Foundation Design Education. Extensive engagements with experienced design educators and other design participants in various design education conferences and seminars supported the lacuna of a more humanistic approach to Foundation Design Education. Excerpts from these interactions with design educators are used to argue that such a lacuna exists and the importance of a more nuanced understanding of the relationships between humans, society, industry, technology and even the non-human worlds, is required in Foundation Design Education. Being a humanist for the Self, means holding a compassion-based value system and recognizing common humanity with all of humanity, nature, environment and the planet. It also reflects the acknowledgment of personal biases. Introducing the notion of the Self and the Self-Other relationship in Foundation Design Courses certainly enriches the programme and navigates it towards a humanistic one.

Research Question 3

What critical abilities do students of a Foundation Design Education need to develop in order to empower them to respond to the multiple needs of the society?

How will the inclusion of the Self in a Foundation Design Education sensitise students in a humanistic manner and make the programme more human centred?

This is answered through interviews of design educators from NID and IDC; and through insights from students of a pilot project conducted at the Indraprastha Institute of Information Technology, Delhi (IIIT). Introducing the notion of the Self for the designer and developing the abilities to understand the Self-Other relationship offers ample opportunities to re-examine the question of alterity, and to arrive at a more adequate formulation of the way in which the Self relates to the Other in design processes. It appears that an emphasis on understanding the Self

and the Self-Other relationship in the Foundation Design courses contributes to the development of concepts relevant to the design education in the present context.

Research Question 4

How will an introspection of the Self for the designer lead to a better understanding of the Self-Other relationship, which in turn will lead to design processes that are more responsive to the contemporary challenges in the society, industry and environment?

How can the Self-Other relationship in design be made central to the courses in a more humanistic Foundation Design Education?

This is answered through the results of a pilot project conducted at IIIT. Through the implementation of objectives for the development of the abilities in the Foundation Design Courses at a technology institution, where design collaborates with technology in responding to the problems and issues in society. This is described through a discussion of the course structure, assignments, and projects given to the students for an overall development of the abilities, keeping in focus the notion of the Self for the designer and the developing an understanding of the Self-Other relationship. The study introduced the notion of the Self, the Other, and the relationship between the two in a contemporary Foundation Design Education. A framework is developed in Foundation Design Education that enable the student to understand the notion of the Self and the Self-Other relationship through introducing the concept of ‘Introspection’ and ‘Extrospection’.

Introspection is process of examining and understanding one’s current mental state. Borrowing from the theories of the cognitive and affective components of empathy. The Self develops both the ability to know and to feel the Other. Mindfulness, a meditative and reflective state of mind, can be helpful to articulate and consciously develop the Self. Thus, enabling the possibilities to develop a humanistic understanding the Self-Other relationship. Introspection encourages journey into the Self that triggers questions, arouses curiosities, accepts denials, and embraces one’s strengths, weaknesses, dreams, aspirations, fears etc.

Extrospection on the other hand involves understanding everything external to one’s mind, and makes meanings of our connections to them. The various external elements are ordered in layers

by one's proximity or closeness to them. The extrospective journey involves the relationships the Self engages with the world around.

The thesis proposes that engaging in the Introspective and the Extrospective journeys and applying the framework to any design activity would possibly develop the ability to know the Self and empathise with the Other which in turn would enable the designer to engage in design activities that are humanistic in its approaches. The thesis also, proposes a model that develops a humanistic growth of the Self, thus ensuring humanistic design processes in problem solving. This is discussed in length in Chapters 6 and Chapter 7. The thesis proposes that such an approach introduced to the Foundation Design Education will encourage the landscape to take on a humanistic topography.

It observed the deliberation of the Self-Other relationship in the assignments developed for the Foundation Design Courses. It established that a better understanding of the Self and the Self-Other relationship can possibly lead us to design methods that are more effective in their responses to the contemporary issues through the reflections of students. The study projects that an emphasises on understanding the notion of the Self for the designer and the Self-Other relationship in foundation courses does enrich design education. Positioning the Self and the Self-Other relationship central to Foundation Design Education can make the programme more humanistic or human centred. The study concludes with the suggestion that a better understanding of the notion of the Self and the Self-Other relationship in a Foundation Design Education can possibly lead to design processes and methods that are responsive to the problems and issues of present times in a more humanistic manner.

7.2 Findings and Contributions

Critical findings of the study were kept in mind while implementing the Foundation Design Curriculum at IIITD. Based on the research findings, the following implementations were carried out keeping the profile of the CSD students central:

- A shift of focus from a predominant emphasis on skills to a more humanistic Foundation Design Education is made possible by reducing the time dedicated to it.

- A set of abilities critical for students of Foundation Design Education recommended by design educators interviewed, which are critical and required, are woven into the fabric of the curriculum for a more humanistic Foundation Design Education.
- The Self and the Self-Other relationship is kept central to all the Foundation Design Courses, which helps in developing abilities that facilitate design students in sensitising themselves to enable them to empathise and work with the Other, and to make improvements in humanistic ways.
- A better understanding of the notion of the Self and the Self-Other relationship in Foundation Design Education can lead to design processes and methods that are responsive to the problems, issues and needs of present times.
- Introducing the notion of the Self for the designer enriches the process of developing empathy for the Other, thus creating a Humanistic Foundation Design Education.

The study had proposed a modulated Foundation Design Education that makes the programme a humanistic one. The contributions resulting from the investigations carried out have led to the following:

- Establishing the importance of acknowledging the notion of the Self for the designer and developing the Self-Other relationship in a Foundation Design Education. To incorporate the experiences of others into the experience of the self (i.e., to be empathetic), one must have an intact sense of the Self.
- Integrating the notions of the Self for the designer and the Self-Other relationship into the pedagogy of a Foundation Design Education, through a pilot programme that was implemented at the Indraprastha Institute of Information Technology, New Delhi.
- Proposing a model to shape a humanistic Self for the designer that can be adapted for a Foundation Design Education in any discipline.

7.3 The Way Forward

It is proposed that an emphasis on the notion of the Self and the Self-Other relationship in a Foundation Design Education can enrich the design education. The thesis attempted to

understand the aspects of the notion of the Self for the designer more clearly. It proposes that a better understanding of the Self and the Self-Other relationship could possibly lead to problem-solving methods that are more humanistic in their response to the contemporary issues. This is by developing the ability to empathise. As discussed earlier, empathy can be cognitive, where, on a purely factual level, one knows what emotions and feelings the other is experiencing or empathy can be affective wherein one feels these emotions and feelings as well. Borrowing from the theories of the cognitive and affective components of empathy, a framework is developed in Foundation Design Education to help understand the notion of the Self and the Self-Other relationship by introducing the concept of 'Introspection' and 'Extrospection'.

The Self and the Other is approached through a In conclusion, the study suggests that a better understanding of the notion of the Self and the Self-Other relationship in a Foundation Design Education, can lead to design processes and methods that are responsive to the problems and issues of the present times. This chapter proposes a direction for future work.

As a suggestion for a way forward, the study attempts to construct an all-inclusive Six S Model for a Foundation Design Education to sensitise and shape a humanistic Self for the designer. From the learnings/findings of this thesis and the pilot project conducted, it is proposed that a Foundation Design Education can be tweaked to any situation or discipline. A Six S Model is proposed, which when implemented with a cluster of abilities, can be tweaked to any situation or discipline. A curriculum based on the Six S Model is proposed below.

7.4 The Six S Model to Develop the Humanist Self for the Designer

The proposed Six S Model aids a humanistic development of the Self for the designer. It is intended to be flexible enough to be implemented in a wide range of different contexts and educational cultures, but requires a pre-existing academic platform to be positioned into. A prototype description is given in Annexure 19.

The three courses of Design Drawing & Visualisation (DDV), Visual Design & Communication (VDC), and Design Processes & Perspectives (DPP), were designed with an integrated

approach which was woven into the pedagogy, enabling students to develop all the abilities that contributed to a humanistic notion of the Self for the designer. After concluding these three courses, the set of abilities that the students developed (See Annexure 10, 14, 18) showed the potential to be clustered into six categories which were inclusive of a holistic set of abilities:

Six Ss	Description of Abilities
Synesthetic	Ability for one sense to be perceived with the other senses.
Sustainable	Ability to support or maintain viability of thoughts and actions with responsibility and harmony.
Sentient	Ability to perceive and feel things. Ability to be conscious.
Synergetic	Ability to interact with another. Ability to produce combined effect greater than the sum of separate effects.
Symbiotic	Ability to engage in mutually-beneficial interactions between agents.
Systemic	Ability to relate to systems.

Table 7.1
The Six S that Shape the Notion of a Humanistic and a Holistic Self for the Designer

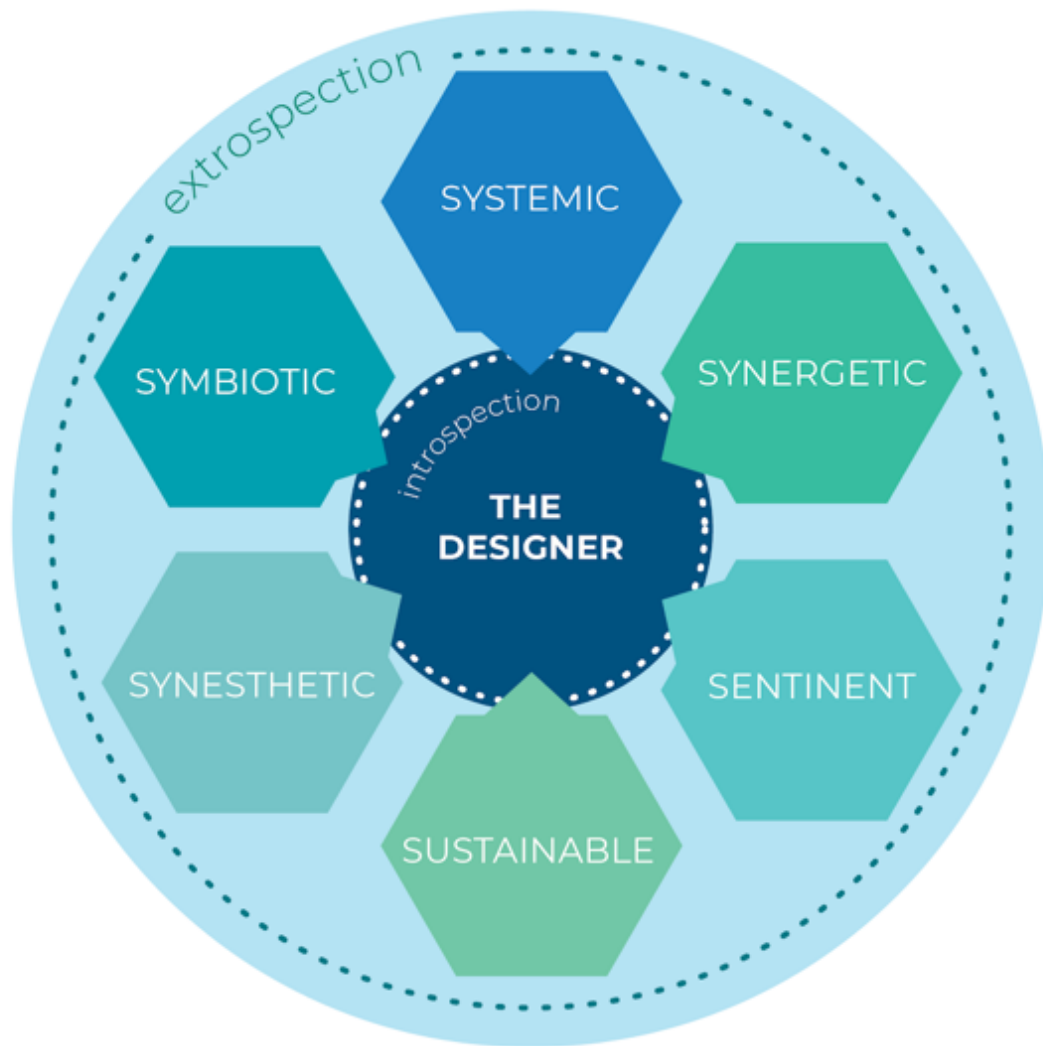


Figure 7.1
The Six S Model that Shapes the Notion of the Humanistic Self for the Designer

These categories of abilities were described and interpreted broadly by the student participants of the pilot programme. On completion of the Foundation Design courses, these students were able to map their abilities to the Six Ss – Synesthetic, Sustainable, Sentient, Synergetic, Symbiotic, Systemic. (See Annexure 19).

7.4.1 Synesthetic

Synesthetic is the ability to use an experience and an acquired sense to associate other senses, objects, and actions with various indicators such as taste, smell, texture, form, or sound. The associations may vary from person to person and in the number of associations made. There will be, however, exceptions where a large number of people associate a similar output of sense to a particular object or action. Other than objects and actions, emotions and feelings can also be associated with senses, for instance, associating colour (vision) with emotions.

These personal senses and associations can be used in a design education to visualise possible design solutions. These senses play a major role in the understanding of the Self and the connections to understanding the Other. The students were encouraged to build associations by observing and looking at their immediate surroundings and feeling their emotions which were essential for developing their synesthetic abilities. Initial assignments were aimed at sensitising students and building associations with various aspects of life. A student commented that [he] “never gave a thought about the various intricacies that are present in the shape of objects and shape of a human body. And it was enlightening for me to know about how much involved the proportions are in the shape of objects and human bodies.” In the later part of the course, students were also involved in visualization assignments that brought out these associations. A student said that [she] “used a lot of elements in my designs that held some kind of meaning to me. They are something which I associate with the attributes that I had listed down for the main meaning behind my designs.”

Thereafter, the students were specifically encouraged to form and use associations that could be easily understood by an audience. A student commented that [he] “found visualising the designs that I did quite easy, after I started using elements that I myself could associate with easily. This improved the quality of work as my work was now easier to understand and the meaning behind could be deciphered.”

During the DPP course, students utilized their synesthetic abilities to augment their observation skills to collect data from the field. Assignments helped them build their synesthetic skills as they interviewed people, observed the problem areas, and did user studies which required them to build a rapport with people which again required synesthetic skills to connect to them. A

student commented that in their group project [we] “interviewed a lot of people. Some were a bit hesitant to share information, so we observed them and associating certain ties that people exhibit when nervous was really helpful to know who was hesitant or nervous, so that we could build on it to ease them and build a rapport.”

7.4.2 Sustainable

Being Sustainable is the ability to develop a mindset or philosophy of harmonious learning and experiences to integrate and coexist harmoniously. This knowledge, learnings, experiences, and reflections are able to produce a thinking process that is able to provide results which are self-sufficient and able to change, adapt and develop themselves in the long run.

Sustainable is also associated with solutions that are designed keeping in mind the challenges which may occur during implementation, by providing a scope for further adaptation and improvements.

Drawing with accuracy and understanding was introduced at the beginning of the course. A student said, [I] “found it really important while drawing that I was able to maintain the structure of the subject that I was drawing, and that I was able to keep track of the grade of the pencil I was using and the thickness of the lines that I was making. It helped me a lot to learn the importance of balance and harmony.” Later on, students applied this in a hypothetical problem area where they designed solutions for problems that may arise ten years from now. A student commented, “The lesson of balance that we learned while drawing was really helpful now because we had to think long-term while designing systems for solution scenarios. So, I feel that initially learning was really important for me.”

Subsequently, the students worked on understanding the various elements, principles, and methods of communication. A student claimed, [I] “initially found it quite challenging to build a design that was properly able to communicate to everyone what I intended to [say], but over time I developed a mindset that helped me learn how to do so”. Students developed the ability to stay with a concept with a sustained grit.

During the DPP course, students applied their understanding of sustainability to long-term solutions for various problems. A student commented that “It was a real challenge making sure that the solution we were designing now would be able to adapt and survive through the ages and not become redundant with the changing environment.” Another student said that “For me, it was a very enlightening experience as it led me to introspect and become able to develop a mindset that is able to adapt with new experiences and learnings.”

Towards the end of the three courses, students were able to sustain new areas of skills and knowledge that they had acquired with patience, grit, and a sustained rigor. They developed the ability to sustain the learning process by understanding the importance of maintaining discipline. A student commented that “Over these three courses, we have learnt so much and it has helped me develop a mindset that is helping me learn a lot of other things as well, because now I have an understanding of how to critically think about anything and adapt it so that it is easier for me to learn.” Another student commented that [he] “learnt how to be able to develop a mindset that allowed me to add on layers over it, such that all the layers work together and help me increase the quality of work that I do.”

7.4.3 Sentient

Sentient is the ability to perceive, reason, and think. To be alert/aware of our surroundings which improve our observation to connect with thoughts and reflections, and to gain an understanding of the mankind to connect with the Other. An important aspect of achieving sentience is the development of the ability to connect with the Self, that is, the ability to introspect and the ability to connect to deep reflections, thoughts, and philosophies of the Self.

Throughout the three courses, the students were encouraged to becoming more and more aware of their surroundings which is a very important for becoming sentient.

Initially, students developed the ability to perceive as they began exploring the pencil as a tool to make markings on paper. They became aware of the movement of their arms and hands during the act to achieve straight lines. One student shared, [I] “learnt as to how much control I can have over my body, and it has given me a new insight into how my brain and body are connected.” The exercises also helped them reach a deep understanding of themselves which is

needed for them to start becoming synesthetic. Emotionally, one student shared that [he] “learnt how to reach within, to understand how we represent our own emotions.” Another student even commented that [she] “was amazed to find out how complex our thought processes could be.”

Similarly, in the next two courses the students became increasingly perceptive as they looked at the environment to identify elements of visual design, form and space, the principles of Gestalt theory, and even typography. A student said, [I] “had never given much thought to typography, or noticing the various dots and lines in the environment, but now that I have started looking at them it has increased my understanding of them exponentially.” This learning was very helpful in collecting data and understanding the stakeholders. A student commented that “after all the observations we did, I have now become increasingly aware of my surroundings, and it feels like I am able to observe even the smallest detail in my surroundings.”

7.4.4 Synergetic

Being synergetic is an ability to combine various effects to produce a better outcome than any other individual effect. It also includes the ability to be able to interact and work in a group/team to produce better results than each individual may be able to do so. An important aspect is to develop the ability to judge and understand one’s own strengths and weaknesses, and work with others for a common purpose or benefit.

During all the three courses, the students were required to work in teams for projects. In the VDC course, all the assignments were to be executed as a team. Work was divided among the four members of each group, and they shared their learning by explaining and critiquing each other. They learnt the basic principles of teamwork and work division. A student commented that [he] “learnt how to work with different kinds of people and assess my own strengths and weaknesses, and that of my team members so that we could divide the work accordingly to get the best possible outcome.” Another student said that “it feels like working in a group also helped me work with various elements that I used in my designs. I worked to understand their individual effects and combine them to get a better effect.”

A student shared that in his team [we] “critiqued each other’s work a lot so we came to understand each other’s strengths, weaknesses and the nature pretty well by the end, and also

helped us improve each other's quality of work." Another student said that [his team members] "helped me a lot to understand the concepts of visual communication." The course also provided them a lot of opportunity to use the associations that they had formed into their visual designs, which added a synesthetic ability in their learnings. A student commented that "The associations I made during the DDV and VDC courses helped me a lot while coming up with designs, and improved the speed with which I could visualise my designs."

7.4.5 Symbiotic

Symbiotic is the ability to work or exist together to effectively produce a mutually-beneficial agreement between two or more agents. To become Symbiotic in our approach would be an understanding of the affected and related stakeholders, to understand their problems and expectations to find appropriate solutions.

This formation of a rapport is required to find solutions where agents are able to not only coexist but are also able to work in harmony. Such a solution can be called to have been made using a Symbiotic approach and mindset.

During all the three courses, the students developed the skill to be symbiotic in their work as they worked with elements that needed cohesive work to achieve a relevant outcome. This learning was essential, especially for their final projects, where students worked on hypothetical and real-life projects where all the stakeholders would coexist. The students experienced symbiotic relationships with the stakeholders. One student commented that "Somehow through the courses, I have been able to now understand how to reach an understanding between agents, whether it may be while working on my visual designs or while working with solution designs for problem areas where we designed solutions where the stakeholders could coexist together."

7.4.6 Systemic

Systemic is the ability to understand and work with organised systems to understand:

1. The existing problems areas in an existing system.
2. The improvement areas in an existing system.

3. What an existing system is lacking.
4. The advantages of an existing system.
5. The user review of an existing system, and
6. The effectiveness of an existing system.

The learning is essential to understand how to work within systems, how to be systematic in the approach towards any problems, and how to design/find solutions and be able to assess the effectiveness of solutions identified/designed.

Students were introduced to the different ways of drawing, visualising, and problem solving methodically, with the way the assignments were formulated. They were also introduced to a systematic way of addressing any problem, right from the beginning in their first course itself. They were required to find solutions using a process and thus initiating them early on to address more complicated situations later. A student commented that “After doing the three courses, I have learned so much about how systems work, which was a necessity in my final project as I was working within an existing system and had to build solutions that could work within that system as well as adapt if there are any changes in the system.” Another student stated, [I] “feel that during my final project, the knowledge of how to understand systems was quite essential as I proposed a system keeping in mind the effectiveness of the existing system in mind.” To conclude, the Six S as mentioned earlier, also helped develop an approach to imbibe the notion of the Self for the designer to effectively respond to problems, issues, and opportunities with the Other. All the three courses conducted could include the Six S effectively. This approach could be adapted to a foundation in design education in any other discipline with minor changes. The model encourages a more humanistic and holistic approach to a Foundation Design Education which entails a broader and integrated spectrum of learning. Although the student participants of the Pilot Programme were able to map the Six S to their learning abilities developed through the Foundation Design Courses conducted, this model would require more experiments or iterations.

7.5 Summary

There were four research questions at the beginning of the enquiry: (1) How has the definition of design evolved over time? (2) What is the current foundation design education and how does it respond to the current needs? (3) What critical abilities do students of Foundation Design Education need to develop in order to empower them to respond to the multitude needs of the society? (4) Will an introspection of the Self for the designer lead to a better understanding of the Self-Other relationship, which in turn will lead to design processes that are more responsive to contemporary challenges the in society, industry, and environment?

Through the initial studies, a survey of the literature, interviews, interactions with design educators, participation of students, and the pilot project, the investigation established the that a better understanding of the Self and the Self-Other relationship could possibly lead to problem-solving methods that are more humanistic in their response to the contemporary issues. This chapter proposed a direction for future work. The proposal includes a partial initiation of an experiment and discuss the insights of the students who reflected upon the application of the proposed Six S Model on all the assignments that they had attempted after completion of their Foundation Design Education.

7.6 Limitations

1. The thesis was conducted through the lens of design educators.
2. The Pilot Project was introduced in a technology institution and experiments were conducted with engineering students.

However, a Foundation Design Education can also be introduced in other sectors or disciplines like health, finance, environment, etc., to gauge its effectiveness. For example, when the student participants of the Pilot Project presented their work at the Maulana Azad Medical College (See Section 6.6), the Dean, at that time, commented that she wished that her (medical) students were offered a course in design too, to help them in problem solving. Thus, establishing that a humanistic approach in a Foundation Design Education can be applied to various disciplines and add value to their academic approaches.

In conclusion, the effectiveness of the Pilot Project conducted at the IIIT-D demonstrates the potential advantages of introducing the notion of the Self and the Self-Other relationship in a Foundation Design Education. These advantages include being universally applicable to students of different disciplines and not limited to the students of design; and being time-compact which works well with the strict time constraints of engineering schools, especially as the technology sector's expectation of turnaround time dedicated to research, concept, and design execution has a limited window.

7.7 Testing Waters During Testing Times

In the ongoing Covid-19 scenario, it is all the more critical to for design students to be able to articulate the notion of the Self in these trying times. How would the Self-Other relationship be developed, nurtured and experienced during a Lockdown where Social Distancing is being practiced? Who becomes the Other during a Pandemic? How can the Self for the designer empathise with the Other? How would Foundation Design Education prepare Foundation Design students to develop the right set of abilities to respond to such a crisis situation? How does an introspection and an extrospection of the Self, aid in understanding the Other? How does the Self develop or attempt to engage in a Self-Other relationship under such unusual circumstances where the Self is 'distanced' from the Other?

In a unique scenario like the ongoing Pandemic:

- The Other is every human on earth. In a unique scenario like the ongoing Pandemic, the Self for the designer is either in a lockdown situation or in a situation where strict precautions need to be practiced like social distancing.
- The Self may not even have met the Other, but is expected to empathise with the Other.
- The Self for the designer needs to foster the ability to develop the Self-Other relationship remotely.
- The effective way to engage with the Other is to practice the humanistic approach.
- The only way students are able to build the confidence in the Self to: make sense of this colossal problem(s); empathise with the immeasurable populace of the Other; identify subsets of disparate range of problems; ideate on a wide range of

solutions and look at the solutions through the perspective of the Other, is to have gone through the process of Introspection and Extrospection for the Self and for the Other.

Students, having gone through the Introspection and Extrospection experience, are able to apply a similar processes, questions, discourses, emotions, etc. to the Other. Students were able to attempt to develop a Self-Other relationship in a lockdown situation because of the prior inputs. Some of their work is shared in the next sub-section. These are students of the first year of the CSD programme who were going through the Design Drawing and Visualising course. They had completed the first half of the semester where they were introduced to all the different systems of drawing and representations.

7.7.1 Drawing from a Current Situation: Coronavirus Pandemic

Post the study, a fresh batch of students of the on-going Design Drawing and Visualisation (DDV) course, during the Covid Crisis in India participated in a response to the Pandemic. The project was called DRAWING FROM A CURRENT SITUATION: CORONAVIRUS PANDEMIC. Students were encouraged to understand how the act of drawing can be used as a tool to record observations; ask questions; respond to the questions; process of sourcing or gathering information & data; analysis of information & data collected; make sense of information & data; and more. Students discovered ways of making sense of the situation—they attempted to understand the Other the way they learnt to understand their Self as humans. Design Drawing need not necessarily be restricted to developing skills. The study establishes that weaving the Self and the Self-Other relationship into the pedagogy aids in creating a Foundation Design Education that is humanist in essence. The batch of engineering students used Design Drawing to engage in curiosity by posing questions, articulate their thoughts, express their analysis, empathise with the other, and attempting to contribute to make a difference. Design Drawing is not just developing a skill in isolation. The moment the students understand that, there is no need to spend long durations to hone their skill. Honing of skills can be done as an ongoing activity on their own time, and can carry on for the rest of their lives. What is more important is to understand how Design Drawing can be used as a tool to sensitise themselves. Many of these engineering students do not come with any drawing skills. However, soon they discover the power of drawing.

The project was divided into 4 parts and is described below:

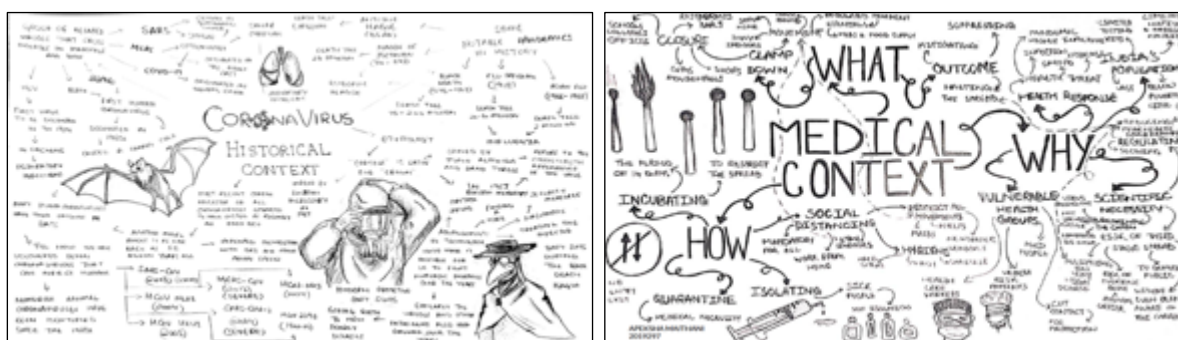
FINAL PROJECT IN DDV: A STUDY OF THE CORONAVIRUS PANDEMIC, 2020			
PART 1	PART 2	PART 3	PART 4
SCOPING A PROBLEM AREA: Macro & Micro Mapping of the Problem Area & Identifying Sub-Problem Areas	EMPATHISING WITH THE OTHER: Stakeholders of the Problem Areas and Persona Mapping of One Stakeholder	MAKING SENSE OF THE PROBLEM: a) Macro Mapping to Micro Mapping of the Selected Sub-Problem Area b) Macro Mapping to Micro Mapping of the Stakeholders of the Selected Sub-Problem Area	IDENTIFYING POTENTIAL AREAS OF SOLUTION: a) Identify potential solution scenarios and all elements within the scenarios b) Visualising solutions that respond to the potential scenarios
1a. Conduct a research on the CORONAVIRUS PANDEMIC. Read up as much as possible on the situation and cite all the relevant sources of information or data. What is the history of the Corona Virus? How have other countries coped with the problem? What are people's perception and understanding of the Pandemic? 1b. Based on the research, identify the different issues by categorising the information and execute a Mind Map of the information to understand the situation	2a. Create a Mind Map of the Other or Stakeholders in the identified situation. (A stakeholder is any person, organization, social group, or society at large that has a stake or are in some way involved in a situation, a problem, an issue, an event, etc. Since, by definition, stakeholders are those who are impacted by or have an impact on the project, their perspectives need to be taken into account in order for a project to be successful. Stakeholders can be internal or external to the situation.) 2b. Select a Persona from the mapping in 2a. and create a deep Mind Map of the 'Other', a prominent stakeholder in the issue, where each keyword should be exhaustively expanded upon. Base as much on further research. Research could be supplemented with hypothetical or imagined attributes and analysis while attempting an introspection, extrospection and aspiration mapping for the 'Other'.	3a. Analyse all the research material. Create an exhaustive Mind Map of the (one particular) Problem Area in Delhi through a process of analysis, where each keyword should be carefully chosen and validated by facts. Eg Social Distancing, Travel Control, Health Infrastructure, Public Awareness, Lockdown/ Curfew, Quarantine, Return of Migrants to Respective Villages, Travel, Unorganised Settlements, Fake News, etc. Expand exhaustively the selected area. Identify and attempt to understand the Stakeholders in the identified problem areas. This may require a fair amount of research. Read articles on the issues; read papers on the issues; speak to people in your homes or online (without going out of your homes and maintaining social distance at all times).	4a. Based on the preliminary analysis of the problem area in 3a., select one key area of the problem which you have appropriately analysed and attempt to visualise solutions as follows: i) Identify solution scenarios ii) Identify all elements within the scenarios
Use visuals (drawings) to support or supplement the text in the mapping. The text has to be treated as a drawing too. Create styles that align to the visual and the content of the information.	Create mappings with a balance of both visuals (drawings) and text. The text has to be treated as a drawing too. Create styles that align to the visual and the content.	Combine text and drawings to aid effective analysis or insights. These insights will direct towards explorations of solutions in the last part. The text has to be treated as a drawing too. Create styles that align to the visual and the content.	All solutions have to be in the form of detailed drawings. They could include text if required for better communication. The text has to be treated as a drawing too. Create styles that align to the visual and the content.

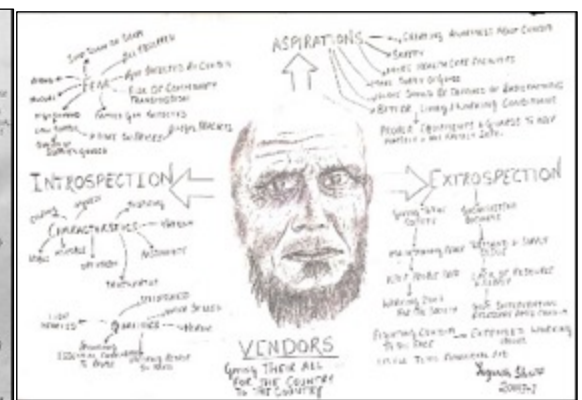
Students worked in groups of six and seven. According to one group of students, “COVID-19 has affected the entire world, but exactly who? Which sectors of our society are the worst affected, and in what ways? We set out on a journey to exhaustively analyse the lives of many stakeholders connected to the effects of COVID-19, and to see the different ways in which their lives have been changed during this pandemic. Going through extra-long working hours to save lives, and constantly interacting with people to ensure their well-being are just a few of the many consequences. We tried to cover a broad spectrum of stakeholders, from people on the frontline to the passive sectors indirectly taking hits from the virus.”

Another group of students claimed, “In the words of JFK, ‘Too often we enjoy the comfort of opinion without the discomfort of thought.’ and it is in this comfort zone that we cease to differentiate between what is fact, and what is fashionable. Living in the Information era, the public is subjected to a blitz of 'facts', 'figures', and not to mention, a slew of various opinions. From ensuring lockdown to technical literacy, we resolved to find what problems the general public is facing, given the actions being taken, and how they are made aware of the same.

A third group of students reflected, “It would be unwise for anyone to put a cap on human capabilities, because as long as there exists the will to survive, mankind will find a way to dig his way out of the most dark and desolate situations. The current situation teaches the human race to evolve and become better versions of their Selves. Because to improve, is to change; and to perfect, is to change often. Believing in the spirit of innovation, we have exerted ourselves to find solutions to problems related to public awareness that are not only feasible but also scalable. In the end, the Earth is our last stand. We must not give in, and must keep trying, experimenting and discovering solutions to combat any threat, not only COVID-19.”

Some of the selected works are shared in the next few pages.







7.8 Full Circle – A Concluding Note

“Specialised training without basic knowledge of general humanistic concepts should no longer be possible. What is missing in today’s education—almost without exception—is an inner view of life or of the ‘philosophical’ foundation of the meaning of human activity” Kandinsky, 1928 (Wingler, p. 147). Articulated almost a century ago, the philosophy remains relevant even if the context has changed today.

The foundation year in design is a critical phase in design education. A student must unburden preconceived biases of a traditional education and learn to open up the mind to new insights, methods, and observations. Develop new skills, knowledge, abilities and responsibilities. These have to be woven into the pedagogy consciously, through carefully crafted assignments. As discussed in the research, the focus of Foundation Design Education today is more on skill-development. Although it is certain that these skills are required, there is no study that claim the time that needs to be dedicated to develop these skills. But what is missing is that component of design that makes it humanistic in nature. The research has led to believe that a humanistic approach to design will be successful only when students gain access to methods, tools, abilities, and sensibilities from a wide variety of academic disciplines. Based on the all-encompassing nature of design, students are expected to be empowered with multiple skills and ability to proficiently adapt to unfamiliar scenarios and contexts. The only constant is human and nature. A humanistic Foundation Design Education needs to be life-centred. The pedagogy needs to overarch and collaborate with other disciplines to create a synthesis. Such a synthesis provides directions for humanistic approach to design. Such a synthesis is possible by sensitising the Self for the designer towards crafting of a holistic Self. A holistic or humanist approach to design processes will be more empathetic and wholesome in nature.

The research with the purpose of making design education more relevant to a future that will be shaped by breakthrough technologies, complex social, economic, psychological, cultural challenges, alarming environmental concerns, and more, emphasises that an understanding of the Self and the Self-Other relationship in a Foundation Design Education can enrich the design education. An understanding of the Self and the Self-Other relationship where the other is taken as a broader implication that includes, artefacts, humans, non-humans, communities, organisations, environment, etc. Integrating an Introspection and Extrospection method to

explore and empathise with the Self and the Other, in the Foundation Design Education appears to reflect a humanistic approach.

Today's students are the change-makers of a better society and environment for tomorrow! This thesis is a humble attempt to move forward in a positive and responsible manner.

Annexure 1

FOUNDATION DESIGN EDUCATION ACROSS 5 SCHOOLS

(National Institute of Design; National Institute of Fashion Technology, Delhi; Pearl Academy, Delhi; IILM School of Design, Gurgaon; Institute of Apparel Management, Gurgaon)





Annexure 2

WESTERN INFLUENCE ON INDIAN DESIGN EDUCATION

The influence of both Bauhaus and Ulm are apparent even today in Foundation Design Education in India. Documented work of students of Foundation Programme, NID, was shared by the Late Prof MP Ranjan of NID, with participants during the conference ‘LOOK Back – LOOK Forward: HfG Ulm and Basic Design for India’, Kolkata, 2010, of which, the researcher was a participant. Samples from the works of Foundation Design Education at NID are used here for the discussion.

THE DRAWING COURSE

The Drawing Course, as conceptualized by Bhandari, was mainly composed of freehand drawing. The immediate environment within the campus became the main source of learning. Students learnt and practiced to draw human forms, objects, nature, and spaces. Concept of perspective was introduced and simple observations were recorded visually. Restricted to using the pencil and at the most the charcoal stick as the medium, this course gradually led to a deeper understanding of attributes such as quality of line, proportions, depth etc. Drawing was established as an important medium of communication and for spontaneous and quick expression of ideas, freehand drawing skill was stressed upon as a basic asset. Hence, through Drawing, the student worked towards achieving a skill over the most basic of tools to the designer.

Presently, the Freehand Drawing course is named Design Drawing 1 & 2 and is part of the first module of the Foundation Programme called Design Drawing & Visualization, along with the Analytical Drawing and Geometry & Structure. This module offers intensive training in drawing as one of the means of visual representation in design. It is a unique blend of various systems of drawing practiced across the disciplines such as Fine Arts, Architecture, Engineering, etc. Design Drawing helps in conceptualizing, visualizing and communicating an idea through the study of environment, and sketching and drawing from observation.

A course in Freehand Drawing helps one develop a keen sense of observation and experience space in terms of perspective; sharpens the ability to analyse and appreciate the structure that

is either visible or hidden; understand the basics of drawing in terms of perception and representation of distance, concepts of 3D spaces and forms on 2D surface. It also helps establish a sense of inter-relation of parts in overall proportion.

The Drawing course originated at Bauhaus and was referred to as 'Life Drawing'. At Bauhaus, Life Drawing, involved students drawing not only objects from nature, like flowers, leaves, rocks and such, but also the traditional human figure, which were not necessarily required to be true to life. As usual, Itten stressed the fundamental, form, colour, and texture: For Itten, the sensual capturing of the characteristic properties of things is of the utmost importance.

Itten stressed that the essence of an object should be captured. To project onto a piece of flat paper one's personal experience of a leaf was what counted. Exact representation was uncreative and not as interesting as one's own relationship to a subject. He believed all these activities were to prepare the students to think creatively for themselves. It appears that Itten encouraged the students to develop a relationship of their Self to the subject of the drawing as the Other.



Human Forms and Nature Study. Life Drawing Course at the Bauhaus.

Presently, the complex, creative process of drawing is structured through many interrelated activities: observation and perception, comprehension of form and proportion as a unity, abstraction of analysed form into pictorial, dimensional illusion, mastery of techniques and means of expression, controlled chronological development of the creative process, and

critical evaluation of the results. Nature study offered a wide variety of forms, colours, textures, and structures to encourage personal interpretation and intuitive rendering. Object drawing too offered spontaneity, representation possibilities, developing the drawing and personal interpretation. These were the foundation of the freehand drawing process.

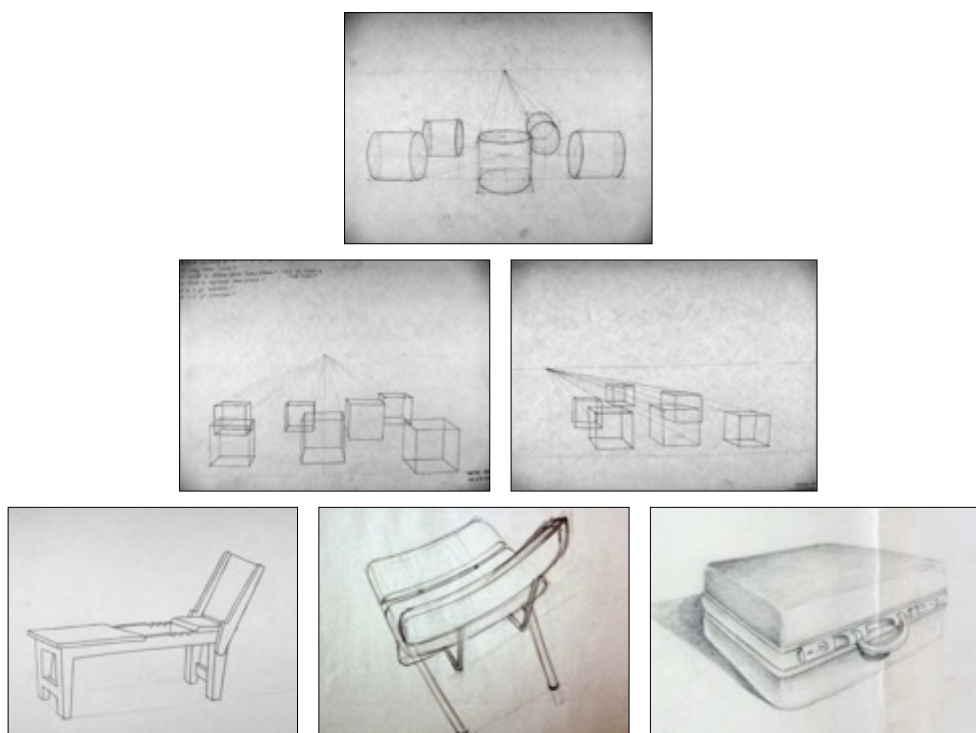
Human Form Drawing: The initiation sessions are done with quick, spontaneous drawings which were largely to grasp a human form in terms of overall outlines or contours. The next sessions included a certain amount of careful attention given to the nature of pencil strokes and the quality of line. Finally, a continuous practice of human form drawing which, besides developing a sense of overall proportions of the human form being drawn, certain amount of attention was now given to its details.



Human Form Drawing at NID.

Object Drawing: The initial sessions were spent in understanding the nature of the cube as a form and as a basis of construction to enclose any object. The cube was drawn in several orientations and positions by seeing an actual cube as well by memory.

These sessions were followed by the attempt to try and draw simple objects along with the method of construction (construction lines etc). The third sessions involved the process of learning object drawing was to draw relatively complex objects and the final sessions was a combination of all types of drawing.

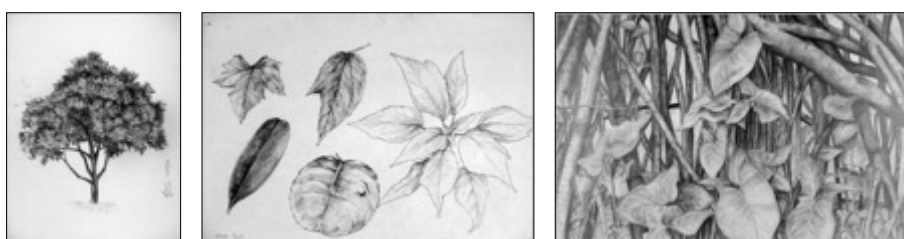


Object Drawing at NID.

Nature Drawing: Learning nature drawing began with drawing the rudiments first. Several types of leaf forms were drawn only in terms of characteristic outlines. Once the leaf forms were understood in contours, the same forms were also drawn with essential details.

The second sessions were to draw a cluster of leaves with twigs and branches (if visible). In a gradual progression the scale of the subject to be drawn kept increasing and culminating in a session of drawing several types of foliage and a part of the natural landscape.

The last stage as already discussed before was to draw interiors or exteriors of man-made space along with objects, human form and nature.

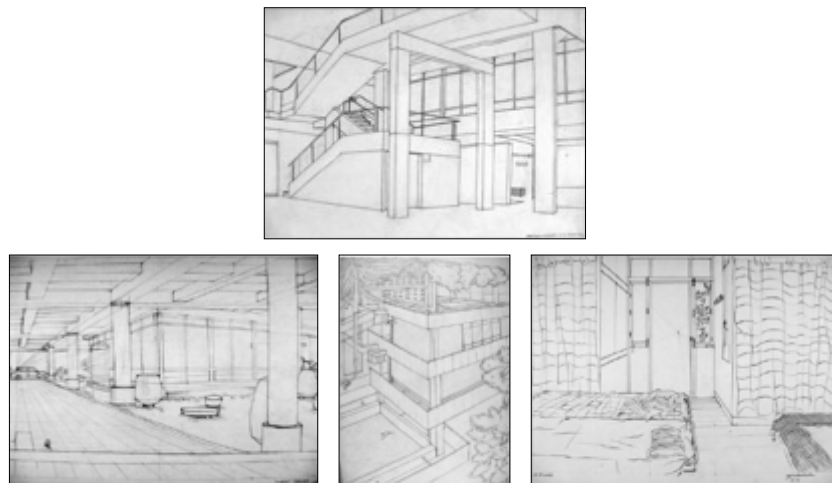


Nature Drawing at NID.

Man-Made Spaces or Perspective Drawing: The course commenced by creating among students some awareness about drawing in perspective by asking them to draw a place of their own choice but by memory only. A critique of each student's drawing was done in the whole group and in the process of such a discussion certain rules of perspective were introduced.

It began with learning to draw only the outline of a very simple rectilinear chosen space in one-point perspective. The second session was used to draw the same space correctly including certain simple details. The third sessions involved more complex one-point perspectives. The fourth sessions were used to understand successfully and draw two-point perspectives.

The last session was used for combination of all four types of freehand drawings in a single drawing.



Perspective Drawings at NID.

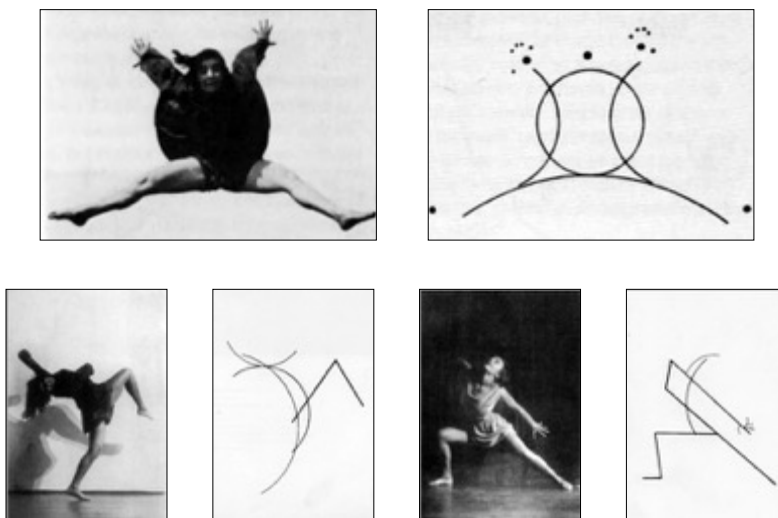
THE ANALYTICAL DRAWING COURSE

The Analytical Drawing Course incorporated exercises towards concept delineation. It included the depiction of several types of concepts, both visually and analytically. These drawings were precision drawings without the use of any instrument except the aid of a grid, which was an isometric one. The difference between freehand drawing and analytical drawing was the

conscious element of analysis. Several types of configurations were created and analysed using the linear form, the strip form, the plane form and the solid form.

The Analytical Drawing course that originated at the Bauhaus was very different from the current one. This has been discussed in the previous chapter.

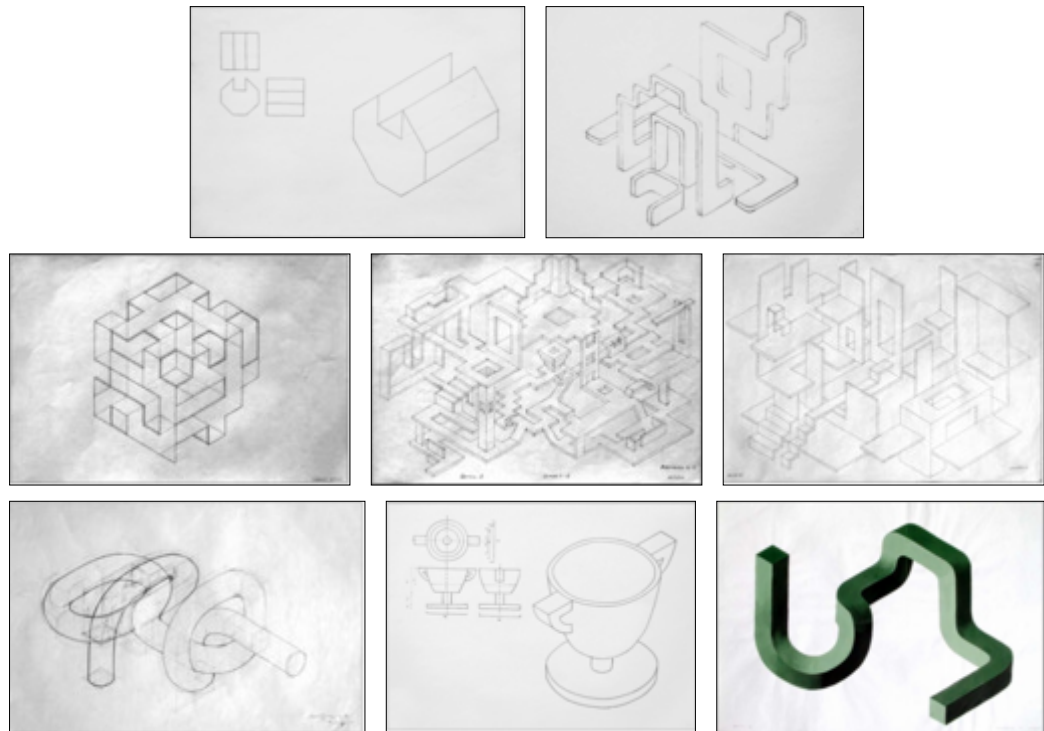
At Bauhaus, Analytical Drawing, taught by Kandinsky was an investigation of the structural relationships among objects, following a series of stages that, briefly stated, involved progressively the simplification, analysis, and transformation of the graphic characteristics presented by the motif. Appropriate to the primary nature of the program of basic instruction and true to Kandinsky's own conception of art education, this was an ideal approach to drawing, rather than a practically or technically oriented one. The students connected still life arrangements graphically using mesh lines, and carried out abstractions based on the basic shapes of circle, square, triangle and rhombus. Similar graphical analysis was done on human forms.



Dancer Palucca series. Analytical Drawings by Kandinsky.

An exploration into concepts of coordinates, line, planes and orderly movements of planes in spaces is what this discipline aimed at. It helped in conceptualizing, visualizing and communicating ideas through the doctrines of isometric representation and orthographic projection.

Presently, this is one course, which did not change its name, and the course content since the beginning of the Foundation Programme at NID. Analytical Drawing was introduced later and was based on the observation of objects with geometrical and non---geometrical structure deepening and intensifying the experience by successively increasing the complexity of the objects working with pencil and paper at an easel. The objective of the course was to develop the skill of spatial drawing and sharpening the sense of visual perception.



Analytical Drawing at NID.

THE GEOMETRICAL CONSTRUCTION

The Geometrical Construction is a course in precision drawing. It aids the design student in analysis and concept formation and in translating these concepts into a tangible form. Geometry is a science of properties and relations of points, lines, surfaces and solids. Students are first introduced to precision drawing using instruments to understand concepts of scale measurement, development of surfaces and solids, intersection of solids, auxiliary views etc. The course also introduced orthographic drawing, as the precise language used by designers to communicate 3 dimensional configurations. It included the introduction of basic orthographic

projections of simple configurations like lines, planes and solid in space, culminating in the measure drawing of a simple product.

‘Geometry and Morphology’, design students are introduced to a vast array of math concepts through many exciting practical drawing and model building assignments, including recreational math puzzles while relating these tasks to the body of numerical and algebraic expressions using visual analogies. While it is not a complete substitute for formal instruction in mathematics, it provides students from non-math backgrounds sufficient conceptual tools to deal with complex structural and formal math and logic problems (Ranjan, 2005).

The Geometrical Construction course originated at the Bauhaus, where it was referred to as ‘Constructive Drawing’, which were visually represented artistically in two dimension and three dimensions. At the HfG Ulm, the ‘Constructive Drawing’ shifted the emphasis from ‘artistic expression’ to ‘geometry and technical drawings’.

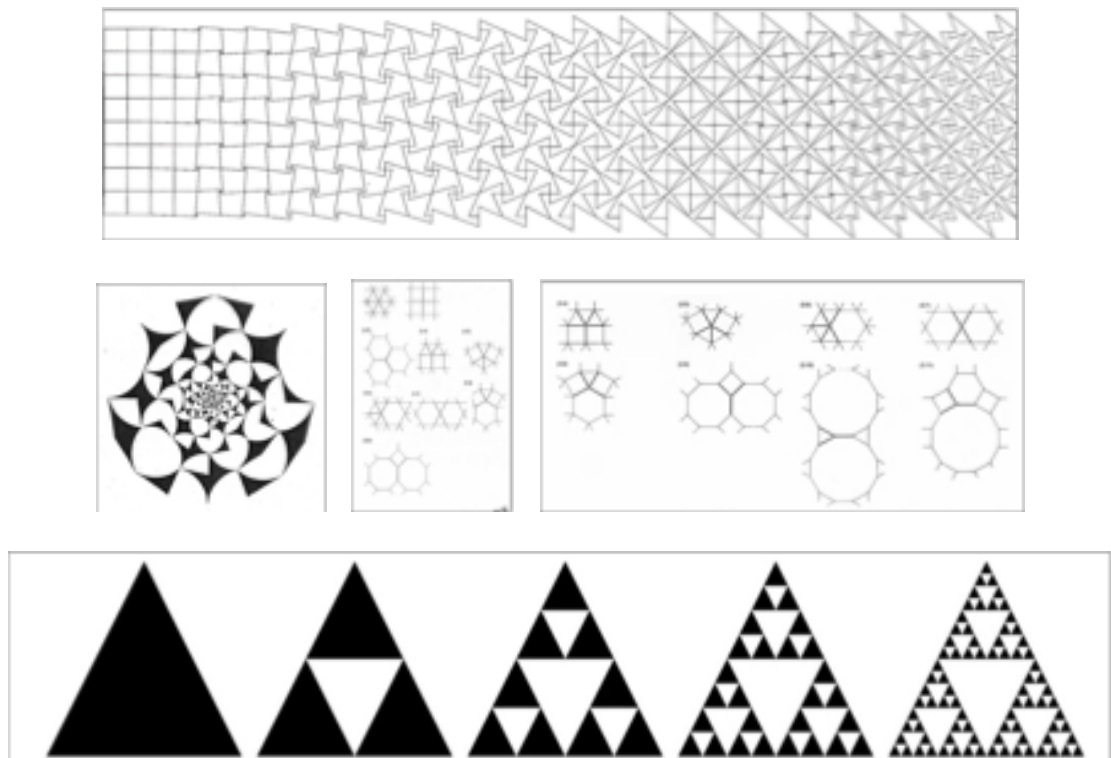
At Bauhaus, students worked on the problems of elementary geometric form and studied circles, squares, triangles and their derivatives, as well as lines, planes, objects and stress points, directions in space, and portions. Itten believed one could develop lines subdivided by proportionate numbers. The sequence of these numbers can be varied. One can set up proportions like 1:2:4:8:16:32 or 1:3: 9:81. The Golden Section and the proportions of the harmonic triangle were studied. Proportions can be worked out not only with lines but they can be construed and contrasted with planes, squares, triangles, circular planes and volumes. Elementary geometric forms were used primarily to enhance the visual language in artistic compositions rather than a science. For example, Kandinsky used his theory of point, line and plane to analyse paintings and visual compositions. Itten, too believed that problems of non-objective abstract composition also served to improve the thought process, and at the same time provided new means of expression.



Kandinsky's Point, Line and Plane at the Bauhaus.

Students made compositions with the characteristics of a square, a triangle or a circle and combinations of two or three such forms. It taught drawing as a finely tuned grammar of horizontal, vertical, diagonal lines and arcs.

It was at HfG, Ulm, that geometry was introduced as a science, unlike the Bauhaus, where it was used to enhance the visual language. HfG, Ulm recognised the importance of topology in design education. Topology provided the designer with yet another approach to problem solving. With the aid of topology, the designer can discover that they are not only dimensional, form, and position problems, but also problems of organisation, continuity and neighbourhood. It also introduced students to a schematic description of an arrangement of elements in a composition. The accurate optical grasp and graphical reproduction of natural (fractal) and man-made structures gained importance in foundation education.



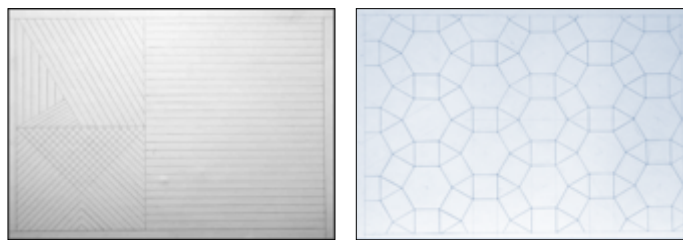
Geometry and Symmetry exercises at the HfG, Ulm.

Currently, the course is named Geometry and Structure 1 & 2. These sessions enable the student to appreciate the hidden geometrical order in natural forms that involves concept formation and translation of the same into tangible representations. This domain also provides a framework for manipulation and generation of form and a vocabulary for analysis, and description of regular

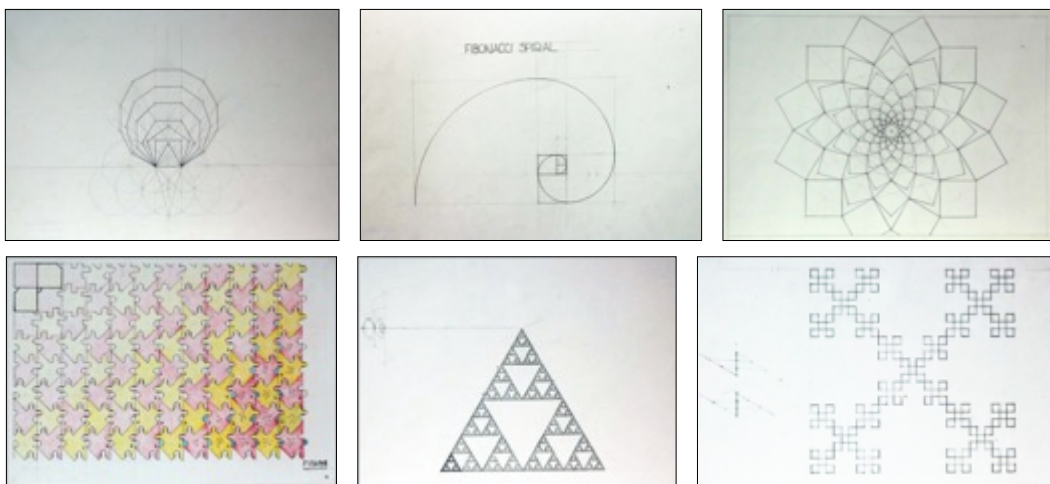
forms, patterns, structure and their relationships.

In continuation to the Geometry and Structure 1, Geometry and Structure 2 takes one step further in experimenting and implementing the basic principles of form into tangible representations. Plane geometry, a subdivision of the subject that includes simple, fundamental constructions as bisected angles, parallel projections, polygonal series, and the similarity ratio, forms the foundation for representational geometry. These fundamental constructions are applied in elementary exercises and supplemented with dimensional, graphic elements. The simple representation of a basic object is studied in parallel perspective. An understanding of the function of complicated constructions and the ability to draw them are developed through three-part axonometric, orthographic, and oblique projections.

The construction of complicated abstract(geometrical) structures is recognised as a means for training visual capabilities and is especially valuable in familiarising students with the phenomenon of optical illusion and the possibilities of exploiting it creatively. Free hand drawing was increasingly supplemented by the handling of mechanical drawing implements.



Basic exercises for the geometrical Construction at NID.



The Geometrical Construction at NID.

THE COLOUR COURSE

The Colour Course, which began with the sensitization of the eye, was developed by consciously noticing the colour of normal day-to-day life, especially the effect of light at different times of the day. Nature has always been the source of learning and the Colour course initiated the perception and understanding of colour in nature by capturing the richness through experimentations with different media like pencils, oil pastels, watercolours, coloured inks, chalks and poster colours (gouache). A selection of the most interesting composition made is later translated into abstraction through a series of analytical studies; achromatic, monochromatic, polychromatic to understand interaction effects of colour. The possibilities and limitations of the different media were explored. The subsequent exercises to understand the effect of light on nature, introduction to abstraction and colour theory were carried out using poster colour medium to facilitate understanding.

The course in colour was one such area where learning about colour began in a very spontaneous (and to a certain degree subjective) way, by directly interacting with nature and recording one's observations on a two-dimensional surface. The reason nature was chosen as a source for learning about colour was because it has the endless variety of tones, shades of colours and textures and forms of an enormous range. As a result, it offers to a design student to explore the phenomenon of colour and composition from several viewpoints.

The colour course proceeded to introduce to the student to the concept of contrast. They include the Contrast of Hue, Light-Dark Contrast, Cold-Warm Contrast, Complementary Contrast, Simultaneous Contrast, Contrast of Saturation, Contrast of Extension etc.

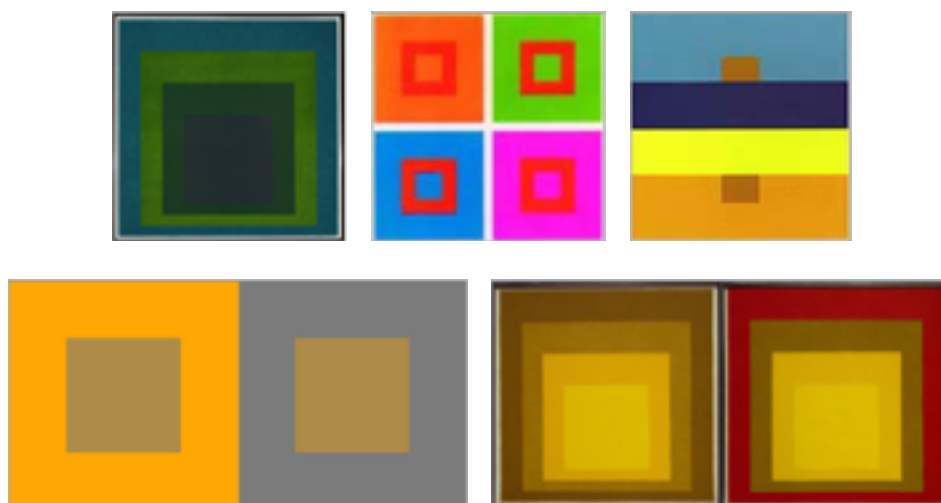
The Colour course originated at the Bauhaus, continued at the HfG Ulm and at Basel. At Bauhaus, Fundamentals of colour and form theory, composition and design were taught by Itten. The students had to represent these various contrasts, separately and in combinations. There were three different approaches to form and colour: 1) As qualities and quantities that can be recognized by our senses, 2) grasped intellectually, and 3) felt emotionally. Itten added the seven-colour contrast inspired by Holzel; contrast of hue, light-dark contrast, cold-warm contrast, complementary contrast, simultaneous contrast, and quality contrast. He established a structural approach to the study and use of colour based primarily on the light-dark opposition and introduced the scale of shades to make it easier for the students to be able to recognise the contrast. The cold-warm contrast is probably the most important. The red- yellow colour range is warm and the blue-green range is cool. Itten also cites complementary

and simultaneous contrasts. A visual statement can be sharpened by these statements in colour.



Itten's Colour Course based on the Contrast Theory at The Bauhaus.

Josef Albers who also taught the basic courses at the Bauhaus had developed colour theories similar to Itten through contrasts. He was involved in research on the emotional and perceptual impact of colour, line and geometric forms. Albers's book, *Interaction of Colour*, is a corner stone of today's art classroom. His series of paintings called *Homage to the Square* represent further interpretation on the interaction of colours, how colours act when next to each other.

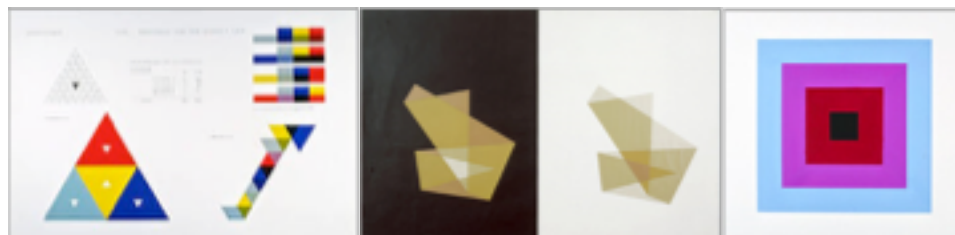


Joseph Albers's Homage to the Square

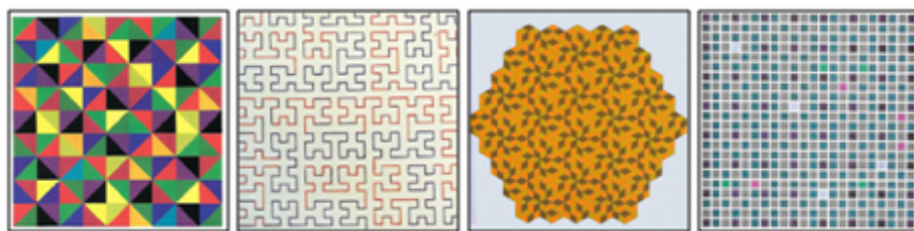
At HfG, Ulm, the Colour Course continued with the same theories as at the Bauhaus. With the shift that took place during this period of the art to the scientific approach to design, colour was mostly used to understand principles of the gestalt's psychology, sierpinsky's triangle, the peano curve, topology, symmetry, etc.

'We had forgotten - but learned again - that rules to be applied to form and colour design change and vanish as fashion and style do. With this visual education becomes independent again turning away from retrospective placement evaluation, analysis. Learning to articulate form and colour will be an unfolding anew toward a synthesis of discovery and inventor. Therefore, the aim and the way of visual development will change from adopted knowledge and mere application to an unfolding of our own seeing and presenting from retrospection to looking inward and forward, for sight, for vision'. (Albers, 1968.)

According to Albers, knowledge an application was not the only aim of teaching at the HfG, Ulm, the aim was to develop flexible imagination, discovery and invention.



Basic Colour Theories at the HfG, Ulm.



Colour used to explain the principles of Black as a Colour, The Peano Curve, Tiling and Isometric Structure.

Presently, the Colour Course is named 'Colour and Form' and is part of the Basic Design Module, which includes the 'Elements of Composition' and 'Basic Material and Method'. This course enables understanding of the perceptual qualities of colour, interaction of colour and form and application of different media.

An intensive course in Colour follows almost the same exercises as was developed in the Bauhaus. By way of introduction to colour design, the twelve-hue colour circle from primary colours is developed. Three secondary and three tertiary colours were developed. The colour circle introduces the concept of complementary, analogous, triad, achromatic, monochromatic and polychromatic colours. Colour was seen in relation to other colours. A colour exhibits inherent, relative, and changeable qualities due to differences in hue, value, brightness, and its proportion to other colours. Students learnt how to mix and apply tempera directly on stretched paper. Uniform, even colour application is essential to the study of pure values: brush textures and transparent layers changed the appearance of the colours.

The Colour course originated at the Bauhaus, and continued at the HfG Ulm. The course as it is conducted presently at NID has a substantial influence of the Bauhaus, HfG Ulm and the Basel School. Many of the past assignments continue even in the present times thus reflecting the influence of both the schools significantly.



The Colour Course at NID.

THE BASIC MATERIAL COURSE

The Basic Material Course was essential for a designer to work with hands, to get to know various material like paper, textile, clay, wood, metal, acrylic etc. It was necessary to understand their properties and also the simple functioning of hand tools. Students created free forms using materials in solid form, linear form and in sheet form to gain basic knowledge of the different states. The course encouraged students to explore the strengths and limitations of the material and realize how far the properties of any particular material could be stretched.

The Basic Material course originated at the Bauhaus in the 'Basic Design Workshops'. The HfG Ulm, continued with the 'Workshops', focusing on the 'physical-mechanical qualities' of materials.

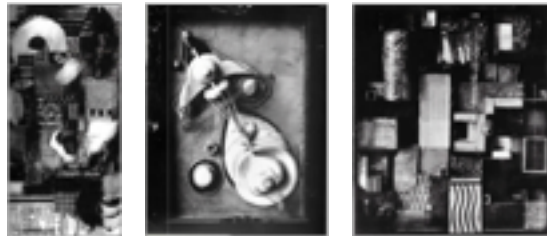
At Bauhaus, in the basic design workshop, the student learned the constructive handling of materials; wood, plywood, paper, plastics rubber, cork, leather, textiles, metal, glass, clay, plasticine, plaster and stone: their tactile values; structure; texture; surface effect and the use of their values in plane, in volume and in space. The student thus becomes conscious of volume - space - kinetic relationship.

Itten had his students bring in various found objects and instructed them in making 'assemblages' of sorts. He helped students develop an understanding of contrasts by having them '[arrange] in unison contrasting marks, tones, colours and materials'. (Whitford, 1984).

Examples of juxtaposition between rough and smooth, straight lines and wavy ones were experimented by placing the metal pieces on the wood, each material was emphasized through contrast. The metal is smooth yet sharp at the edges; the wood is rougher visually and physically. One is man-made and malleable; the other is found in nature and is rigid. In colour, too, they are different. The metal is cool grey, and the wood is a warm yellow-orange. These subjective studies were to create a feel for the materials and supplies. Another purpose was to prepare students for the workshop classes by exposing them to as many materials as possible.

The student also learned the subjective and objective qualities, the scientific testing of material

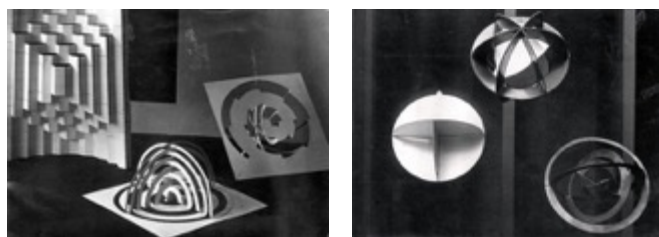
and the existence of the fourth dimension (time).



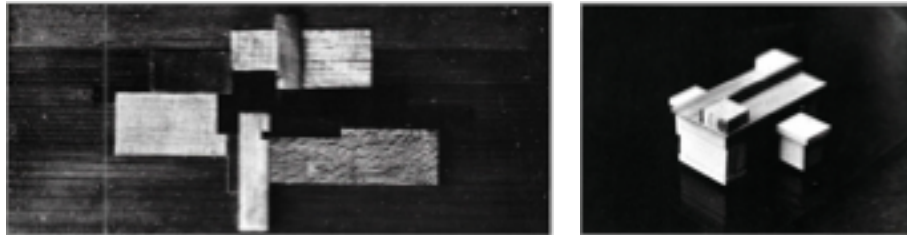
Study of materials from Itten's preliminary course at Bauhaus. Compositions and collages of different materials.

During the years that Maholy and Albers took the preliminary course, Maholy was primarily concerned with making the students aware of three dimensional, sculptural relationships and tensions. Construction exercises were done with wood, sheet metal, wire, string and other material, which demonstrated for example problems of balance, optical weight and three-dimensional expansion.

Albers course investigated the subject itself, the experience and understanding of the characteristics of the material and their variability. Students worked chiefly with scissors and paper. By cutting and folding-- whereby greatest possible economy in method of construction and use of material were indispensable prerequisites-- unthought-of structural and visual possibilities were tested. Economy of means and work processes and limitations to a single material whenever possible served to emphasize the specific quality of the material.

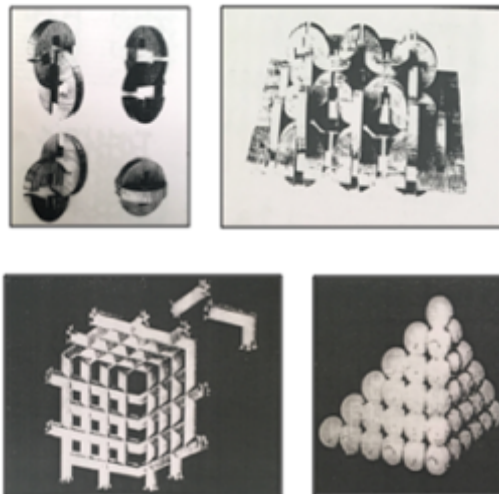


Paper Study, Study of materials. Albers' preliminary course at Bauhaus.



Study with different types of wood, from Maholy-Nagy's preliminary course at Bauhaus

At the HfG Ulm Abers rejected Itten's approach to basic materials, and approached it as a study of materials at a basic level. He quarried this vein imaginatively with his students in workshop probes that focused on the potentials of the 'physical-mechanical qualities' of various, intentionally chosen, common materials: paper, metal wire, metal sheets, wire screening, glass, and even sand.



Basic Materials at the HfG, Ulm.

Presently, the Basic Material course is named 'Basic Material and Methods, and is part of the Basic Design Module, which includes the 'Elements of Composition' and 'Colour and Form'. This course helps students in experiencing the properties of different materials, to look at the world around replete with material, and interact with them. It also enables one to understand the basic nature of tools and material and their interrelationship.

Students are stimulated by manipulating and working the materials as form and expression. Unbiased experimentation, spontaneous perception of chance occurrences and their consequent development produced new, surprising possibilities that were unpredictable intellectually. In elementary exercises students investigate the changing appearances of materials in different

environments, the manipulation of the surface, the kind and incidence of light, and compositional rules. Ordinary raw materials and disposables were worked with simple tools; awareness of the media is developed through exercises in alteration, texture, and touch (with disposable materials); discovery (with wood and synthetics); connecting (with many materials); and themes (transparency and fluidity). Unusual elementary working techniques such as tearing, scratching, breaking, burning, folding, slitting, scoring, hammering, cutting, gluing, and fastening were explored and used.

Textile as a material is also explored which effectively explores the linear material along with the learning of techniques such as embroidery, weaving, knotting, macramé, looping etc. This allows for discovery of the rhythmic qualities of various textile materials; the interrelation of texture, color and form.



The Basic Material Course at NID.

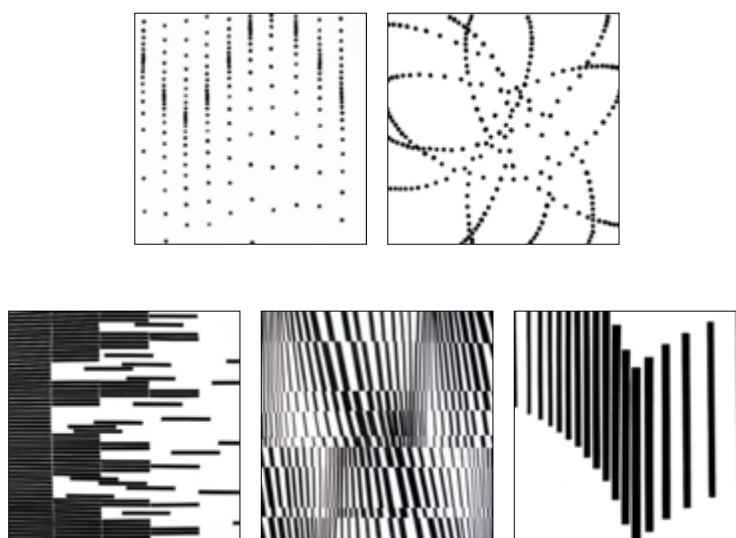
ELEMENTS OF COMPOSITION

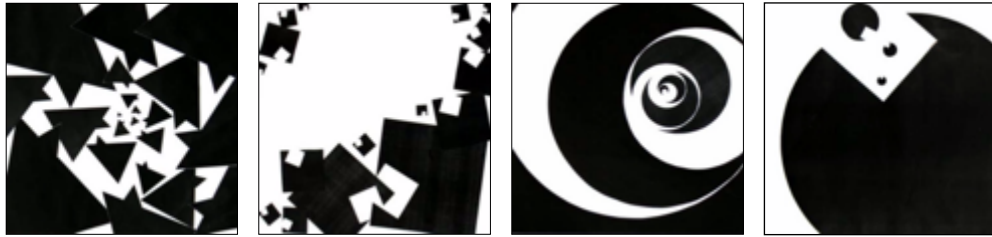
At Bauhaus, Fundamentals of colour and form theory, composition and design were

taught by Itten. In his class, every mark, every letter was a tool one could use to develop a creative design. Every work of art, even the small studies, were significant in forming the creative mind.

According to Itten, everything perceptible is perceived through difference and so a general theory of contrast formed the basis of the entire course. Forms and colours were discussed and presented in a number of polar contrasts. These contrasts were presented as intellectual concepts: big-small, long-short, wide-narrow, thick-thin, light-dark, straight-curved, pointed-blunt, much-little, hard-soft, smooth-rough, light-heavy, transparent-opaque, steady-intermittent. There were also the seven colour contrasts and the four directions in space. The students had to represent these various contrasts, separately and in combinations. There were three different approaches to form and colour: 1) As qualities and quantities that can be recognized by our senses, 2) grasped intellectually, and 3) felt emotionally.

The Elements of Composition course was introduced as part of the Basic Design Module, more recently, which essentially lays stress more on hand-skills and expects cohesive integration with experience and knowledge gained in previous as well as through parallel courses. This course helps the students to understand the basic elements and principles of visual composition. It takes the students through the process of arrangement of elements in proper interrelation with a logical approach such that it communicates the expected or intended outcomes.

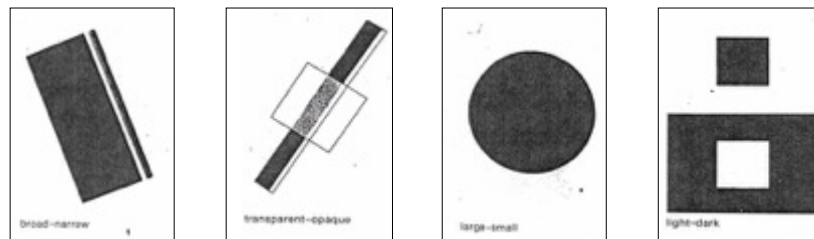




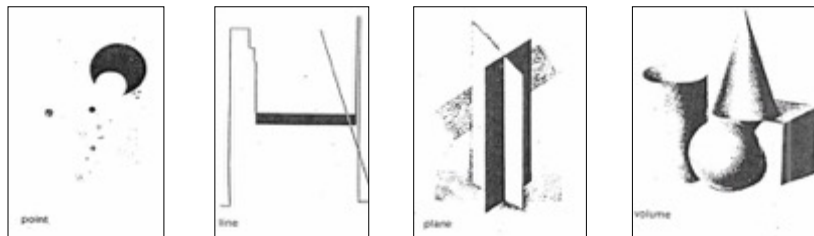
Composition Exercises at NID.

THE FORM AND SPACE COURSE

The Form and Space course originated at the Bauhaus with their ‘Form and Colours’ course where fundamentals of form theory and composition were taught. At the HfG Ulm, the Visual Experiments were based on perceptions, symmetry theory and visual topology.



Study of Contrast. Form exercises by Itten at the Bauhaus.



Form exercises by Itten at the Bauhaus.

The Form and Space Course, unlike earlier times, took an environmental bias in its approach. The Space Form and Structure modules exposed the students to elements of form and space using concepts of semiotics and Gestalt theory of figure and ground relationships. A number of exploratory assignments are given and the results are discussed to help build an attitude of exploration and experimentation with visual language and in the visualisation of ideas leading to a degree of fluency of concept articulation in the visual medium.

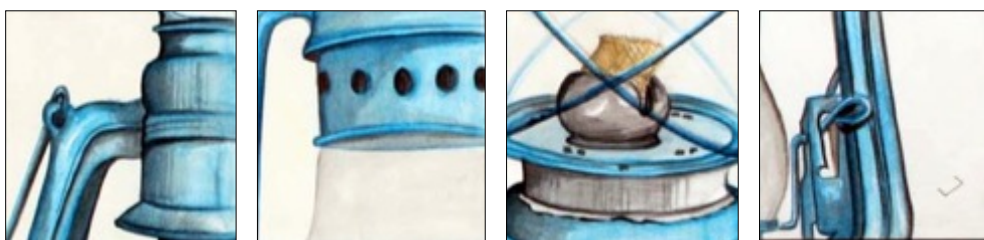
The Form and Space course was an important aspect of design where the student develops an

ability to explore and understand the fundamentals of Form and Space in visual perception. Attributes of form and space and the relationships between them are thoroughly understood. Students were encouraged to develop an awareness of their environment and an attitude towards organisation of this space. Exercises were designed to understand the inter-relationship between form and space. Real life situations were often treated to make them abstract. Forms could either be subdued or could be emphasized. Form could transform to space and vice versa.

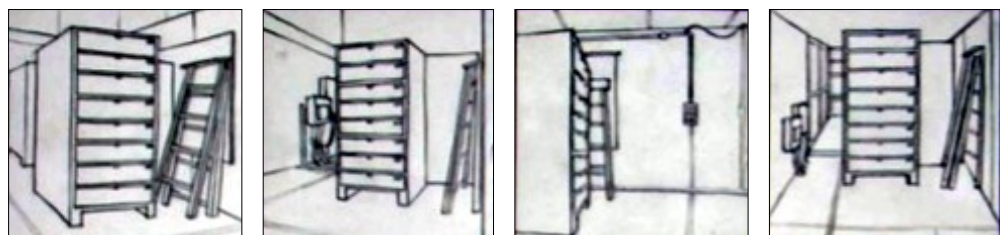
Presently, the Form and Space course is named ‘Space, Form and Structure’ and is part of the ‘Design Processes & Applications’ Module which includes ‘Design Concepts & Concerns’. Prelude to the learning of design process, the course of Space, Form and Structure enables students understand the immediate environment and explore the physical forms, spaces, structure as well as the element of time involved. The module also brings out and promotes the learners’ potential of creativity, aesthetic sensitivity and their logical application. In addition, this particular module helps sharpen the perception of meaning in the visual structure and narrative.



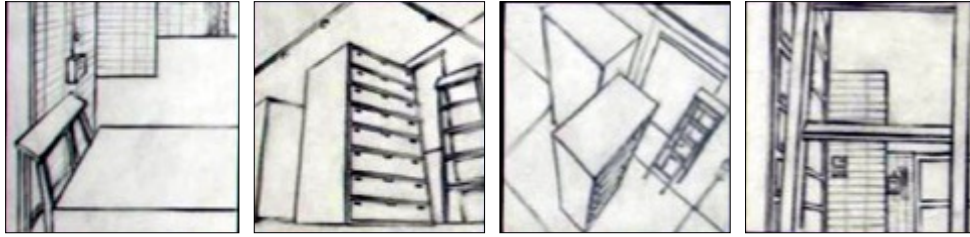
Natural with the unnatural, at NID.



Recognisable and unrecognisable parts of an object, at NID.



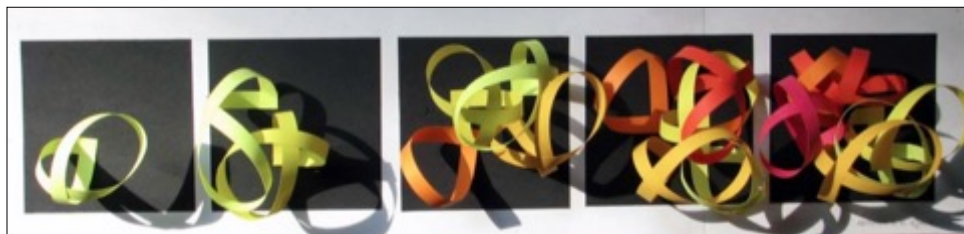
Observation of a Space, Familiar Views, at NID.



Unfamiliar Views of a Space, at NID.



Introducing a new element/occurrence in each frame, at NID.



Transformation of Form and Space, at NID.

THE DESIGN PROCESS COURSE

The Design Process Course, which was earlier called Design Methods, included a preparatory set of inputs in sociology and psychology. The course was introduced as a problem-solving process in design where problem-solving was a creative process and design an approach to problem solving.

Any problem seeking a solution in form of a device is a Design Problem. A device can be concrete or abstract. It may be a unit, a class, a system or even a relation. A problem is generated from a situation in, or as a condition of, the environment. A need is felt; the satisfaction of this need, calls for a solution. A study and analysis of the need leads to a statement of the ‘actual problem’ – the point of confrontation. To arrive at a Problem Statement and its solution, the processes are several – conscious or unconscious. Much of the process of any problem solving calls on the sub-conscious or intuitive mind. The conscious identification of this towards a discipline of systematic thought gives a methodology that can be taught and learnt. The attitude or methodology evolved by the professional designer to arrive at a problem statement and its solution is an innovative process called the Design Process.

The course is introduced with discussions on sample case studies of simple product, service or system. The student is then set an assignment to either take a device or a problem situation, study the case towards arriving at a statement of the basic need and consequently the problem statement. Arriving at this, the student then works towards alternative solutions; in the course of which, in constant discussions with the teacher, the attitudes and principles of the Design Process are introduced. The basic skills learnt begin to be applied in developing the design concepts and alternatives and in visualizing the proposed alternative up to the first Prototype stage.

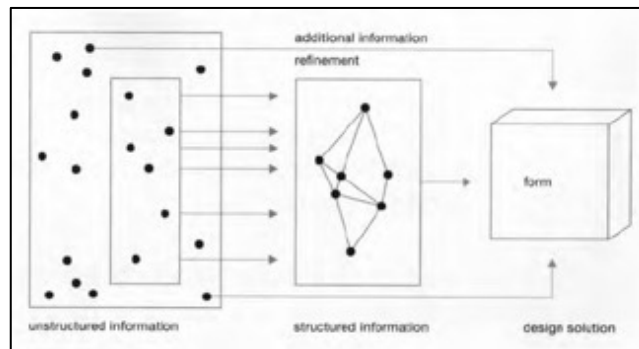
In a very simplistic view, these are some of the major aspects of any product or man-made device; the product itself being bound within its context and time situation. Ideologically, if a product fulfils all these aspects successfully, it is the final stage of communication.

The Design Process course originated at HfG Ulm, with their ‘Methodology’ course, which introduced Logic, Mathematics, Combinatorics and Topology along with the support of significant theory inputs.

At HfG, Ulm, Methodology pointed to a multiplicity of courses rather than on one. At HfG, Ulm, Methodology pointed to a multiplicity of courses rather than on one particular track. In the foundation course as the students came from varied backgrounds, one could not assume any prior knowledge of methodology and drawing skills. For these reasons, at the beginning of the school year problems were set, which not only developed skill in technical drawing but also guided students to have, as far as possible, a systematic approach, rather than merely to work

intuitively therefore acquiring some knowledge of method. This systematic approach continued to be applied in their specialized disciplines. For example, the product design discipline followed a simple cybernetic model.

Input →→→→→→→→ black box →→→→→→→→ output
 Problem →→→→→→→→ problem solving process →→→→→→→→ solution



Three stages of the design process after Gordon Best. At HfG, Ulm.

A methodology is not a rule, scale or an absolute. It is an approach, explicit and systematic in its nature – a platform of checkpoints. One man’s decision affects many more people and consequences of these decisions may recur several times over within one’s lifetime. The need to have checkpoints became imperative – not for oneself but at least for the next man.

Every profession has its own methodology and outlook and its own set of biases. The scientist, artist, humanitarian etc., have all evolved their own methods to solving problems. It becomes necessary for the designer to be able to extrapolate into the future and foresee the range of possible outcomes of his decision made today. As far as possible the designer integrates tomorrow’s probable consequence as essential criteria into his problem situation today, for his decision-making. The student, at this point of the programme begins to sense and realize the conflicts between, on one side, an attitude or ethics and on the other its practice (seen in the context of the world of professionals). The contradictions become more apparent as the student advanced in the academic programme.

At NID, the introduction to Design Process was offered in the third semester of the student’s academic programme with the intention that the design student would use this skill and attitude in all future situations of problem solving which he will face, either as real cases, or hypothetical

classroom projects.

At NID, the Design Process course went through a number of cycles of development under different teachers:

In the first phase the problems had a distinctly scientific basis, and all introductory assignments had low technical complexity, usually very simple products were chosen and these were redesigned using ergonomic and functional explorations and the stages were documented and decisions were justified, usually after the fact. In the second phase more complex problems from the environment were identified and these required more elaborate processes of information collection and analysis. The third phase that began in the mid-eighties took on a more systems focus and design tasks were treated as a process of understanding complex situations through which many potential solutions were explored (Ranjan, 2005).

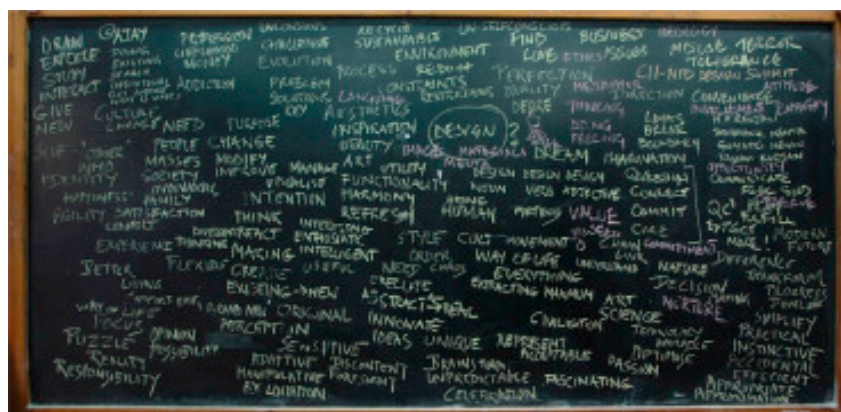
Today this course is called ‘Design Concepts and Concerns’ and it is offered to students from all postgraduate disciplines at NID in addition to the module offered at the undergraduate level. This systems model of design that some of teachers adopted for building courses and to conduct research and client interventions had over the years given the conviction that design in India is quite different from that which is practiced in the West. Design for development has been discussed at many platforms for discourse on design, many a time leading to utter confusion with the debate being clouded by as many differing definitions of design as there are people in the room (Ranjan 2005).

Design Methods to Design Concepts & Concerns				
Historical Evolution of the course at NID: 1966 to 1995 A preliminary list				
Design Methods	1966 - 69 1971 - 76	Product Design (PGP) Product Design (PEP)	H Kumar Vyas H Kumar Vyas & S Balaram	Classical Scientific Focus
Design Process	1976 - 81	Foundation (PEP) 3rd semester	M L Shandari	Environmental Focus
	1982 - 83	Foundation (PEP) 2nd semester	S Balaram *	
	1984 - 86	Foundation (PEP) 2nd semester	M P Ranjan & S Balaram *	
Product Design Methods	1981 - 86	Product Design (PEP)	H Kumar Vyas & S Balaram	Scientific & Environmental Focus
	1984 - 86	Product Design (AEP)	H Kumar Vyas & Dhruv Patel	
Design Concepts & Concerns	1990 - 92	Advanced Entry (AEP) for some disciplines	M P Ranjan *	User, Environment & Systems Focus
	1993 - 95	Advanced Entry (AEP) for all disciplines	M P Ranjan *	
	1998 - 95	Foundation (PEP) 2nd & 3rd semester	M P Ranjan * * with several co-teachers	

Reprinted by Courtesy of the
National Institute of Design, August 1995

M P Ranjan, National Institute of Design, Aug 1995

Historical Evolution of the Design Process at NID



MP Ranjan's Design Concepts and Concerns, at NID.

THE ENVIRONMENTAL EXPOSURE COURSE

The Environmental Exposure Course get the students out of their studios in an attempt to connect with society at large both to bring the real-world concerns into the classroom. Sensory perception and environmental perception, an important asset for a designer is developed through a detailed study of an environment. For this course, a certain area in the city is chosen for the study. Observations of the day-to-day activities within the environment are recorded through drawings. Being in an area, and getting involved with the local residents, helps students look at life from a different point of view. Looking at an object, an experience or a phenomenon from such proximity in context always appears to have a different disposition. The course culminates with the identification of simple problems in the area, which are analysed, and solutions suggested. The course helps prepare students in the early stages of the Design Process where they are expected to identify meaningful design problems before setting out to solve them with the use of various design methodologies.

The Rural School Exposure course takes the Environmental Exposure course a step further – from the city to the village. Students are taken to a village where they would spend a week. With almost 70% of the country's population living in rural India, it was crucial for design students experienced life, society, environment and culture of the rural sector.

Presently, the course is named 'Environmental Perception' and is part of the 'Design Context, Culture and Values' Module which includes 'Science and Liberal Arts' and 'Film Appreciation'. This course helps sensitize students to the study the social, cultural and physical environment in which his/her design has to operate, so that the design has a meaning or

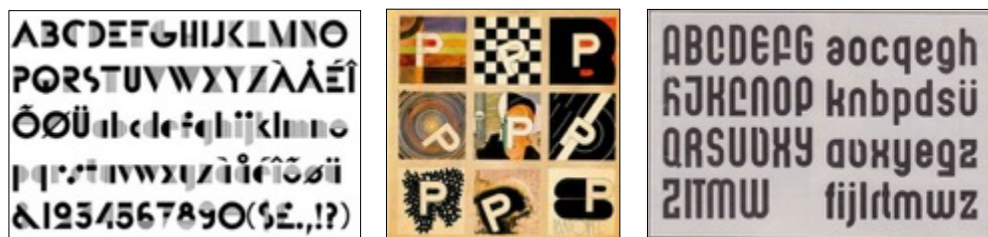
relevance to the people concerned.



Environmental Exposure Drawings, at NID.

THE TYPOGRAPHY COURSE

The Typography Course was the basic medium of communication that was introduced to the design student in the foundation year as a pre-requisite course. Sensitivity to Typography comes from learning typographic layouts and understanding spaces between alphabets, words, lines and paragraphs. Learning composing, printing and proofing aided the students to understand typography, as mentioned earlier, a basic medium of communication. The course introduced students to a very limited number of typefaces, type sizes and to layout design and to understand the potential of typography in communication. Principles of composition were woven into the composing of the letterforms and text in assigned spaces.



Lettering Course at the Bauhaus.

Presently the Typography course has been discontinued in the Foundation Programme at NID.

THE PHOTOGRAPHY COURSE

The Photography Course was another basic medium of communication that was introduced to the design student in the foundation year as a pre-requisite course. For recording an event, a moment, an idea, a product, object or artefact, or anything, photography proved most useful. A basic course, in which, students learnt the function and use of a camera and an enlarger, elementary exercises in photography, light ratios and the use of different types of lenses.

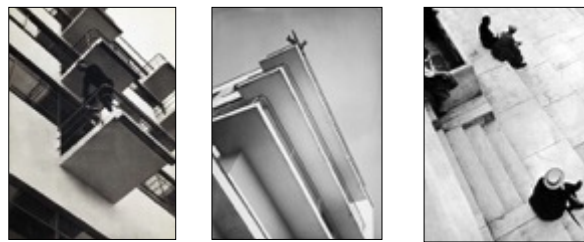
The essence of photography is not just the camera, but also the chemical sensitivity of film and paper, which documents the print of light. It was the age of film, bromide paper and darkroom. Students were taught right from choosing film speed, to cutting a 36-exposure length of film from a bulk film roll in the darkroom, and loading it into a film cartridge. Students were expected to shooting technically well composed 36 exposures and returning to the darkroom to load the exposed film on to a spiral and process it until the film developed to a negative. Next came the making of a contact sheet to select photographs to print.

After this, came the fine craft of making an enlargement. Back in the darkroom; from selection of bromide paper grades – glossy or matte and normal, soft and hard; to cutting exact and accurate sizes for; fitting it under the easel; placing the negative in the holder; exposing strip of test bromide paper, with the necessary dodging and burning and finally the perfect exposure. The last stage in the darkroom was the process that brought the image to life. Developer, fixer, hypo, water and finally out of the darkroom – the dryer, choosing between matte finish on the canvas sheet or glossy finish on the shiny metal sheet. The last activity once the print is dried was to trim the photograph with a trimmer leaving an equal width of white border around the photograph.

The Photography course also included the camera less photograph – the photogram, a condensation of ‘photograph and ‘diagram’. A photogram is a photographic image made without a camera by placing objects directly onto the surface of a light-sensitive material such as photographic paper and then exposing it to light. The usual result is a negative shadow image that shows variations in tone that depends upon the transparency of the objects used and the exposure time of the light. Principles of composition were woven into the composing of the objects for the photograms.

The course showed significant similarity to the photography course conducted at the Bauhaus.

Camera less pictures also are direct light diagrams recording the actions of light over a period of time, that is, the motion of light in space. Camera less pictures, photograms, however, bring a completely new form of space articulation. It no longer has anything to do with the record of an existing space (or space-time) structure. This is usually created in the form of architecture from elements clearly circumscribed by their masses, lengths, widths, heights. Certainly, these elements' masses and weights could be greatly simplified, the span of the openings enormously enlarged. Nevertheless, they must be there to serve as the point of departure for the photographic record. The photogram for the first time produces space without existing space structure only by articulation on the plane with the advancing and with the radiating power of their contrasts and their sublime gradations. (Moholy-Nagy, 1985, p. 10).



Photographs, Moholy-Nagy at The Bauhaus.



Photograms, Moholy-Nagy at the Bauhaus.

Presently the Photography course has been discontinued from the Foundation Programme. Although technology has changed completely to the digital medium, the basic principles of photography remain timeless.

THEORY & SCIENTIFIC SUBJECTS

In the initial years the Theory courses offered during the Foundation Programme at NID were Sociology, Psychology, Ecology, Economics, Philosophy, Music Appreciation, Introduction to Cinema, History of Art & Culture, Foundations of Indian Culture, Studies in Humanities & Social Sciences, General Studies - Independent Studies, Professional Procedures.

The Theory courses existed at Bauhaus with subjects like the Physical Sciences (Geometry, Physics, Chemistry, Mathematics) and Life Sciences (Biology, Physiology, Anatomy, Intellectual Integration) which complemented shopwork and drawing.

The HfG Ulm also offered an extensive cluster of Theory Subjects, which consisted of Cultural integration (Introduction to Physiology, Cultural History of the 20th Century & Linguistics), Sociology of the Industrial Society, Psychology, Behavioural Theory, Perception Theory, Technical Physics, Physics of Colours, Methodology, Methodological Exercises and Graphical Representation. This has been discussed in the previous chapter.

Presently the Theory courses offered at NID have been reduced to only; ‘An Introduction to Indian Culture’, ‘Approaches to Indian Society’ and ‘Film Appreciation’. The absence of many theory courses could impact the learning curve and contribute to the narrowing of the student’s exposure, thus going against the changing context of design delineation. Reducing the theory courses, limits the learning landscape of design. This discourages the involving of relevant disciplines to address complex problems collaboratively.

Annexure 3

QUESTIONNAIRE FOR DESIGN EDUCATORS AT THE NATIONAL INSTITUTE OF DESIGN & INDUSTRIAL DESIGN CENTER, IIT BOMBAY

QUESTIONNAIRE FOR DESIGN EDUCATORS AT NID, AHMEDABAD

DESIGN EDUCATION IN 21ST CENTURY INDIA: Reflection on the Design Foundation Course
Research by Indrani De Parker, PhD Scholar, IDC, IITB, Mumbai

Name
Age
Educational Background
Professional Background
Academic Background
Email & Phone Contact

- **What were the strengths of the Foundation Programme for Design at NID?**
 - What was the 'Vision' behind the original Foundation Programme?
 - Was it in tune with Eames Report?
 - What in the Foundation Programme was aligned with it and what deviated away from it?
 - What would the reasons for this be?
- **How has the Foundation Programme at NID changed over the decades since its inception?**
 - What have these changes been - spell them out / enumerate the significant changes?
 - What were the reasons for these changes?
- **What has been the nature of the Foundation Programme for Design in other design institutions in India?**
 - Mention which institutes have been significantly different
 - Which went more or less with the NID approach?
- **What have been the achievements and shortcomings of design schools in India?**
 - Give a crisp definition of what you understand by the term DESIGN THINKING
 - Is such thinking exclusively for Design Professionals?
 - How pertinent / relevant to the Indian scenario were the recommendations of the Eames Report back then?
 - Do they still hold good?
- **What is the future of design practice and design education as envisaged by design thinkers in India?**
 - State up to 5 critical inputs that Design Education must incorporate
 - To what extent do you think we need to continue looking at western approach to design and design education?
- **What can be the implications of this on the Foundation Programme for design?**
 - What do you see as the priority areas in design in India that must be incorporated?
 - What recommendations for doing so starting with design education?
 - Do we need a centralized proforma¹ for design education across the country or should design education be designed to be community specific?

¹ Proforma – A prescribed form that conforms to one particular format / framework. For example:
Do we need 4 - 5 "NID"s across the country or do we need design institutes that evolve independently based on local conditions?

Annexure 4

ABILITIES THAT FOUNDATION DESIGN STUDENTS NEED TO DEVELOP AS IDENTIFIED FROM INTERVIEWS OF DESIGN EDUCATORS AT THE NATIONAL INSTITUTE OF DESIGN & INDUSTRIAL DESIGN CENTRE, IIT BOMBAY

	ABILITIES	NIDF Respondent 1	NIDF Respondent 2	NIDF Respondent 3	NIDF Respondent 4	NIDF Respondent 4	IDCF Respondent 5	IDCF Respondent 6	IDCF Respondent 7	IDCF Respondent 8
	Ability to learn with an open mind without fearing to make a mistake									
1.	Ability to adapt to different system of learning			00:05:15						
40.	Ability to be curious/questioning							00:40:02		
53.	Ability to develop a risk-taking approach									00:11:15
42.	Abilities to inculcate interpersonal skills						00:10:48 00:12:35			
25.	Ability to work on different projects/assignments simultaneously. (Multitask)								00:32:25 00:33:30	
46.	Ability to have the right attitude to finish work						00:30:52 00:31:33			
44.	Ability to manage time and finish projects/assignments						00:29:30 00:30:14			
	Ability to Engage in Thought Processes									
10.	Ability to articulate a thought process				00:41:40					
13.	Ability to think in a context				00:41:40 00:43:40					
14.	Ability to think conceptually					00:22:40				
15.	Ability to think critically			00:25:08						
	Ability to Solve Problems									

9.	Ability of developing a thought process of problem solving	01:25:40			00:04:15 00:41:40					
21.	Ability to generate appropriate responses/solutions to the situation/product/service	01:27:40 02:00:20								
43.	Ability to work at day-to-day solutions as design problems						00:12:35			
22.	Ability to apply and connect skills and knowledge in a given context.							00:32:08	00:20:14 00:21:10	
26.	Ability to find multiple solutions to a problem								00:35:50	
18.	Ability to visualize									
39.	Ability to work with hands							00:39:35		
17.	Ability to use technological tools					00:23:30				
52.	Ability to know your tools/software						01:50:25			
45.	Ability to present effectively						00:29:30			
	Ability to make a Positive Change									
5.	Ability to make a contribution towards improving the quality of life	01:30:35	01:03:30		00:01:05					
6.	Ability to achieve something meaningful in life				00:03:45					
8.	Ability to adapt to the environment and the socio-economic reality			00:23:32 00:44:55	00:04:15					
23.	Ability to identify a problem as opposed to be given a problem								00:23:55	
27.	Ability to find a challenge								00:49:50	
34.	Ability to look into sustainable issues in design							00:08:30		
35.	Ability to identify and perceive social concerns							00:09:58		
36.	Ability to identify and address wicked problems/difficult issues//complex concerns and add value to society						01:26:40	00:09:58 00:13:50		
	Ability to Solve Real Problems at Both Urban and Rural Levels									

4.	Ability to work at the grass-root level		00:46:55	00:22:22						
7.	Ability to take on a bottom-up approach			00:21:30 00:25:40	00:02:28					
20.	Ability to adopt an indigenous approach			00:26:20 00:28:40						
33.	Ability to work in diverse situations/groups						00:09:58	01:01:35		
	Ability to Work Across Disciplines									
12.	Ability to deal with a variety of perceptions			00:03:55 00:04:35 00:44:55	00:16:50 00:17:32					
16.	Ability to draw on information from other disciplines	01:25:40		00:24:16		00:23:10				
	Ability to Engage in Holistic Thinking									
41.	Ability to connect local issues in the global context, world view and value system						00:51:55		00:23:50 00:26:15	
47.	Ability to think holistically					01:00:30				
	Ability to Research and to Imagine the Future									
2.	Ability to gain insights		00:42:50							
3.	Ability to reflect		00:43:20							00:46:00
54.	Ability to reflect and research, to imagine the future, to see patterns, and to analyse and reason									00:46:00
	Ability to Connect the Designer Self to the Other									
11.	Ability to be humble, empathetic	02:21:35 01:25:40	00:29:00		00:11:20					
24.	Ability to be passionate about one's choice of profession						00:14:30 00:14:45 00:44:00	00:42:15	00:27:45 00:28:32 00:29:26	00:38:55
28.	Ability to self-critique dispassionately								00:50:40	
30.	Ability to be able to sustain/financially support oneself						01:26:40			
37.	Ability to have an ethical understanding of the responsibility to the user						00:04:00 01:48:35			
38.	Ability to be humble							00:39:02		
48.	Ability to look at a project from a human-being's point of view rather than technically						01:01:00 01:06:15			

51.	Ability to find a balance between commercial activities and intellectual needs						01:46:55			
55.	Ability to develop an intuitive attitude									00:46:00
29.	Ability to work in difficult scenarios							00:08:30	00:55:50	00:25:30
19.	Empathy and emotion in the design process							00:13:50		
31.	Connection to self							00:40:43 00:41:27		

Annexure 5

THE B.TECH. IN COMPUTER SCIENCE AND DESIGN (CSD) PROGRAMME AT IIIT-D

Indraprastha Institute of Information Technology, Delhi (aka. IIIT-Delhi or IIIT-D) was created as a State University by an act of Delhi Government (The IIIT Delhi Act, 2007), empowering it to do research and development, and grant degrees (<https://iiitd.ac.in/about>). The institute has its permanent campus in Okhla with state-of-the-art infrastructure and modern facilities. IIIT-Delhi currently has six departments (Computer Science, Electronics and Communication, Computational Biology, Human Centred Design, Social Science and Humanities, and Mathematics); five Research Centres (Infosys Centre for Artificial Intelligence, Centre for Computational Biology, Centre for Design and New Media sponsored by TCS, Centre for Technology and Policing, and Cybersecurity Education and Research Centre); 60+ regular and 20+ visiting faculty members, all Ph.D. from the world's best institutes.

The B.Tech. in CSD programme is conducted by the Human Centred Design Department. The faculty in this department specialises in areas such as HCI, UX/UI Design, Mobile Systems and Applications, Middleware, ICT for Development, HCI, Mobile Computing, Systems, and their areas of interest are AI for Social Good, Public Health, Education, Mobile Crowd Sensing, Wearables Computing, Ubiquitous Computing, Tangibles Interfaces, Interaction Design, Gestural Interactions, Education Technology, Rapid Prototyping Techniques, NLP, Computer Vision, Machine Learning, Healthcare, Social Media Analysis, New Media Design VR, AR, Volume Visualisation, 3D Reconstruction, Animation Film Making, Gaming, Digital Sound Engineering & Design, Concept Art, IT & Indian Service Economy, Sustainability and Lifestyle Change, Civil Society and the State and more.

The CSD Programme aims to develop graduates that are not only well-versed with computing approaches, tools, and technologies, but are also experienced with design approaches and new media technologies and uses. The program has a small set of core courses in CS and Design, and many electives which can be taken from CS as well as Design and Digital Media. This enables the students to build a program most suitable for them. The program will prepare students to work in the IT industry as well as in digital media industry like gaming, animation, virtual/augmented reality, etc. The program will also allow students, who want to pursue higher studies, to take up higher studies in CS/IT or in Design.

The program aims to develop capabilities in CS as well as Design and Digital Media. At the end of the program, a student will have:

- An understanding of foundations, limits, and the capabilities of computing.
- The ability to design and implement efficient software solutions using suitable algorithms, data structures, and other computing techniques.
- An understanding of design principles and techniques and the ability to apply these for developing solutions for human/societal problems.

- The ability to independently investigate a problem which can be solved by a Human Computer Interaction (HCI) design process and then design an end-to-end solution for it (i.e., from user-need identification to UI design to technical coding and evaluation).
- The ability to effectively use suitable tools and platforms, as well as to enhance them, to develop applications/products using new media design in areas like animation, gaming, virtual reality, etc.

In addition, the graduate of this program should also have the following general skills:

- Ability to function effectively in teams to accomplish a common goal.
- An understanding of professional and ethical responsibility.
- Ability to communicate effectively with a wide range of audience.
- Ability to self-learn and engage in life-long learning.
- Ability to undertake small research tasks and projects.
- Ability to take an idea and develop into a business plan for an entrepreneurial venture (if desired).
- An understanding of the impact of solutions in an economic, societal, and environmental context.

The CSD Program Structure

The B.Tech. program at the IIIT-D follows a philosophy of having a small set of core courses, allowing students significant flexibility in designing their curriculum and specialization subjects. The B.Tech. curriculum at the IIIT-D requires a student to complete 152 credits, which is equivalent to 38 full-courses in the program. The broad structure of the CSD program is (note that the scheduling of courses in different semester is only illustrative):

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5
Introduction to Programming	Data structures and Algorithms	Computer Organization	Analysis and Design of Algorithms	Computer Networks
Digital Circuits	Design Drawing & Visualisation (DDV)	Visual Design & Communication (VDC)	Human Computer Interaction (HCI)	Design of Interactive Systems (DIS)
Maths I	Maths II - Probability and Statistics	Advanced Programming	Operating Systems	Research Methods in Social Science & Design
Systems Management	Introduction to Engineering Design (IED)	Design Processes & Perspectives (DPP)	DBMS	Technical Communication + Environmental Studies
Communication skills	[HSS]	[Maths III]	[HSS / Maths IV]	[Elective]

In semesters 6, 7, 8 students do:

1. The remaining HSS courses.
2. A minimum of four electives in the CSE.
3. A minimum of four electives from Design and Media.
4. The B.Tech. Project, which is compulsory for this program.

5. Remaining credits will be Open Electives.

Humanities and Social Sciences Electives (Minimum 3; Recommended 5)

Students can choose from the set that is offered. The current set of HSS courses is available on the website. Many of the new courses that will be floated as part of the IT and Social Sciences program will be available to students of this program.

Computer Science Electives (At Least 4)

Student will do CS electives from a set of courses which will include courses relevant to this program, including relating to images, vision, graphics, multimedia, etc. A tentative list of electives that may be available is:

1. Computer graphics
2. Data visualization
3. Image processing
4. Spatial computing
5. Mobile computing
6. Information retrieval
7. Computer vision
8. Machine learning
9. GPU Computing
10. Multimedia technologies (including authoring tools)
11. Software engineering

Design and Media Electives (At Least 4)

In most of these courses, students will also use a widely-used platform, and build their project on it. They may also develop some add-ons for the platform. A tentative list of courses that may be offered are:

1. Wearable Applications, Research, Design, and Interactions (WARDI)
2. User Interface Software and Technology (UIST)
3. Computer Game Development & Design
4. Information Visualisation
5. Introduction to 2D Animation
6. Introduction to 3D Production Design for Animation and Games
7. Introduction to Motion Graphics
8. Animation and Graphics
9. Special Effects
10. Non-Linear Editing
11. Digital Audio Design and Synthesis
12. Film Making and Radio Podcasting
13. Digital Sound Engineering & Design
14. Photography
15. Videography
16. Typography in Communication
17. Drawing in Communication
18. Colour in Indian Context
19. Usability Studies and Evaluation
20. Service Design
21. Introduction to Basic Product Design
22. Advanced Product Design
23. Material, Methods & Manufacturing Processes
24. Process Drawing & Digital Presentations

- 25. Form Generation & 3D Printing
- 26. Human Factors, Ergonomics & Interface
- 27. Design of Smart Appliances
- 28. Design of Smart Furniture & Retail Fixture Design
- 29. Design of Medical Devices & Equipment
- 30. Design of Educational Products (Gaming, Toys, etc.)
- 31. Packaging Design
- 32. UI/UX in Product Design
- 33. Sketching Communication Narratives

Annexure 6

COMPARISON OF FOUNDATION DESIGN COURSES AT NID & IIIT-D

NID	
DESIGN DRAWING AND VISUALISATION	
1. Design Overview – Theory Lecture	
2. Freehand Drawing 1&2 <i>Duration: 150 Hours</i>	I. Human Form Study
	II. Object Drawing
	III. Nature Drawing
	IV. Perspective Study
3. Analytical Drawing <i>Duration: 60 Hours</i>	
4. Geometry and Structure (2D & 3D) <i>Duration: 60 Hours + 60 Hours</i>	
5. SLA - 1 (Science & Liberal Arts) – Introduction to Indian Culture (Theory) <i>Duration: 30 Hours</i>	
6. Basic Materials and Methods <i>Duration: 60 Hours</i>	

IIIT-D		
DESIGN DRAWING AND VISUALISATION		
1. Design Overview – Theory Lecture		
2. Drawing Methods <i>Duration: 54 Hours</i>	I. Freehand Drawing <i>Duration: 18 Hours</i>	i. Basic Drawing Exercises
		ii. Human Form Drawing
		iii. Object Drawing
		iv. Nature Drawing
	v. Perspective Drawing	
	II. Freehand Precision Drawing with Grid <i>Duration: 12 Hours</i>	vi. Isometric Drawing/ Analytical Drawing
	III. Precision Drawing with Tools <i>Duration: 24 Hours</i>	i. Geometrical Construction (2D) ii. Possibility of a One Day Workshop in 3D Geometry iii. Orthographic Drawings
3. Drawing Systems <i>Duration: 6 Hours</i>		
	I. Isometric Views	
	II. Orthographic Views	
	III. Perspective Views	
4. Sources of Drawing	I. Drawing from Observation	
	II. Drawing from Memory	
	III. Visualisation Drawing	
	IV. Abstract Drawing	
5. Introduction to Indian Culture (Theory) <i>Duration: 3 Hours</i>	I. Integrated into Freehand Drawing	
	II. Integration Continues in Later Courses	
6. Basic Materials and Methods 1 & 2 <i>Duration: 0 Hours</i>		
6. Drawing out of Thoughts: Integrating the Visual Language with the Written Language <i>Duration: 24 Hours</i>	I. Mind Maps: Introspection & Extrospection of the Self and the Imaginary Other.	
	II. Journals: Reflective Thinking, Critical Thinking, Nurturing Curiosity.	
	III. Group Project (Integrating Drawing with Thinking): Meaning/Sense Making, Analytical Thinking, Collaborative Thinking, Creative Thinking, Co-Creating, Communicating.	

NID	IIITD	
BASIC DESIGN	VISUAL DESIGN AND COMMUNICATION	
1. Elements of Composition <i>Duration: 90 Hours</i>	1. Basics of Visual Design	I. Elements of Visual Design II. Principles of Visual Design III. Theories in Visual Design
2. Elements of Colour <i>Duration: 90 Hours</i>	2. Visual Design in Communicating Ideas, Concepts, Messages, & Information	I. Forms and Space II. Typography III. Communication Theory
3. Media Appreciation <i>Duration: 30 Hours</i>	3. Visual Design in Different Media of Communication	I. Print Medium II. Digital Medium III. Photography IV. Videography
4. History of Art <i>Duration: 30 Hours</i>	4. Drawing Out Thoughts 2: Articulating Thought Processes to Decode to Visual Design	I. Story Telling: Understand storytelling and narratives as effective methods to scope problems and problem-solving processes. II. Journals: Reflective Thinking, Critical Thinking, Nurturing Curiosity, Research. III. Group Project (Integrating Visual Forms with Thinking): Meaning/Sense-Making, Semiotics, Semantics, Syntactics, Analytical Thinking, Creative Thinking, Collaborative Thinking, Co-Creating, Design Communications
5. Combination of Material <i>Duration: 30 Hours</i>	5. Visual Identity	I. Delineating the Identity II. Symbol & Logo Design III. Graphic Representations
	7. Info Graphics	I. Types of Info Graphics II. Graphic Representation of Data
	6. Social Communication Composite Heritage as a Tool for Conflict Transformation and Violence Prevention <i>Duration: 6 Hours</i>	I. Context of Conflict II. Concept of Composite Heritage

NID	IIITD	
DESIGN PROCESS	DESIGN PROCESSES AND PERSPECTIVES	
1. Design Process <i>Duration: 90 Hours</i>	1. Problem Area: Identification and Investigation Environmental Exposure & Introduction to Indian Society woven in.	I. Context and Levels of Complexity II. Field Research and Observation III. Data Collection
	2. Analysis, Synthesis and Problem Statement Formation Environmental Exposure & Introduction to Indian Society woven in.	I. Exploring Creative Thinking Experiences II. Objective Examination III. Articulation of a Problem Statement
2. Environmental Perception <i>Duration: 90 Hours</i>	3. Ideation and Solution Scoping Environmental Exposure & Introduction to Indian Society woven in.	I. Exploring Creative Thinking Experiences II. Proposing Universal and Sustainable Solutions
	4. Evaluation and Testing Environmental Exposure & Introduction to Indian Society woven in.	I. Activities Involving the User (Card Sort, Usability Testing, Onboarding etc) II. Step by Step Prototyping III. Next on Agenda/ Way forward.
3. SLA - 2 (Science & Liberal Arts) – Approach to Indian Society (Theory) <i>Duration: 30 Hours</i>	5. Design Perspectives	I. Sustainable Design (Self Study) II. Participatory Design (Skype Class?) III. Universal Design (Skype Class?) III. Slow Design (Self Study) IV. Responsible Design (Self Study)

- Additions to Foundation Design Curriculum
- Possibility to include in future
- Courses conducted at NID but not at IIIT-D

Annexure 7

PILOT COURSE 1: DESIGN DRAWING AND VISUALISATION (DDV) – COURSE DESCRIPTION

Course	DESIGN DRAWING & VISUALIZATION		
Credits	4 (39 hrs Lecture/Demo/Discussion + 39 hrs Practice + 39 hrs Non-Contact)		
Course Offered to	UG		
Course Description	DESIGN DRAWING Based on the premise that drawing is central to the design process, this course focuses on drawing as a medium for observing, representing, conceptualizing, visualizing, and communicating design ideas. The emphasis is on drawing by hand, which is the most direct and intuitive means we have to express our visual thoughts and perceptions. In direct response to our visual thoughts and perceptions, we develop an understanding of spatial concepts and the critical ability to think and visualize in three dimensions through the tactile nature of drawing. This course fosters understanding of drawing and sketching as a means to develop observational skills through the study of the environment and as a tool for visual representation, ideation/conceptualization, visualization, and communication or presentation of design ideas through sketching and drawing from both observation and memory. VISUALIZATION DRAWING Visualization is an act of thought or reflection. In design, we speculate and visualize what might be possible in the future. Drawing gives material existence to our conceptions so that they can be seen, assessed, and acted upon. The drawing out of these ideas, whether executed quickly or slowly, roughly or carefully, is necessarily speculative in nature. We can never determine beforehand precisely what the final outcome will be. The developing image on paper gradually takes on a life of its own and guides the exploration of a concept as it travels between mind and paper and back again. Drawing from the imagination addresses issues that arise as we think in a speculative manner to stimulate the design process, develop our design ideas through drawing, and plan how to present our design proposals in the best possible light. This course gives the students an overview of the generative and developmental stages of the design process and drawing as distinctly speculative in nature. Thoughts develop as a drawing progress, which can alter perceptions and suggest possibilities not yet conceived.		
Course Objectives (CO)	CO1. Students will develop the skill and ability to observe and visually represent all the elements in their environment with a focus on human forms, objects, and nature, and the way they interact. CO2. Students will inculcate skills and develop the ability to explain the importance of precision in design through drawings using instruments/tools and the concept of geometrical forms and configurations of forms through basic geometrical patterns on 2D surfaces. CO3. Students will develop the ability to discuss orthographic projections of forms through Technical Drawings and Isometric Views of forms through Analytical Drawings and use these as a tool for visual understanding and visual representation. CO4. Students will develop the ability to analyse visual structure of 3D forms on 2D surfaces with an understanding of spatial concepts. CO5. Students will develop the ability to analyse complex images and in turn develop the ability to create mental imageries and visualise concepts.		
Weekly Lecture Plan			
Week Number	Lecture Topic	COs Met	Assignment/Practice
1.	Class 1. INTRODUCTION TO DESIGN DRAWING: i. What does drawing mean to a design student? ii. Drawing as an activity sensitizes the	CO1	1. ANALOGOUS MARKINGS TO EMOTIONS: i. Use only abstract markings with no recognizable forms–Symbolic, Geometric, Alphabets, Human, Nature, etc.

	student to observe accurately and represent visuals accurately. Class 1a. Introduction to Materials, Tools & Methods: - Importance of different grades of pencils and exploring different ways of holding the pencil to develop a control of drawing implements. - Developing Free Finger, Wrist, Hand & Arm Movement and initiate Muscle-Memory through Making of Markings. - Introduction to Observation–Scrutinize, Examine, Study, Inspect, Perceive, Sense, Feel, Notice, Identify, and Understand. - Training the eye to observe accurately to educate the visual sense. - Introduction to Perception–View, Opinion, Insight, and Discernment. - Introduction to Perspective–Eye level, Vanishing Point.		- Think of the word and the last time you experienced the emotion or what the word means to you and try to relive the moment with your eyes shut. - Open your eyes and allow the hand to draw what it wishes without giving it conscious instructions. - Your drawings will be analogues of your thoughts on each concept/emotion and in a sense the drawings will give your thoughts a visual form. 2. PROCESS OF LEARNING TO DRAW & SKETCH: - Drawing freehand horizontal lines. - Drawing freehand vertical lines. - Drawing freehand diagonal lines. - Drawing freehand radial lines. - Drawing freehand random circles. - Drawing freehand same radius circles. - Drawing lines of different grades of pencils in a square. - Drawing lines with different tonal values and grades of pencils in a square. - Optional: Drawing organic free flowing contour drawing. - Optional: Drawing a line interpretation of any composition.
	Class 2. DRAWING OF CUBES and PERSPECTIVES: - Introduction to Vanishing Points, View Point, Eye Level, Horizon, Parallel and Converging Lines. - One Point Perspective. - Two Point Perspective. - Three Point Perspective. - Perspective in the environment, interior spaces and objects.	CO1	3. SKETCHING SIMPLE BASIC 3D CUBES TO UNDERSTAND DIFFERENT PERSPECTIVES: - Drawing Random Cubes. - Drawing Four Views of 4x4x4 Cube. - Drawing Cubes in One Point Perspective. - Drawing Cubes in Two Point Perspective. - Optional: Drawing Cubes in Three Point Perspective. - Drawing a one-point perspective outdoor view of a building using the Polycarbonate Drawing Assist. - Drawing a two-point perspective outdoor view of one or more buildings using the Polycarbonate Drawing Assist. - Drawing a one-point perspective of a room interior using the Polycarbonate Drawing Assist. - Drawing a two-point perspective of a room interior using the Polycarbonate Drawing Assist.
2	Class 3. DRAWING OF ELLIPSES, CUBOIDS and CYLINDERS: Introduction to other geometric forms like cylinder, cuboids, etc.	CO1	4. SKETCHING BASIC CUBOIDS AND ELLIPSES TO UNDERSTAND CYLINDERS: - Drawing random horizontal ellipses. - Drawing ellipses in progression. - Drawing different views of a cylinder beginning from the top view to the bottom view. - Drawing ellipses in square in a 1 pt. perspective. - Drawing multiple views of cuboid in a 1 pt.

			perspective.
	Class 4. OBJECT DRAWING: i. Introduction to Object Drawing–How to observe shape and proportions.	CO1	5. SKETCHING MAN-MADE OBJECTS: i. Drawing an Object in a Group and Critiquing each other's Representations. ii. Drawing a Range of 10 Different Objects of Varied Materials.
3	Class 5. OBJECT DRAWING Cont.: i. How to observe the effect of light on the objects. ii. Human Form-Object Relationships–Objects held in hand.	CO1	6. SKETCHING OBJECTS Cont. i. Drawing a water bottle/flask with a light source, in a group and critiquing each other's representations. ii. Drawing four different products/objects of different materials under two different light conditions. iii. Drawing a range of 10 different objects that can be hand-held (include the hand in the drawing). iv. Drawing different views of your foot. v. Drawing two different pairs of shoes.
	Class 6. HUMAN FORM DRAWING: i. Introduction to human form proportions. ii. Proportions of human faces. iii. Human forms in action.	CO1	6. SKETCHING HUMAN FORMS: i. Draw quick multiple sketches of human forms in action. Begin with stick figures (with indications of the joints), in the correct proportions and postures. ii. Draw stick figures lightly and add mass/body to the figures in action. iii. All the above to progress into detailed drawings of human forms in action. iv. Drawing contour line drawing of human forms using the Polycarbonate Drawing Assist. v. Drawing contour line drawing of human forms in action using the Polycarbonate Drawing Assist. vi. Draw quick sketches of human forms in groups. You may either use the Polycarbonate Drawing Assist or A3 cartridge sheets.
4	Class 7. HUMAN FORM DRAWING CONT:	CO1	7. DRAWING PORTRAITS: i. Draw a portrait of yourself by looking into a mirror. ii. Sit in pairs and sketch each other's portraits. Pay close attention to proportions, positions, and relationships between every element on a human head.
	Class 8. NATURE DRAWING: i. Introduction to nature drawing. ii. Fractal. iii. Biomimicry.	CO1	8. DRAWING FROM NATURE: i. Draw single leaves of different shapes to fill up a single A3 sheet. ii. Select any three of the leaves and draw the branch of the selected leaves on a second sheet. iii. Select three different kinds of trees and on a single sheet, draw a leaf, draw a branch of the same tree and draw the whole tree, where each sheet will have a leaf, a branch and the whole tree). Select three significantly different kinds of trees.

			iv. Draw a single A3 size composition from observation that includes: a) Building/s (in correct perspective) b) Tree/s c) Human form/s d) Manmade object/s e) animals (optional) f) Landscape (Fill up the sheet as far as possible)
5	Class 9. GEOMETRY & STRUCTURE (Analogue): i. Construction of basic polygons. ii. Proportioning Systems–Golden proportion	CO2	7. GEOMETRICAL CONSTRUCTION: i. Constructing triangles, squares and polygons up to a dodecagon by exploring different methods of construction. ii. Constructing all the above polygons on a common base. iii. Constructing a golden rectangle. iv. Construct a golden spiral. v. Construct an ellipse.
	Class 10. GEOMETRY & STRUCTURE (Continued): i. Interrelation of polygons–Tessellations	CO2	8. GEOMETRICAL CONSTRUCTION Continued: i. Constructing regular tessellations. ii. Constructing semi-regular tessellations. iii. Constructing irregular tessellations.
6	Class 11. PROJECTION DRAWINGS: i. Orthographic projection of planes and solids.	CO3	9. DRAWING OF ORTHOGRAPHIC PROJECTION OF PLANES AND SOLIDS: i. Constructing different isometric /orthographic views by extracting portions from a cube. ii. Constructing different isometric /orthographic views by adding portions to a cube.
7	Class 11. ANALYTICAL DRAWING: i. Architectonic drawing of planes, square-sectioned running pipes, and rectangular-sectioned running pipes.	CO4	11. FREEHAND ANALYTICAL SKETCHING: i. Drawing multiple linear square or rectangular strips in an isometric view. ii. Drawing a single square moving strip in an isometric view. iii. Drawing a single rectangular moving strip in an isometric view. iv. Drawing a single square or rectangular moving strip with one curved edge in an isometric view. v. Drawing three single square or rectangular moving strips on three planes in an isometric view. vi. Drawing single cylindrical moving strip.
	Class 12. ANALYTICAL DRAWING CONT'D:	CO4	10. FREEHAND ANALYTICAL SKETCHING CONT'.. i. Drawing a single square complex moving strip within a cube in an isometric view. ii. Drawing multiple square complex moving strips in an isometric view. iii. Drawing multiple planes with cut-outs, within a cube in an isometric view. iv. Drawing multiple intersecting planes in an isometric view. v. Optional: Drawing a combination of cube-

			like forms, moving strips and planes in an isometric view.
8	Class 12. PROJECTION DRAWINGS: i. Isometric projections of cubes, cuboids and cylinders. ii. Isometric drawings of objects.	CO4	10. DRAWING OF OBJECTS IN ISOMETRIC VIEWS: i. Drawing an isometric view of two bottles. ii. Drawing an isometric view of any complex object.
Class 13. & 14. COMPLETION OF ALL ASSIGNMENTS			
MID-TERM EXAM & MID-TERM ASSESSMENT			
9	Class 15. DRAWING THE SELF FROM OBSERVATION, MEMORY AND IMAGINATION Class 15a. DRAWING OUT ATTRIBUTES: Introspection, Extrospection & Aspiration i. Introduction to mental imagery.	CO1, CO5	1. DRAWING FROM OBSERVATION, MEMORY AND PROJECTION: i. Draw a portrait of your current Self by looking into a mirror. ii. Draw from memory a portrait of your childhood Self at the age of around five. iii. Draw a portrait of your projected Self in the future age of around 75. 2. DRAWING OUT ATTRIBUTES: i. Map out attributes of yourself. Divide the path in three ways: a) Introspection–Journey into the Self in search of attributes. These could be based on Personalities, Characteristics, Attitudes, Aptitudes, Strengths, Weaknesses, Passions, Dislikes, etc. (minimum 50 keywords). b) Extrospection–Journey out of the Self to interact with the world around from the Immediate Family and gradually moving outwards to Extended Family, Community, Society, Environment, Nation, the Planet and ultimately the Universe (minimum 50 keywords). c) Aspiration–Dreams, Fantasies, Caprices, Hopes, Whims that are independent of the realities of life (minimum 50 keywords).
	Class 16. ABSTRACT DRAWING AND NARRATIVES	CO5, CO4, CO3 CO2 CO1	3. DRAWING NARRATIVES i. Select 6 keywords that best represent your unique personalities and visually represent them as masks. Use any material but within the constraints of black-and-white only with no colour. Place 1 drawing of a mask on each A3 cartridge sheet. ii. Draw a comprehensive visual representation of yourself, using a collage of your attributes that you amalgamate from.
10	Class 17. THE BUILT ENVIRONMENT: i. Drawing from Observation. ii Drawing out Attributes. iii Drawing out the Human-Object Interactions. iv. Visualising Change of Function. v. Visualising Change of Material. vi. Visualising Change of Size and Scale.	CO5, CO4, CO3 CO2 CO1	4. THE BUILT ENVIRONMENT: TANGIBLES AND INTANGIBLES i. Draw an object (paper cup—which will be provided) as accurately as possible from observation by applying principles of shape, proportions, ratios, etc., and analysing their relationships. ii. Draw the object (paper cup) or make a photocopy of the drawing and place it on a half Imperial sheet and map out attributes of the object under the following classifications:

			a) Tangible attributes: Physical descriptions (30-50 keywords). b) Tangible attributes: Functional descriptions (30-50 keywords). c) Intangible attributes: Emotional connect-cultural context, social context, environmental context, industrial context, technological context, economical context, political context, etc. (30-50 keywords). iii. Draw any human part interacting with the object (paper cup) on a half Imperial sheet and attribute keywords or key phrases to the human-object interaction. iv. Visualise change of function of the object (paper cup) and draw 5 other possible or alternative functions other than the obvious and if any specifically the ones discussed in class. v. Map out 10 unique attributes for each of the functions that appear to add value to the object. vi. Visualise change of material of the object (paper cup) and draw the object in 5 different materials. The drawings should clearly reflect the qualities of the material. vii. Map out 10 unique attributes for each of the different material. viii. Visualise change of size of the object (paper cup) to be enlarged 50 times the size and draw 5 functions of the expanded object in that size on a half Imperial sheet. The drawing should reflect the scale by using an appropriate reference. ix. Visualise change of the size of the object (paper cup) to be reduced to 1/10th the size and draw 5 functions of the miniature object in that size on a half Imperial sheet.
	Class 18. INTRODUCTION TO CONTEXT	O5, CO4, CO3 CO2 CO1	5. SELF AND OTHER: CONTEXT i. Select two artefacts/objects that are important in your life, one traditional with a heritage or emotional value (where parents or other family members may help to identify), and one contemporary object with perhaps, a functional value. ii. Select the traditional artefact and through a Power Point Presentation, address the following: a) Slide 1 should project the historical context of the artefact researching the old historical traditions. Has this artefact played a significant role in history? b) Slide 2 should project the cultural context of the artefact. What and how does this artefact play a role in your culture today. c) Slide 3 should discourse the personal connect of the artefact to the Self. d) Slide 4 should represent a similar context in another person/community/etc. Individual assignment: Select the contemporary object and:

			i. Draw the object in the same size and express the connect you have with the object. through keywords. ii. Find antonyms to the keywords and visualise and draw the same product in a different material to match the antonyms. You can add more functions. iii. Describe the attributes of the Other who would be the potential user of this object.
11.	Class 19. THE OTHER Attributes, Interactions and Actions	CO1, CO5	6. DRAWING FROM OBSERVATION & ATTRIBUTES FROM OBSERVATION Select a personality from the following at IIIT-D: 1. Security 2. Housekeeping 3. Food vendor 4. Any other service i. Divide the work among the group members: 1. Sketches of the portrait of the person. 2. Sketches of the person in the working environment. 3. Talk to the person to understand the persona. 4. Attributes of the personality. 5. Activities that the person engages in through the day and list the attributes of his/her contributions or unique role that he/she plays at IIIT-D. ii. Draw the portrait of the person from 4 different views. iii. Draw the person in the his/her working environment engaged in their professional activities. iv. Prepare a short questionnaire to get insights to the person. v. Assign or draw out the attributes of the personality. vi. Visualise the activities that the person engages in, through the day and list his/her contributions to IIIT-D or describe the unique role that he/she plays at IIIT-D.
	Class 20. THE OTHER Attributes, Interactions and Actions (Cont.)	CO1, CO5	7. VISUALISING DRAWING & ATTRIBUTES FOR VISUALISATION: i. Describe, through a series of sketches, the character persona. Describe, through a series of sketches, a day in the life of the person. ii. Describe, through a series of sketches, the activities and interactions of the personality and how he/she engages with the environment at IIIT-D which adds value to the institute. iii. Map the attributes (gained through a pre-planned conversation or an informal interview) for a deeper understanding of the Other in each of the above. iv. Prepare a group presentation combining all the information collected earlier. The

			presentation should reflect a deep and layered understanding of the persona. special attention to be given to the presentation in terms of Visual, Textual and Verbal communication. All three forms of communication should be clear legible and audible, in the presentation. The presentation should reflect a definite level of maturity and a degree of professionalism.
12	Class 21. THE END-TERM PROJECT Perceiving the Other: Looking Beyond...	CO5, CO4, CO3 CO2 CO1	8. IDENTIFYING AND MAKING SENSE OF A PROBLEM: i. Cluster the news items of the problem area into categories and visually present them in different categories or themes. Please note that there should be a minimum of 25 news items. List out the stakeholders. ii. Create an exhaustive mind map of your problem area through a process of analysis, where each keyword should be carefully chosen and validated by facts. This may require a fair amount of research. Identify and map the stakeholders in the problem area along with their attributes. Draw a caricature of the central stakeholder which reflects the identified attributes. You may add value to effective communication with additional text (neatly written) and relevant visual elements like lines for borders, shapes to demarcate clusters, icons to represent themes, etc.
	Class 22. THE END-TERM PROJECT	CO5, CO4, CO3 CO2 CO1	9. IDENTIFYING POTENTIAL AREAS OF SOLUTIONS: i. Iteration of preliminary analysis of the problem area to get insights into the problem. Initiate a process of identifying potential areas of solutions based on the insights. Visualise solution as follows: a) Identify solution scenarios. b) Identify all elements within the scenarios. ii. Collate all the solution scenarios and elements. Convert these solutions into Activities, Services, Experiences, Interactions, Communication Products, etc. Map and describe through drawings and text the details of each of the suggested solutions. Think of a NAME for the project. You may think of names of the subsidiary solutions too.
13	Class 23. THE END-TERM PROJECT	CO5, CO4, CO3 CO2 CO1	10. VISUALISING SOLUTIONS SCENARIOS: i. Storytelling is the framework used by designers to reach out to users. Effective storytelling means going beyond getting users emotionally invested, to keeping them engaged after their experiences too, so they attach more meaning to designed products/services.

			ii. Select a medium of story—telling or narrative medium using Drawing (Comic Strip, Illustrations, Caricatures, Memes, Poster, Play (Storyboard), Advertisement, Video (Storyboard), Blog, or Kaavad, etc.) and apply it to some of the solutions to connect emotionally with the audience or user.
	Class 24. THE END-TERM PROJECT	CO5, CO4, CO3 CO2 CO1	11. 2D REPRESENTATION OF VISUALISED SOLUTIONS IN A 3D SPACE: i. Imagine a hypothetical situation where a large space has been donated to execute these solutions. The space provided is the reception area and the atrium area of the New Academic Block of IIIT-D. ii. Draw an isometric view of this area and space. Integrate the solutions into the given area and space in the given reception area and the atrium area of the New Academic Block. Draw isometric views of the Activities, Services, Human interactions, Experiences, Communication, Products, Stakeholders, etc., in the area and space. Divide, organise, and distribute the space with planes, tubes, pipes or with any other elements you deem fit.
	Workshop 1 ILLUSTRATION & DESIGN (1)		12. CHARACTER DEVELOPMENT AS A TECHNIQUE TO GET INSIGHTS INTO USERS: In design, illustration can be an efficient way to provide the user with a piece of information faster and easier than it could happen with the text. However, illustration is also a powerful and important tool that can be used to get insights into users and can enhance user experience, making an interface attractive, efficient and effective. Character development through illustrations can effectively portray the archetype of a potential user of design problem like websites or apps, and can play a significant role in developing the persona of the user. A user persona is an archetype or character that represents a potential user of any design problem e.g., a website or app. In user centred-design, personas help the design team to target their designs around users. To enhance user experience, illustration can play a crucial role in landing pages, information graphics/technical diagrams, motion graphics, sequential imagery, etc. Illustration in most cases becomes the efficient way to provide the User with a piece of information faster and easier than it could happen with the text. Using illustration in layout, it is possible to fulfil multiple user needs that is why it is so popular in user interfaces of different kinds.

			Illustration used as a part of any interface should become a working functional element. Character design, as the conventional wisdom goes, seems to be applicable only if you are making your living through visual art. The obvious need for a character design seems to arrive to create a difference among a cast or crew of a TV Series, Comic Book, or Game. But can the understanding of a character (before the <i>design</i> arrives) be helpful in any other way? Especially when your career path doesn't need you to be an artist?
	Workshop 2 ILLUSTRATION & DESIGN (2)		13. CARICATURES AS TECHNIQUE TO GET INSIGHTS INTO USERS: A caricature is a rendered image showing the features of its subject in a simplified or exaggerated way through sketching, pencil strokes, or through other artistic drawings. In literature, a caricature is a description of a person using exaggeration of some characteristics and oversimplification of others. Caricature in design is unique because it can lend a very personal element to the design. In a caricature, the artist reveals the personality of the person and creates an image based on an exaggeration of a unique aspect, often humorous physical likeness. It aids in deeply understanding the user in design.
	Workshop 3 NARRATIVES IN DESIGN		14. STORYTELLING AS A TOOL TO ENHANCE USER EXPERIENCE: A product vision is as good as its story. As designers, we often do not have a product or even a prototype, but we do need to have a story. A compelling story which captures the need of the product. The reasons why the product should be brought to life. The reasons why without this product, the world would be devoid of a great possibility. Why do stories impact so much? We all love stories. Why? Listening to stories is as important as eating food. Not everyone is a good storyteller, but everyone wants to hear a good story. Why? And if stories are so important, are we good storytellers? Are our presentations/documents good in storytelling? Do we need to know the basic tenets of good storytelling? - Personalization - Imagination - Ending Storytelling is used in design as a technique to get insight into users, build empathy and access them emotionally. With stories, designers speak to increase the appeal of what they offer and provide a solid understanding

			of the users. For e.g., UX designers typically tell on-screen stories, weaving narratives to make users invest their emotions in our messages. Designers aim to engage users through their feelings, as opposed to describing design of the product or system from a functionalist/task-oriented viewpoint. An effective user experience depends on the success of users achieving their goals <i>usability-wise</i>. However, storytelling is the framework used by designers to <i>reach</i> the users. The world can be experienced through metaphors, not bullet-point specifications, storytelling is the best way to relate to audiences. Effective storytelling means going beyond getting users emotionally invested, to keeping them engaged <i>after</i> their experiences too, so they attach more meaning to designed products/services.
	THE END-TERM EXAM & JURY		
Assessment Plan			
	Type of Evaluation	% Contribution in Grade	
1.	Continuous Assessment of Assignments	30% (15% before Mid-Semester & 15% before End-Semester)	
2.	Mid-Semester Exam	10%	
3.	Maintenance of Sketchbook & Journal	10%	
4.	Attendance	10%	
5.	End-Term Project	20%	
6.	End-Term Exam	10%	
7.	End-Term Jury	10%	
Resource Material			
Type	Title		
Textbook	1. Erik Olofsson, Klara Sjolen, Design Sketching , KEEOS Design Books.		
Textbook	2. K. Morling, Geometric and Engineering Drawing , Third Edition, Elsevier, 2010. http://ebooks.bharathuniv.ac.in/gdlc1/gdlc4/Engineering%20Drawing/Geometric%20and%20Engineering%20Drawing.pdf		
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Annexure 8

CATEGORISATIONS OF DESIGN DRAWING & VISUALISATION (DDV) COURSE

Student Participants (2): Meeha & Riya

1. Drawing Methods

i. Freehand; ii. Freehand Precision; iii. Precision with Tools

2. Drawing Systems

i. Orthographic Drawing; ii. Isometric Drawing; iii. Perspective Drawing

3. Source of Drawing

i. Drawing from Observation; ii. Drawing from Memory; iii. Visualisation Drawing; iv. Abstract Drawing

4. Drawing Out Thoughts: Integrating the Visual Language with the Written Language

i. Mind Maps: Introspection and Extrospection of the Self and the Imaginary Other

ii. Journals: Reflective Thinking, Critical Thinking, Nurturing Curiosity

iii. Integrated Final Group Project (Integrating Thinking with Drawing): Meaning/Sense Making, Analytical Thinking, Collaborative Thinking, Creative Thinking, Co-Creating, Communicating

Assignments in Each Categorisations

1. Drawing Methods	Assignments
Freehand	DDV1, DDV9, DDV10, DDV11, DDV12, DDV13, DDV22, DDV23, DDV24, DDV25, DDV28, DDV29, DDV30, DDV31, DDV32, DDV33, DDV38, FNP1.1
Precision Drawing with Tools	DDV14, DDV15, DDV16, DDV17, DDV18
Freehand Precision Drawing	DDV2, DDV3, DDV4, DDV5, DDV6, DDV7, DDV8, DDV14, DDV17, DDV18, DDV19, DDV20, DDV21, DDV26, DDV38, FNP1.1
2. Systems	Assignments
Perspective	DDV5, DDV8, DDV14, DDV10, DDV26
Orthographic	DDV18
Isometric	DDV19, DDV20, DDV21, FNP1.1
3. Source of Drawing	Assignments
Drawing from Observation	DDV2, DDV3, DDV4, DDV6, DDV7, DDV9, DDV10, DDV11, DDV12, DDV13, DDV14, DDV15, DDV16, DDV17, DDV21, DDV22, DDV26, DDV28, DDV30, DDV32, DDV33, DDV38, FNP1.1, FNP1.2
Drawing from Memory	DDV15, DDV22, DDV32, DDV33, DDV38

Visualisation Drawing	DDV2, DDV3, DDV5, DDV6, DDV8, DDV15, DDV17, DDV18, DDV19, DDV20, DDV21, DDV22, DDV24, DDV25, DDV29, DDV30, DDV31, DDV32, DDV33, FNP1.1, FNP1.2
Abstract Drawing	DDV1, DDV24, DDV25
4. Drawing out Thoughts	Assignments
Mind Mapping	DDV23, DDV24, DDV25, DDV27, DDV33, DDV34, DDV35
Journal	All
Integrated Final Group Project	DDV36, DDV37, FNP1.1

KEY

DDV: Design Drawing and Visualisation

VDC: Visual Design and Communication

DPP: Design Processes and Perspectives

FNP: Final Project

Annexure 9

ASSIGNMENTS DESCRIPTION OF DESIGN DRAWING AND VISUALISATION (DDV) COURSE & THE SELF AS DESCRIBED BY STUDENTS PARTICIPANTS

Student Participants (2): Meeha & Riya

Assignment	Title	Description	Self as Described by Student Participants
DDV1	Sketching simple scribbles: Drawing analogues from thoughts	i. Use only abstract markings with no recognisable or symbolic forms/drawings. ii. Think of the word (love, anger, joy, illness, masculinity, femininity, depression, peaceful) and the last time you experienced the emotion or what the word means to you and try to relive the moment with your eyes shut. iii. Open your eyes and allow the hand to draw what it wishes without giving it conscious instructions. iv. Your drawings will be analogues of your thoughts on each concept and in a sense the drawings will give your thoughts a visual form.	We became more understanding of emotions, right from the basic to more complex ones. We explored the different relations with certain words and moods. We began to understand the emotional context behind art. We are now able to read between the lines when looking at a visual and understand more of what the creator has to say. We realised that we all have different interpretations of the same symbols. So, every interaction between an artwork and a viewer is completely unique—what the artist is saying and what the viewer is understanding from it. We developed an understanding of our subconscious mind. We have a logical explanation of why certain strange things happen, thanks to our subconscious.
DDV2	Drawing freehand controlled lines	i. Vertical parallel lines at 0.25-inch intervals. ii. Horizontal parallel lines at 0.25-inch intervals. iii. Diagonal parallel lines at 0.25-inch intervals. iv. Radiating lines at 0.25-inch intervals at the outer edge and intersecting in the centre of the page. v. Circular lines of various diameters. vi. Circular lines of fixed diameters. Optional: vii. Organic free flowing contour lines.	We developed much better hand-eye coordination. We became more comfortable with pencils as a tool. Growing up we've always been using HB pencils and all the pencils felt more-or-less the same. After using a wide range of pencils when I came back to using an HB, I could actually feel the difference in grade and hardness and the subsequent ease of flowing of the pencil. We realised the wide range of possibilities that a simple too like the pencil can give us. We became more patient and realised the importance of practice/iterating over the same thing.

			We often tend to be impatient and want immediate results of our action but what we need to learn is that our small efforts count up to make a bigger change. Drawing the same lines over and over through multiple pages took time and patience but there was visible change in the line quality.
DDV3	Drawing freehand controlled lines: Exploring different pencil grades	i. Square clusters of vertical and horizontal lines—where each set of lines in one square space is of one grade. Grade of lines can differ from square to square. For each square, use only one pencil grade. ii. Square groups of vertical and horizontal lines—where each set of lines in one square space is in gradation. For each square, use only one pencil grade. Optional: iii. Line interpretation of any chosen composition/photograph/visual. Free to use any grade of lines and pencils.	We became more patient and realised the importance of practice/iterating over the same thing. Maintaining the same grade took some amount of practice as we needed control over the amount of pressure we were applying while simultaneously controlling the length and straightness of the lines. We realized the potential of black and white representation. We usually believe that colour is a really important part of any composition, but we realised that we could communicate so much using only black and white. In fact, we could even communicate colour using black and white. Thus, we developed the power to rely on a sole pencil for anything. We are able to communicate the reflective/refractive properties, the opacity all by showing the play of light, the shadows, the shade using the right grade and pressure in our strokes.
DDV4	Sketching simple 3D cubes	i. Draw multiple random views of a cube approximately 2x2x2 inches by looking or viewing the cube constructed from different angles. ii. Draw four views of a cube approximately 4x4x4 inches by looking or viewing the cube constructed from different angles.	We realised the importance of details. We became more meticulous with our work. We realised that even a slight difference in the angle made the whole proportions to go off. I feel that when you get a habit to do things more meticulously, it creates a sense of sincerity in you where you try to put in the best of your ability since there's always that one small detail that you can make better. We realised that while drawing from observation, our brain often refuses to draw exactly what we see. We tend to draw what we think the object should look like on paper. During this exercise, we developed trust in our observation skills. We sometimes need to simply draw what we see, without analysing it too much. This is similar to the concept of “drawing from the right side of the brain” (Betty Edwards).

DDV5	Drawing simple cubes in 1, 2, 3-point perspective	i. Draw multiple views of a cube in one-point perspective. ii. Draw multiple views of a cube in two-point perspective. Optional: iii. Draw multiple views of a cube in three-point perspective.	We have become more observant and tend to notice and understand the concept behind things we see every day. We understand bird's eye view, worm's eye view, etc.
DDV6	Sketching ellipses	i. Draw random horizontal ellipses of any size. ii. Draw ellipses in progression, beginning from one whose major axis and minor axis are equal to one whose minor axis is minimum. Keep the major axis constant and the grade of lines constant.	We became more patient and realised the importance of practice/iterating over the same thing.
DDV7	Sketching simple cylinders-1	i. Draw in progression different views of a cylinder beginning with the top view, progressing to the front view and finally the bottom view.	This exercise helped us develop a good sense of proportions in perspective. These exercises work in both ways, you also get a fair sense of distance of the object from the viewer on seeing an object drawn in perspective.
DDV8	Sketching simple cylinders-2	i. Draw ellipses within a square in one-point perspective. ii. Draw multiple views of a cuboid in one-point perspective iii. Draw multiple views of a cylinder in one-point perspective	We were already comfortable drawing straight lines, cubes, etc., in perspective. During this exercise, we grew comfortable drawing curves too, now we feel comfortable drawing any complex shape/form in perspective.
DDV9	Drawing objects-1	i. Sit in groups of 9 around a large common object and draw different views of the same product. Critique each other's representations.	We developed curiosity. We started looking at how different materials are made and used. We became more aware of production processes. We started looking at everything as a result of so many steps. We became observant. We started noticing perspective in everything around us. We started analysing the structure of objects.
DDV10	Drawing objects-2	i. Draw a range of 10 different objects. Select objects of varied material. Opaque-Translucent-Transparent; Glossy-Matt; Fragile-Sturdy; Soft-Hard; Rough-Smooth Surfaces; etc. Also select objects of various mechanism-mechanical, electrical, electronic, artefacts, etc.	We developed curiosity. We started looking at how different materials are made and used. We became more aware of production processes. We started looking at everything as a result of so many steps. For example, we would earlier use a mug, taking it for granted. Now we have learnt to appreciate the product that is in front of us. We think of the people, places and materials involved in the production process. We have become more critical too. We now look at products and try to figure out flaws.

DDV11	Drawing Light and Shade-1	i. Place a Drinking Water Bottle or Flask, fix a light source from any one side and sit in groups of 5 around to draw different views of the same product. Critique each other's representations. ii. Select four different products or objects of different materials and draw each of them under two different light conditions.	We developed an understanding of lighting. We started differentiating between different types of light, in terms of angle and source. We started appreciating the power of lighting. We realized the potential of black-and-white representation. We usually believe that colour is a really important part of any composition, but we realised that we could communicate so much using only black and white. In fact, we could even communicate colour using black and white. Thus, we developed the power to rely on a sole pencil for anything.
DDV12	Drawing Light and Shade-2	i. Draw a range of 10 different objects that can be hand-held. Include the hand in the drawing. ii. Draw different views of your foot. iii. Draw two different pairs of shoes.	We developed a critical eye. We started looking at ratios, proportions, angles, shapes, etc., in objects around us. We developed a sense of aesthetic.
DDV13	Drawing Human Forms	i. Draw contour line drawing of human forms using the Polycarbonate Drawing Assist. Draw on OHP transparent sheets using a permanent marker. If the drawing is small in size, use a micro-tip pen. If it is big, use a macro-tip.	
DDV14	Drawing Perspectives: Indoor and Outdoor	i. Draw a one-point perspective outdoor view of a building. ii. Draw a two-point perspective outdoor view of one or more than buildings. iii. Draw a one-point perspective of a room interior. iv. Draw a two-point perspective of a room interior.	We became observant. We started noticing perspective in everything around us. I feel that this exercise made us a lot more observant. I feel that perspective is something that we have had around us all our life but this exercise made us consciously notice perspective.
DDV15	Geometrical Construction of Regular Polygons	Construction of Regular Polygons of given side of 3", exploring as many methods of construction as possible i. Equilateral triangles ii. Squares iii. Pentagons iv. Hexagons v. Heptagon vi. Octagon vii. Decagon viii. Dodecagon vii. Triangle + Square + Pentagon + Hexagon + Heptagon + Octagon + Decagon + Dodecagon: All in one on a common base	We realised the importance of details. We became more meticulous with our work.
DDV16	Geometrical	i. Construct a Golden Rectangle	

	Construction of Golden Rectangle & Golden Ratio	ii. Construct a Golden Spiral (Explore different methods of construction)	
DDV17	Inter-relationship of shapes in tessellations	i. Regular tessellations ii. Semi-Regular tessellations iii. Irregular tessellations with no gaps Optional: iv. Irregular tessellations with transforming forms	We realised the importance of details. We became more meticulous with our work. It took us various attempts and a lot of precision to maintain the angles. Taking any shortcut like extending the line blindly to complete the work in lesser time meant going off by a degree or two. But every small error of even a degree kept getting magnified and made the overall tessellation off by many degrees as we reached the end. We started looking at patterns in tilings because the most common physical manifestation of tessellations. I remember spending a lot of time trying to figure out the pattern in the tilings at the Nehru Place metro station.
DDV18	Orthographic Projections	i. Draw an Isometric view of a cube with portions of it extracted and then draw the different orthographic views of the derived object. ii. Draw an Isometric view of a cube with portions added on and then draw the different orthographic views of the derived object.	
DDV19	Isometric Simple Drawings	i. Multiple Horizontal or Vertical Linear Square or Rectangular Strips ii. Single Square Moving Strip iii. Single Rectangular Moving Strip iv. Single Square or Rectangular Moving Strip with One Curved Edge v. 3 Single Square or Rectangular Moving Strip on 3 Planes	We realised the importance of a universal system of drawing. We started looking at different systems of representation as we look at different languages and started learning them. We developed a strong sense of 3D. We started thinking in 3D. We developed an ability to visualise depths.
DDV20	Isometric Complex Drawings	i. Single Square Complex Moving Strip within a Cube ii. Multiple Square Complex Moving Strips iii. Multiple Planes with Cut-Outs, within a Cube iv. Multiple Intersecting Planes Optional v. Combination of Cube-like Forms, Moving Strips and Planes	We developed a strong sense of 3D. We started thinking in 3D. We developed an ability to visual depths.
DDV21	Isometric Object Drawings	i. Draw an Isometric view of two bottles. ii. Draw an Isometric view of any complex object in your house on a single sheet.	We developed a strong sense of 3D. We started thinking in 3D. We developed an ability to visual depths. We developed precision. We understood the importance of correct representation.

			We developed the ability to communicate in the industry- in product design, manufacturing, factories etc. We developed the ability to understand and read technical drawings of objects.
DDV22	Drawing from Observation, Memory and Future Projections	i. Draw a portrait of your current Self by looking into a mirror. ii. Draw from memory a portrait of your childhood Self at the age of around five. iii. Draw a portrait of your projected Self in the future at the age of around 75.	We differentiated between drawing as just art and drawing as a tool for communication. Usually we see art as something supposed to be pleasing to the eye but we learnt how to use it to effectively to communicate information about a situation and if you learn to read between the lines, there's a lot that can be inferred from what is said and what is chosen to be left as unsaid. We differentiated between reflecting from memory to speculating the future. Usually we are comfortable in representing what we see as observation but now we also learnt to visualise things that are yet to take place in the future.
DDV23	Drawing out Attributes	Make a photocopy of the portrait of your current Self and place it on a half Imperial Sheet and map out attributes of yourself. Divide the path in three ways: a) Introspection–Journey into the Self in search of attributes. These could be based on personalities, characteristics, attitudes, aptitudes, strengths, weaknesses, passions, dislikes, etc. (30-50 Keywords). b) Extrospection–Journey out of the Self to interact with the world around from the immediate family and gradually moving outwards to extended family, community, society, environment, nation, the planet and ultimately the universe (30-50 Keywords). c) Aspiration–Dreams, fantasies, caprices, hopes, whims that are independent of the realities of life (30-50 Keywords).	We developed a better understanding and knowledge of Self. We examined our strengths and our weaknesses alike. We developed individualistic styles of drawing and writing. We built our own quick ways and tricks of certain tasks. We developed unique styles of work that somewhat reflected our personalities. All of us used different methods to represent the attributes we had come up with. We developed a curious, inquisitive mind. We started asking questions. We started looking at the who, what, why, when, where and how of everything and every situation. Whenever we thought of an attribute, we asked these questions to further expand upon what we meant by this. We began to make connections between our Self and the Others in our lives in the process of extrospection.
DDV24	Abstract Drawing	Select 6 keywords that best represents your unique personalities and visually represent them as masks. Use any material but within the constraints of black-and-white only with no colour. Place 2 masks	We became more confident in using drawing to communicate ourselves. We differentiated between drawing as just art and drawing as a tool for communication.

		on each half Imperial sheet.	We developed individualistic styles of drawing and writing. Deep understanding of the Self to develop an individual style. We built our own quick ways and tricks of certain tasks. We developed unique styles of work that somewhat reflected our personalities. Ability to personalise a generic mood or trait. For example, for a word like <i>moody</i>, we all had similar drawings but each had some unique character that brought out the individual's personality.
DDV25	Drawing Narratives	Draw a comprehensive visual representation of yourself, using a collage of your attributes that you amalgamate from ASG23.	We became more confident in using drawing to communicate ourselves. We learnt minimalism. We learnt to put across more details using the least amount of work. For example, we convey the light source by using different grades while drawing the form and using lines to convey the reflecting light instead of shading the entire thing. We differentiated between drawing as just art and drawing as a tool for communication. We developed individualistic styles of drawing and writing. We built our own quick ways and tricks of certain tasks. We developed unique styles of work that somewhat reflected our personalities.
DDV26	Drawing the Built Environment from Observation	Draw an object (Paper Cup) as accurately as possible from observation by applying principles of shape, proportions, ratios, etc. and analysing their relationships.	We became observant. We started noticing perspective in everything around us. We noticed the different forms a circle takes when looked at in perspective. We developed a critical eye. We started looking at ratios, proportions, angles, shapes, etc. in objects around us. We realised that we got an inherent sense of measurements and we could more easily approximate lengths and ratios.
DDV27	Drawing Out Attributes of The Built Environment	Draw the object (Paper Cup) or make a photocopy of the drawing and place it on a half Imperial sheet and map out attributes of the object under the following classifications: a) Tangible Attributes: Physical Descriptions (30-50 Keywords).	We developed individualistic styles of drawing and writing. We built our own quick ways and tricks of certain tasks. We developed unique styles of work that somewhat reflected our personalities. The exercise was representative of our thought process. When coming up with

		b) Tangible Attributes: Functional Descriptions (30-50 Keywords). c) Intangible Attributes: Emotional Connect–Cultural Context, Social Context, Environmental Context, Industrial Context, Technological Context, Economical Context, Political Context, etc. (30-50 Keywords).	intangible attributes, we tried to come up with different scenarios that could connect with a paper cup and we all tried to represent it using just words using our own styles and our own set of connects.
DDV28	Drawing Out the Human-Object (Built Environment) Interactions	i. Draw any human part interacting with the object (Paper Cup) on a half Imperial Sheet. ii. Attribute keywords or key phrases to the human-object interaction on the same sheet.	Deeper understanding of the intangible attributes that can be associated with an object, especially the ones around human interaction, in a social, emotional, cultural context. We pushed ourselves to come up with scenarios and put ourselves in other people's shoes so that we could understand the worth of an object as common yet essential as a paper cup. It could mean a mode of employment, for advertising, part of some old memories, etc.
DDV29	Drawing Out the Human-Object (Built Environment) Interactions	Visualise change of function of the object (Paper Cup) and draw, on a half Imperial Sheet, 5 other possible or alternative functions other than the obvious <i>and</i> specifically the ones discussed in the class. Map out 10 unique attributes for each of the functions that appear to add value to the object on the same sheet.	We became more critical. We started analysing products and bringing out what could be changed and why. We became more aware of production processes. We started looking at everything as a result of so many steps. We realised that whenever a product is made there are so many interactions that needed to be taken into consideration and there needs to be a perfect balance of the attributes of the product with its interactions for it to be an efficient product.
DDV30	Visualise Change in The Built Environment-1	i. Visualise change of material of the object (Paper Cup) and draw the object in 5 different materials on a half Imperial sheet. The drawings should clearly reflect the qualities of the material. ii. Map out 10 unique attributes for each of the different material on the same sheet.	We developed curiosity. We started looking at how different materials are made and used. We looked at different ways to represent different textures and reflective properties of the material. We used shading to depict the texture of wood, light and dark lines to show reflecting material, etc. We learnt minimalism. We learnt to put across more details using the least amount of work. We learnt how to show texture, reflective properties and opacity of material by using minimal strokes and when possible without shading.
DDV31	Visualise Change in The Built Environment-2	i. Visualise change of size of the object (Paper Cup) to be enlarged 50 times the size and draw 5 functions of the expanded object in that size on a half Imperial sheet. The	We became more critical. We started analysing products and bringing out what could be changed and why.

		drawing should reflect the scale by using an appropriate reference. ii. Visualise change of size of the object (Paper Cup) to be reduced to 1/10th the size and draw 5 functions of the miniature object in that size on a half Imperial sheet.	We became more aware of production processes. We started looking at everything as a result of so many steps.
DDV32	Visualise Change in The Built Environment-3	i. Draw the object in the same size and write the attributes. ii. Visualise change of function of the object and write the attributes. iii. Visualise change of material of the object and write the attributes. iv. Visualise change of size of the object and write the attributes.	We became more critical. We started analysing products and bringing out what could be changed and why. We became more aware of production processes. We started looking at everything as a result of so many steps.
DDV33	Drawing from observation to visualising contrasting scenarios + Attributes from observation to attributes for visualisation + Scoping a problem area		We developed a better understanding of social situations. We learnt how to read certain actions or body language or postures as relaxed as opposed to being tensed, etc. We even gained a little knowledge of human psychology. Thinking about how we behave or what our actions are when we are upset helped us visualise contrasting scenarios more easily.
DDV34	Sensitising the Self	i. Create an exhaustive Mind Map of your <i>Self</i> as an introspective process of analysis, where each keyword should be deeply expanded upon. Include aspects like strengths, weakness, passions, fears, anxieties, aspirations, desires, dreams, etc. Begin by centring your mind with an exercise of deep breathing for 5 minutes in an uninterrupted space of peace and quiet. ii. Create an exhaustive Mind Map of your <i>Self</i> as an extrospective process of analysis, where each keyword should be deeply expanded upon. Include thoughts on and interactions with social, cultural, political, economic, educational, technological, environmental and other issues.	We developed an analytical and open mind. We started looking at any situation from every possible perspective. We started deeply analysing every possible aspect of a situation. We developed a curious, inquisitive mind. We started asking questions. We started looking at the who, what, why, when, where and how of everything and every situation. We learnt minimalism. We learnt to put across more details using the least amount of work. We tried to compress our entire thought process into some fixed amount of words or phrases. We developed individualistic styles of drawing and writing. We built our own quick ways and tricks of certain tasks. We developed unique styles of work that somewhat reflected our personalities. We all chose to represent our information in different manners and for two different people, the same word could mean entirely two different things. We also realised that there were words that could come under both a negative or a positive

			attribute, but how we put it just depended upon how we looked at things.
DDV35	Empathising with The Other	Create an exhaustively deep Mind Map of the <i>Other</i> , the main person in the issue, (either the victim or the culprit) where each keyword should be deeply expanded upon. Base the mind map on some research on the victim/culprit. Read more articles on the issues; read papers on the issues, speak to people and imagine the <i>Other</i> .	We became more conscious and aware citizens. Our interest in current affairs increased. We realised before we could put ourselves into someone else's shoes, we needed a fair amount of research to being to understand how things could've been for the person in question. We became more aware of social problems and developed the desire to work towards solving them. A lot of times, while researching, we came across various instances where we felt there was injustice and we believe that knowing about a problem is the first step towards solving that problem. We developed an analytical and open mind. We started looking at any situation from every possible perspective. We started deeply analysing every possible aspect of a situation. We developed a curious, inquisitive mind. We started asking questions. We started looking at the who, what, why, when, where and how of everything and every situation. We developed individualistic styles of drawing and writing. We built our own quick ways and tricks of certain tasks. We developed unique styles of work that somewhat reflected our personalities. We all took the concept of victim/culprit in our manner and represented our work accordingly. We learnt minimalism. We learnt to put across more details using the least amount of work. We tried to compress our entire thought process into some fixed amount of words or phrases.
DDV36	Identifying and Making Sense of A Problem	Create an exhaustive Mind Map of your problem area through a process of analysis, where each keyword should be carefully chosen and validated by facts. This may require a fair amount of research.	We learnt minimalism. We learnt to put across more details using the least amount of work. We divided off the problem area into subproblems so that we could cover the issue from all the different views and angles.
DDV37	Identifying Potential Areas of Solutions	i. Iteration of preliminary analysis of the problem area to initiate a process to identify potential areas of solutions. ii. Based on the iteration of preliminary analysis of the problem area, visualise solutions as follows:	

		a) Identify solution scenarios b) Identify all elements within the scenarios	
DDV38	Observing and Drawing Nature – Micro to Macro Reflections	i. Draw single leaves of different shapes to fill up a single half Imperial sheet. ii. Select a few of the leaves and draw a branch of the selected leaves on a second sheet. iii. Select any three of the selected branches of leaves and draw the entire trees on a third sheet.	We realised that this activity pushed us to start looking around more. We've started observing trees and leaves and flowers whenever we're outside. We have a more observant eye now. We are able to look at and appreciate the different structures they have and how one tree differs from another in terms of how its branches extend, how the leaves cluster together, etc.
FNP1.1	Visualising Solutions in Future Scenario	i. Collate all the solution scenarios and elements. Convert these solutions into activities, services, experiences, interactions, communication, products, etc. ii. Imagine a hypothetical situation where a large space has been donated to execute these solutions. The space provided is the reception area and atrium area of the New Academic Block of IIIT-D. Draw an isometric view of this area and space. Integrate the solutions into the given area and space in the given reception area and the atrium area of the New Academic Block. Draw the activities, services, experiences, interactions, communication, products, stakeholders, etc. in the area and space in any scale--same size or enlarged to any size. Finally, imagine all of this in the future – 20 years from now. Visualising futuristic projections stimulates the imagination to push its limits.	
FNP1.2	Visualising Solutions for Mobile Application	i. Collate all the solution scenarios and elements. Think of a name for a Mobile App. ii. Convert these ideas for solutions into screens of the Mobile App.	

Annexure 10

REFLECTION OF THE ABILITIES SUGGESTED (ABS) IN DDV ASSIGNMENTS FROM STUDENT LEARNINGS: INSIGHTS FROM STUDENT PARTICIPANTS

ABS #	Abilities Suggested by Design Educators	Assignments that Addressed Suggested Abilities	Insights from Students
ABS1	Adapt to different learning systems	DDV1, DDV2, DDV3	Freeing out your hand and introduction to drawing as a method of communication.
		DDV4, DDV5, DDV6, DDV7, DDV8	Building the basic skills to draw complex visuals, which can eventually portray complex thoughts—new system of communication.
		DDV9, DDV10, DDV11, DDV12, DDV13, DDV14	Communication with the objects and environment, including even the slightest detail using visuals.
		DDV15, DDV16, DDV17	Developing a habit to be meticulous and precise, down to every single detail, knowing the importance of precision in design.
		DDV18, DDV19, DDV20, DDV21	Adapting to different methods of technical drawing, ability to communicate with product designers, architects, etc.
		DDV27, DDV28, DDV29, DDV30, DDV31	Unconventional thinking, adapting to a style of working very different from traditional schools, ability to imagine, visualise, adapting to creative learning and thinking.
		DDV34, DDV35	Getting familiar to a new way of taking down your thoughts and forming connects—mind maps; adapting to thinking exhaustively and unconventionally.
		DDV36, DDV37, FNP1.1, FNP1.2	Using research for learning, carrying out exhaustive analysis of any situation, working in a methodical manner to address every aspect.
ABS2	Be curious and questioning; think critically	DDV1	Exploring emotions, questioning the emotional context behind any visual/art, reading between the lines.
		DDV3	Started to explore tools, as for some of the students had been exposed to drawing pencils for the first time.
		DDV9, DDV10, DDV11, DDV12, DDV27, DDV28, DDV29, DDV30, DDV31, DDV32	Started to explore objects and ergonomics, including tangible and intangible attributes, started questioning the reason behind everything.

		DDV14	Started observing perspective in real life.
		DDV16, DDV17	Started observing the golden ratio and tessellations in the environment.
		DDV23, DDV34	Explored the Self exhaustively.
		DDV35	Explored the Other exhaustively.
		DDV36, DDV37	Explored a problem deeply, started answering the 5 W's+H of any situation, developed curiosity to do so for any other around.
ABS3	Develop a risk-taking approach	DDV17, DDV18, DDV19, DDV20, DDV21	Students were provided with a system encouraged to follow their imagination and come up with their own expressions and understanding of the assignments.
		DDV31, DDV32	Following the imagination to come up with unconventional products of your own.
		DDV36, DDV37, FNP1.1, FNP1.2	Exploring out-of-the-box solutions for the problem, visualising futuristic products and services, thinking beyond the <i>practical</i> and <i>possible</i> .
ABS4	Be humble	DDV9, DDV10, DDV11, DDV12, DDV27, DDV28, DDV29, DDV30, DDV31	Understanding the social, emotional and cultural connects of an object and realising there's an opportunity to learn, since there's so much that the students can expand their knowledge, upon appreciating the effort and thinking behind every easily available product.
		DDV22	Realistic representation of the physical Self, ability to tear away from any idealised picture of the Self, realistic projection of the future Self.
		DDV23, DDV34	Realistic representation of the physical and non-physical Self, identification and acceptance of flaws, realisation of future aspirations, i.e., long way to go...
		DDV35	Appreciation and understanding the perspective of the Other, empathising with the Other, coming out your own <i>bubble</i> , respecting and gaining inspiration from the lives of the Other.
ABS5	Have an ethical understanding of the responsibility to the Other	DDV23, DDV34	Exploring relationship with others, deep extrospection, realisation of moral responsibility to help others, identification of desired areas to work in groups to help, realisation of which issues you strongly feel for...
		DDV9, DDV10, DDV11, DDV12, DDV27, DDV28, DDV29, DDV30, DDV31	Understanding the process behind a product, and how it's manufacturing and subsequent marketing has a social impact, understanding the environmental impact.
		DDV35	Appreciation and understanding the perspective of the Other, empathising with the Other, coming out your own <i>bubble</i> , realising the problems of the Other and exploring the most efficient ways to solve them.

		DDV36, DDV37, FNP1.1, FNP1.2	Understanding social issues, and how it affects both individuals and societies as a whole, empathy towards the victim, motivation to help them in an efficient yet benign way.
ABS6	Find balance between commercial activities and real needs	DDV9, DDV10, DDV11, DDV12, DDV27, DDV28, DDV29, DDV30, DDV31	Analysing the emotional and social context of any object, realising the impacts on the user, searching for ways to add value to that object in a sustainable way, distinguishing between value-adding features and those that are simply there for adding superficial value.
		DDV36, DDV37, FNP1.1, FNP1.2	Deeply analysing a problem area and working on the solutions to come up with commercial services that aid solving an issue; making a conscious effort to not commercialise the problem, keep the aim of helping the victims intact, considering monetary gains but keeping the victim's interests first.
ABS7	Be able to self-critique dispassionately	All	Learning to critique your own work and figuring out the flaws; redoing work to improve upon your shortcomings; taking constructive feedback.
		DDV22	Realistic representation of the physical Self, ability to tear away from any idealised picture of the Self, realistic projection of the future Self...
		DDV23, DDV34	Realistic representation of the physical and non-physical Self, identification and acceptance of weaknesses, finding areas of improvement.
ABS8	Develop an intuitive attitude	DDV1, AS24, AS25	Reading between the lines, intuitive sense of the hidden and apparent meaning/emotion behind any visual piece, developing an instinctive way to judge or represent a quality (feminine, sad, happy, etc.)
		DDV2, DDV16, DDV17	Getting an inherent sense of spacing and measurements.
		DDV3, DDV11	Getting comfortable with using a pencil; getting an intuitive sense of the pressure required to come up with certain grades
		DDV14	Observing perspective in everyday life; instinctively look for vanishing points, lies in the viewing plane, horizon level, etc in both photos and real life
		DDV15, DDV16, DDV17	Learning the importance of precision in design, and how even a small detail matters. Developing an intuitive idea of precision.
		DDV18, DDV19, DDV20, DDV21	Instinctual sense of planes, space, depth and structure
		DDV33	Reading emotions and scenarios; intuitive understanding of situations around us; read body language, expressions, etc.
		AS35, group	Intuitive understanding of the perspective of the Other.

ABS9	Develop a passion for the profession	All	Understanding the difference between art and design, appreciating the various aspects of design and the increasing need and role of designers in the society.
		DDV18, DDV19, DDV20, DDV21	Introduction to professional drawing
		DDV27, DDV28, DDV29, DDV30, DDV31	Exploring the various aspects of product design tangible and intangible attributes, developing an interest in innovation...
		DDV36, DDV37, FNP1.1, FNP1.2	Solving real-life problems; coming up with a responsibly well-thought out and efficient product that could make an actual difference to the consumers' lives. Distinguishing between the importance of utility versus other superficial components.
ABS10	Work in difficult scenarios	DDV36, DDV37, FNP1.1, FNP1.2	Deeply analysing a social issue and working on the solutions to come up with solutions that are practical yet sensitive.
ABS11	Develop empathy and emotional connect to other in design	DDV23	Exploring relationship with others, and how their interactions affect others.
ABS12	Deal with a variety of perceptions	AS1, AS24, AS25	Exploring different associations of moods, emotions, etc., with different symbols.
		DDV36, DDV37, FNP1.1, FNP1.2	Working in a group having varying opinions, learning to contribute constructively, disagreeing respectfully, coming up with an all-encompassing solution.
ABS13	Draw on information from other disciplines	DDV15, DDV16, DDV17	Learning to draw precisely, learning the importance of discipline; perfecting angles and measurements. Paying attention to minute details.
		DDV33, DDV34, DDV35	Reading expressions, actions and body language. Developing a deeper connect to the Self so as to empathise better with the Other. Understanding the emotions of the Other and the reasons and contexts behind them.
		DDV36, DDV37, FNP1.1, FNP1.2	Connecting issues with human psychology and social behaviour.
ABS14	Work with a team of experts in different fields	DDV36, DDV37, FNP1.1, FNP1.2	Working in a group having varying opinions, learning to contribute constructively, contributing to the project in a complementary manner, disagreeing respectfully, coming up with an all-encompassing solution.
ABS15	Take on a bottom-up approach		
ABS16	Work at grass-root level		
ABS17	Adopt an indigenous approach		

ABS18	Ability to identify and address wicked problems/difficult situations/complex concerns and add value to society	DDV33	Understanding scenarios from someone else's perspective. Identifying the underlying emotions and connect it with similar scenarios. Addressing the social issue forming the root of all these issues and situations.
		DDV35	Evaluating the Other by imagining being the Other, thorough research and understanding of a scenario, and looking at the situation through their eyes.
		DDV36, DDV37, FNP1.1, FNP1.2	

Annexure 11

PILOT COURSE 2: VISUAL DESIGN AND COMMUNICATION (VDC) – COURSE DESCRIPTION

Course	VISUAL DESIGN & COMMUNICATION
Credits	4 (39 hrs Lecture/Demo/Discussion + 39 hrs Practice + 39 hrs Non-Contact)
Course Offered to	UG
Course Description	VISUAL DESIGN Based on the premise that Visual Design is a discipline of design that applies the principles of visual language for better analysis and understanding of design problem and solution, this course focuses on the elements and principles of the visual language and their semantic use. A multi-disciplinary domain, design consists of aesthetics, architecture, products, communication, processes, systems, technology, business/commerce, ramification on environment and society, and demands clear understanding of design fundamentals. Apart from a thorough knowledge of core concepts, design also requires the representation of concepts visually to make effective or functional communication and iteration of ideas. For creative skills and aesthetic sense, one must clearly understand the use of basic design elements and their applications for a particular design solution. For a designer to communicate more concisely and in a visually appropriate manner, it is necessary to use commonly understood principles, perspective and design layout standards. Together, these conventions constitute a visual language, and help to ensure that the drawing is clear and relatively easy to understand. VISUAL COMMUNICATION The concept and science of Visual Communication is introduced as the relationship between human information processing, with emphasis on processing of visual information and design of messages. It includes visual perception, Gestalt laws of organization, semantics, working memory (STM & LTM) and their implications. The course also introduces students to the fundamentals of Typography and Photography. The Typography course introduces students to the fundamentals of Typography and its application in effective product interface/communication. And the Photography course introduces the students to photography as a medium of visual language and applies it to visual design. In today's world that is crowded with visual stimulus, it is important to cut through the noise and be able to decipher, capture and create visual images that communicate.
Course Objectives (CO)	CO1. Students will develop the ability to create visual compositions using basic elements and by applying appropriate principles of visual composition to communicate ideas. CO2. Students will develop the ability to perceive, visualize, and communicate visual elements as visual narratives. CO3. Students will develop the ability to apply the dynamics of visual design in Typography and Photography. CO4. Students will develop the ability to address simple communication problems through a visualization process and construct mental imageries. CO5. Students will demonstrate the ability to plan, develop, design and execute communication products.
Weekly Lecture Plan	

Week Number	Lecture Topic	COs Met	Assignment/Practice
1.	CLASS 1. INTRODUCTION TO VISUAL DESIGN i. The importance of understanding visual language and its relation in context to nature and environment.	CO1	1. IDENTIFYING AND RECORDING VISUAL ELEMENTS IN THE IMMEDIATE SURROUNDINGS (NATURAL AND MANMADE) i. Identifying elements of visual language in the environment and recording elements such as Dots, Lines, Shapes/Forms, Textures, Patterns, etc., as photographs to understand their relationships in context to the nature and environment.
	CLASS 2. ELEMENTS OF VISUAL LANGUAGE i. Exploring and understanding Dots, Lines, Forms, Space, Pattern, Texture and Colour as elements of visual language.		2. IDENTIFYING AND RECORDING FUNCTIONS THAT ELEMENTS OF DESIGN PERFORM i. Exploring different functions and expressing emotions using dots as an element of design. ii. Exploring different functions and expressing emotions using lines as an element of design. iii. Exploring different functions and expressing emotions using shapes/forms as an element of design. iv. Exploring different functions and expressing emotions using patterns as an element of design. v. Exploring different functions and expressing emotions using textures as an element of design. vi. Exploring different functions and expressing emotions using colour as an element of design.
2	CLASS 3. INTRODUCTION TO THE PRINCIPLES OF VISUAL LANGUAGE: FORM AND SPACE i. Introduction to different kinds of forms. ii. Introduction to different kinds of forms and its relationship to space.	C01	3. IDENTIFYING DIFFERENT KINDS OF FORMS, FORM GENERATION, FORM TRANSFORMATION AND GESTALTS THEORY i. Drawing different types of recognisable forms: Natural Forms, Manmade Forms, Geometric Forms, Letter Forms, Symbolic Forms, etc. ii. Drawing unrecognisable forms: Abstract Forms. iii. Researching the principles of the Gestalt's Theory and understanding the Figure/Ground relationship by drawing examples. iv. Generating forms from a grid and attributing character to the forms. v. Generating forms to attributes.

			vi. Transforming one geometric form to another geometric form by morphing. vii. Transforming recognisable natural form to another recognisable form.
	CLASS 4. FORM AND SPACE: CONT. i. Visual explorations and experiments with Form, Colour, Space, and Texture in relation to the context and environment: Concepts of Harmony, Balance, Imbalance, Contrast, Proportion, Order, Chaos, Symmetry, Asymmetry, Rhythm, Tension, Juxtaposition, Proximity, Size, Scale, Proportion, Orientation, Alignment, Variety, Gradation, Dominance, Subordination, Transition, etc.		4. APPLYING THE PRINCIPLES OF THE VISUAL LANGUAGE USING VARIOUS ELEMENTS AND UNDERSTANDING THE VISUAL RELATIONSHIPS i. Movement with Dots ii. Rhythm with Lines iii. Balance with Letter Forms iv. Emphasis with Natural Forms v. Proportion with Letter Forms vi. Order with Pattern vii. Symmetry & Asymmetry with Geometric Forms viii. Contrast with Abstract Forms ix. Harmony with Colours, etc.
3	CLASS 5. INTRODUCTION TO FUNDAMENTALS OF TYPOGRAPHY i. Introduction to Typography, its history and printing techniques.	CO1, CO2	5. UNDERSTANDING THE FUNDAMENTALS OF TYPOGRAPHY i. Researching type and its history. ii. Researching printing techniques. iii. Researching Indian type: Vernacular letter-forms.
	CLASS 6. INTRODUCTION TO TYPOGRAPHY AS A MEANS OF COMMUNICATION i. Introduction to Typography as a means of communication and typographical explorations to understand the technicalities, nuances and aesthetics of types.		6. UNDERSTANDING TYPOGRAPHY AS A MEANS OF COMMUNICATION i. Applying Type as a form and means of communication in the environment. ii. Researching classification of types: Typefaces, type families and type designers. iii. Researching on the anatomy of type: x-height, ascenders, descenders, counter, cap-height, baseline, etc. iv. Researching on typographic variables: Kerning, tracking, leading, spacing, etc. v. Researching on semantics of type: Legibility & readability issues in type and the meaning attributed to type. vi. Applying Expressive Typography. vii. Applying Illustrative Typography.
4	CLASS 7 & 8. TYPOGRAPHY CONTD. Study of visual principles of text and image composition: Layouts, Grids, Content Development and Information Hierarchy.	CO1, CO2, CO3	7 & 8. APPLYING THE FUNDAMENTALS AND USING TYPOGRAPHY AS A MEANS OF COMMUNICATION Typography for print and digital media: i. Poster Design ii. Brochure Design

	Application of Typography, image and layouts in the design of signage systems, identity systems, and social communication.		iii. Infographics Design iv. Website Design v. Application Design vi. Wayfinding
5	CLASS 9 & 10. INTRODUCTION TO PHOTOGRAPHY Study of Photography as a medium to document, communicate and create photographic imagery.	CO1, CO2, CO3	9 & 10. UNDERSTANDING THE SCIENCE OF PHOTOGRAPHY AND THE CAMERA i. Introduction to the art and science of photography. Drawing out parallels/differences between the EYE and the CAMERA. ii. Understanding the various controls on a Digital SLR Camera, its features and details. Shooting Modes. Aperture and Depth of Field. Shutter Speed. Critical Shutter Speeds and Effects. iii. Understanding Exposure as function of quantity of light and time. Getting used to shooting in the Manual Mode and learning to measure light using the camera's built-in exposure meter. iv. Understanding the role of sensitivity in Exposure. ISO/ASA and Digital Noise. v. Understanding different types of lenses. Classification of lenses by Focal Lengths. Angle of View. Fixed Focal Length and Zoom Lenses. Close up and Macro Lenses. vi. Understanding the nature and directions of light, their applications. Introduction to Colour Temperature and White Balance. Images capturing light and shade. vii. Images exploring Aperture, Shutter Speed and Focal Length. viii. Understanding elements of composition and their relationship to the frame. Exploring composition through exercises built around the elements but coupled with an understanding/application of light/camera controls. ix. Understanding of File Formats. RAW vs. JPG. Understanding resolution, resizing and basic image post-processing using Photoshop. Exploring the software to visualize and create digital mosaics.
6	CLASS 11 & 12. PHOTOGRAPHY CONTD. Exploring photo story as a narrative medium.	CO1, CO2, CO3	11 & 12. APPLYING THE FUNDAMENTALS OF PHOTOGRAPHY TO NARRATIVES i. Identifying Theme/Subject/Topic/Story/Point of

			View and Research. ii. Planning the Shots. iii. Selecting final shots and photo editing. iv. Layout for a double-spread magazine.
7	CLASS 13 & 14. INTRODUCTION TO VIDEOGRAPY Study of videography as a medium to document, communicate, and create a short ½-minute video.	CO1, CO2, CO3	13 & 14. UNDERSTANDING VIDEOGRAPHY AS ANOTHER MEDIUM FOR COMMUNICATION i. Introduction to Videography and its role in documentation and communication. ii. Concept development. iii. Storyboarding. iv. Video Shooting: Framing, Camera movement, etc. v. Video Editing. vi. Audio and Text.
8	CLASS 15. COMMUNICATION THEORIES, SEMIOTICS, AND VISUAL PERCEPTION Understand the process of communication and theories that make a difference to the development of a visual language. CLASS 16. INFOGRAPHICS Understand graphic visual representations of information, data or knowledge intended to present information quickly and clearly. Improve cognition by utilizing graphics to enhance the human visual system's ability to see patterns and trends.	CO1, CO2, CO3, CO4	15 & 16. UNDERSTANDING PROCESSES OF COMMUNICATION AND THEORIES i. Defining communication. ii. Sender, Channel and Receiver. iii. Semiotics: Study of sign process (semiosis), meaning-making and meaningful communication. iv. Sign, Signifier, Signified. v. Denotation and Connotation. vi. Communicating through visual messages. vii. Introduction to Gestalt laws of perception. viii. Understanding figure and ground phenomenon. 16. UNDERSTANDING i. Types of Infographics ii. Graphic representation of data
9	CLASS 17 & 18. STORY TELLING, NARRATIVES, AND THEIR ROLE IN DESIGN Understand storytelling and narratives as effective methods to scope problems and problem-solving processes.	CO1, CO2, CO3, CO4	17 & 18. UNDERSTANDING STORYTELLING AND NARRATIVES TO SCOPE PROBLEMS i. Story, narrative and see different perspectives. ii. Identifying problems, opportunities and improvements. iii Differentiating problem, need and conflict. iv. Persona study. v. Scenario study.

10	CLASS 19 & 20. FINAL PROJECT An application of all of the above learnings and abilities.	CO1, CO2, CO3, CO4, CO5	CLASS 19 & 20. APPLYING THE LEARNINGS AND ABILITIES TO SOLVE A PROBLEM i. Introduction and scoping of the project.
11	CLASS 21 & 22. FINAL PROJECT CONT.	CO1, CO2, CO3, CO4, CO5	CLASS 21 & 22. APPLYING THE LEARNINGS AND ABILITIES TO SOLVE A PROBLEM i. Research and design of the project.
12	CLASS 23 & 24. FINAL PROJECT CONT.	CO1, CO2, CO3, CO4, CO5	CLASS 23 & 24. APPLYING THE LEARNINGS AND ABILITIES TO SOLVE A PROBLEM i. Execution of the project.
13	CLASS 25 & 26. FINAL PROJECT CONT.	CO1, CO2, CO3, CO4, CO5	CLASS 25 & 26. APPLYING THE LEARNINGS AND ABILITIES TO SOLVE A PROBLEM i. Validation/usability testing. ii. Documentation and presentation of the project.
	END-TERM EXAM & JURY		
Assessment Plan			
	Type of Evaluation	% Contribution in Grade	
1.	Continuous Assessment of Assignments	40% (20% before mid-semester & 20% before end-semester)	
2.	Mid-Semester Exam	10%	
3.	Maintenance of a Sketchbook & Journal	10%	
4.	Attendance	10%	
5.	End-Term Project	20%	
6.	End-Term Exam and Jury	10%	
Resource Material			
Type	Title		
Text Book	1. Charles Wallschlaeger, & Cynthia Basic-Synder, Basic Visual Concepts and Principles for Artists, Architects and Designers , McGraw-Hill, 1992.		
Other Resources	1. Buxton, Bill, Sketching User Experience: Getting the Design Right and the Right Design (Interactive Technologies) , Morgan Kaufmann, 2007.		
	2. Steve Caplin, & Adam Banks, The Complete Guide to Digital Illustration , Watson-Guptill Publications, 2003.		
	3. Demers, Owen, Digital Texturing & Painting , New Riders Press, Bk & CD-ROM Edition, 2001.		
	4. Cairo, Alberto, The Functional Art , New Riders, 2013.		
	5. Pogany, Willy, The Art of Drawing , Madison Books, 1996.		
	6. Kepes, G., The Language of Vision , Paul Theobald, 1944.		

	7. McKim, Ribert, Experiences in Visual Thinking , Brooks/Cole Publishing Company, 1980.
	8. Valcke, Thomas, Basic Sketching Techniques for the Industrial Designer .
	9. Few, Stephen, Show Me the Numbers: Designing Tables and Graphs to Enlighten , Analytics Press, 2012.
	10. Holmes, Nigel, Designer's Guide to Creating Charts and Diagrams , Watson-Guptill, 1991.
	11. Holmes, Nigel, Wordless Diagrams , Bloomsbury, 2005.
	12. Fry, Ben, Visualizing Data: Exploring and Explaining Data with the Processing Environment , O'Reilly Media, 2012.
	13. D. Van Duyne, J. Landay, & J. Hong, The Design of Sites , 2 nd edition, Prentice Hall, 2006.
	14. Tidwell, Jeniffer, Designing Interfaces , 2 nd edition, O'Reilly, 2011.
	15. Hooper, Steven, Designing Mobile Interfaces , O'Reilly, 2011.
	16. Tufte, Edward, Visual Display of Quantitative Information , Graphic Press, 1993.
	17. Ferster, Bill, Interactive Visualization: Insight through Inquiry , The MIT Press, 2012.
	18. Ware, Colin, Information Visualization: Perception for Design (Interactive Technologies), 3 rd edition.

Annexure 12

CATEGORISATIONS OF VISUAL DESIGN & COMMUNICATIONS (VDC) COURSE

Student Participants (4): Vaibhav, Nishtha, Jatin, Shruti, Himanshu

1. Basics of Visual Design

- i. Elements of Visual Design
- ii. Principles of Visual Design
- iii. Theories in Visual Design

2. Visual Design in Communicating Ideas

- i. Forms and Space
- ii. Typography
- iii. Communication Theory

3. Visual Design in Different Media of Communication

- i. Print Medium
- ii. Digital Medium
- iii. Photography
- iv. Videography

Assignments in each categorisation

1. Basics of Visual Design	Assignments
Elements	VDC1-5, VDC6, VDC7, VDC9, VDC10, VDC11, VDC13, VDC15
Principles	VDC1-5, VDC12, VDC13
Theories	VDC1-5, VDC8, VDC13
2. Visual Design in Communicating Ideas	Assignments
Forms and Spaces	VDC1-5, VDC6, VDC7, VDC8, VDC9, VDC10, VDC11, VDC12, VDC15
Typography	VDC1-5, VDC14, VDC15, VDC16, VDC17, VDC18, FNP2
Communication Theory	VDC1-5, VDC14, VDC16, VDC17, VDC18, FNP2
3. Visual Design in different Media of Communication	Assignments
Print Media	VDC1-5, VDC14, VDC15, VDC17, VDC18, VDC19, FNP2
Digital Media (app or web)	DPP5, FNP2
Photography	VDC1-5, VDC12, VDC13, VDC19, FNP2

Videography	VDC1-5, VDC20, FNP2, Lectures
4. Drawing Out Thoughts 2: (Articulating Thought Processes to Decode Visual Design)	Assignments
i. Applying the notion of the Self for the designer in recognising the real Other (stakeholders).	VDC1-5, VDC9, VDC14, VDC16, VDC17, VDC18, VDC20, FNP2
ii. Journals: Reflective Thinking, Critical Thinking, Nurturing Curiosity, Research.	All
iii. Group project (integrating visual forms with thinking): Meaning/Sense-Making, Semiotics, Semantics, Syntactics, Analytical Thinking, Creative Thinking, Collaborative Thinking, Co-Creating, Design Communications.	VDC1-5, VDC6, VDC7, VDC11, VDC12, VDC13, FNP2

KEY

DDV: Design Drawing and Visualisation

VDC: Visual Design and Communication

DPP: Design Processes and Perspectives

FNP: Final Project

Annexure 13

ASSIGNMENTS DESCRIPTION OF THE VISUAL DESIGN AND COMMUNICATION (VDC) COURSE & THE SELF, AS DESCRIBED BY STUDENT PARTICIPANTS

Student Participants (4): Vaibhav, Nishtha, Jatin, Shruti, Himanshu

Assign ment	Title	Description	Self as Described by Student Participants	Further Comments by Student Participants
VDC 1-3	Understanding elements of design through their existence	Identifying and recording Dots, lines, shapes, patterns, textures and colour in the environment. By taking photographs of each element from the natural environment/ surroundings (micro and macro) and manmade environment (micro and macro).	We experienced the abundance of visual information in our surroundings that is otherwise left unnoticed. We became more aware of our surroundings as we started observing the visual elements in the environment. Earlier, we didn't really notice them or paid attention, but now we usually notice these elements every time we see them, in nature as well as in the built environment. We became more understanding of the presence and the significance of the elements of visual design. We have come to realise that elements of visual design are everywhere around us and very important for us. They make up any object, and without them, the object does not have any essence. The elements are irreplaceable. We cannot take out dots from a sprinkler and replace them with a texture. The dots are playing the role of a passage which cannot be served through any other element. We realized how the elements contribute to the uniqueness and form the characteristics of natural and	This practice has led us to be more attentive and observant, it has made us patient enough to be able to capture our surroundings consciously and being sentient. This makes us more able to be open and understanding of how things work. As a designer, we need to be patient and observant of those around us, to realise their issues or perception. We started noticing the minor details of every object and started appreciating how it was made.

			man-made things. This made us wonder about its existence. We started questioning the presence of specific elements like dots, lines, etc., in a certain object, both natural and built. We now wonder whether the object could serve its purpose with some other type of that element just as well or even improve it. For example, we thought why a table surface has a certain texture, say smooth. Then we wondered if it would be better with another variant of the same, like less smooth or more smooth. Will it improve its functioning and will it serve its purpose better? We became more curious and examining which led us to sensitize ourselves to our surroundings. We realised the role of perspective and point of view in identifying the object as a particular element. The same object can be perceived as a dot as well as a shape depending on the distance between the object and the viewer. The size of the elements/objects surrounding it is also an important deciding factor. For example, a leaf can be considered as a shape or form, but if viewed from a distance the leaves seem to be dots forming a part of a tree that can be considered as a shape.	Our inner Self became more questioning and inquisitive. Now on looking at any object, we dissect the choices a person made and analyse them. We try to find the reason or the function behind each detail. An inquisitive nature goes a long way for a developing individual, as such a mind will always keep looking to learn more from every experience it gets. In addition, we are constantly required to make decisions throughout our lives, and this helps us gain insights and knowledge for those to come in future. We realized that every experience has various interpretations or meanings to it other than the most obvious observation. It is a good practice to view everything from different angles and perspective to gain as many insights in a situation that we can and explore it the most. Along with this, we also realised the importance of people and a team, as every individual has something to contribute. Each person has a different point of view of analysing the issue at hand and might give a whole new perspective of thinking to us.

				This observation also made us critically think about our existence. In comparison to all the celestial objects in this vast universe, we are just fleeting flecks. Our time of existence might seem like mere seconds in comparison to the lifetime of the earth itself.
VDC 4	Understanding the elements of design through their functions	Identifying and recording dots, lines, shapes, patterns and textures in the environment. Visually representing the functions of the dots, lines, shapes, patterns and textures by drawing B&W thumbnail sketches.	We underwent a change in our thinking/mindset that the elements of visual design can only be used for sketching. We started to understand how the basic design elements can be used to communicate ideas and express oneself.	We became more open to applying design and observing its role in real life. A picture is worth a thousand words. Now, we started to visualise how we can express ourselves and convey our ideas through visuals only.
VDC 5	Understanding the elements of design through their emotions	Identifying and recording dots, lines, shapes, patterns and textures in the environment. Expressing emotions with dots, lines, shapes, patterns and textures (Drawings + Text) by taking personal artefacts (traditional and modern), and listing out a set of emotions that the artefact arouses or inspires, or you can associate with.	While writing down the emotions that the artefacts aroused, we realized that how these small non-living things can have such a huge impact on us and how they can make us develop these massive amounts of emotions and feelings. We have become aware of how humans have evolved and developed themselves by observing elements of visual design in modern pieces of equipment. The perfection in the use of elements of visual design in modern equipment tells us about it. We realised humans associate certain emotions with certain visuals. We end up using these visuals according to the emotions explored attached to any memory. We realised how there could always be different	We developed a deeper understanding of our connections and interactions with our surroundings and our possessions. We developed a connect with our culture, history and livelihood. On introspection, we came to understand our roots more deeply through our artefacts. We could appreciate how far we have come as humans, by studying the modern objects in our lives and the way we are heading on. This makes us aware of loads of opportunities to still improve our lives and make a difference with. We became more sensitized to our emotions and learnt how to express them through visuals articulately. We were constantly asked to think if the thing that we are trying to depict through our visual is actually effectively being

			interpretations of the same idea or how the same visual can be manipulated to convey different messages. This led us to understand the importance of taking different approaches to any situation or problem. For example, a composition of dots may show sadness, but another composition of the same dots may represent energy and excitement.	interpreted by the other or not? Is there any better way that we can do so more effectively and clearly? We realized that every experience has various interpretations or meanings to it other than the most obvious observation. It is a good practice to view everything from different angles and perspectives to gain as many insights in a situation that we can and explore it the most. This led us to understand the importance of taking different approaches to any situation or problem.
VDC 6	Understanding the concept of form, form generation and space	Understanding form and space by drawing different types of forms, i.e., recognisable forms from nature, man-made, geometric, letter form, symbols, etc., and abstract forms.	We consciously started observing natural, man-made, geometric, and abstract forms present around us. Thus, we developed a connect with objects in our immediate surroundings and have developed an eye which can identify the form of an object after observing it. We have improved our ability to draw from memory and past observation by drawing different types of natural and man-made forms. In the contemporary world, we have almost all of the information available on the internet. Hence, we do not care to remember things. In other words, our recollection or memory power is unexplored. This assignment has helped us explore our retaining and recollection power. We realised the importance of visuals and their power in communication as we understood the associations we made with forms. For example: Now when we looked at the pointed edges it directly gives us the feeling of anger,	We developed an eye for details and developed a connect with the objects in our surroundings. We realised the importance of memory and knowledge. Be present in the moment. The most essential thing of all is to take in what you experience, acknowledge and appreciate it, and retain it, be present then and there. We studied the ways in which the human mind forms associations with certain visuals and gained a deeper insight into the human brain. This answered a lot of questions we've had about how we interpret things. This insight will help us make more human-centred solutions and serve as a better designer. We developed an ability of interpretation of various kinds of art and find beauty and meaning in it by looking at it from the eyes of the creator.

			violence and hatred while on the other hand, when we look at round and curved edges, we can again relate with the smooth nature of these forms. We learnt that <i>abstract</i> doesn't have to be synonymous with <i>vague</i>. We saw that we were readily able to associate some meaning with even abstract forms.	
VDC 7	Understanding the concept of form, form generation and space	Understanding form and space by demonstrating how the eye perceives form and space in different situations through visual representations	Earlier without even knowing we perceived forms and spaces in a certain way. For example, given a visual, we would consider an element as form and the rest as space, without even knowing the principles, but now that we know, we are more aware and we understand which principle we are applying there. Same goes for the Gestalt principles. We often group certain elements together that are part of a larger group. Thus, we have begun to consciously recognise how we perceive objects, things, text, etc., around us. We developed an understanding of how design and a designer have a major role in forming the effect and context of any visual representation through the elements they use. Example: We can choose to look at a glass and see it either half empty or half full. We can either choose to see two human faces or a perfect vase. The choice depends on us. So, this tells us that how we observe things determines how we interpret them. We have become more cautious while creating any artwork, keeping in mind its relationship with the space	We studied the ways in which the human mind perceives things and gained a deeper insight into the human brain. This answered a lot of questions we've had about how we interpret things. This insight will help us make more human-centred solutions and serve as a better designer as this knowledge of perception of forms and space will help us understand the requirements of the client or the audience better. The designer and the elements they choose have a major role in getting their idea interpreted as they wish it to be. We have the power to make it or break it.

			around it, as well as its interaction with other elements as the interpreter may perceive it differently which may lead to miscommunication.	
VDC 8	Understanding the concept of form, form generation, and space	Understanding form and space by understanding the Gestalt Theory of Visual Perception through research.	Developed and learnt a new way of presenting objects, shapes for logos and posters that I may design through Gestalt theory. We have gained knowledge about how our brain functions, how it associates forms with something which is recognizable or something which we have observed (past experiences) to make meaning. This knowledge came through Gestalt theory of visual perception. We have learnt the tendency of human beings to perceive visuals in a particular way. This sensitized us to use visuals more accurately by giving thorough thought to any alternate meaning it could produce. Hence, we have developed the ability to interpret a visual in different ways. In other words, we have developed our brain to think about something from different perspectives.	Through this learning, we got to realise what an amazing opportunity and source we hold to gain knowledge and it led us to keep an open and engaging mind. We studied the ways in which the human mind perceives things and gained a deeper insight into the human brain. This answered a lot of questions we've had about how we interpret things. This insight will help us make more human-centred solutions and serve as a better designer as this knowledge of perception of forms and space will help us understand the requirements of the client or the audience better. We realized that every experience has various interpretations or meaning to it other than the most obvious observation. It is a good practice to view everything from different angles and perspective to gain as many insights in a situation that we can and explore it the most. This led us to understand the importance of taking different approaches to any situation or problem.
VDC 9	Understanding the concept of form, form generation, and space	Understanding form and space by form generation by constructing forms and assigning attributes and modifying them accordingly.	We learnt how just by changing the nature of the line, the properties of a form completely change. We have learnt a new way of making forms with required characteristics.	We have become more conscious of the forms around us, properties they possess and the reason they possess these properties. We have gained a much deeper understanding of attributes/qualities.

			We have learnt how to interpret abstract forms. We have developed a connect with any and every kind of form.	We have become aware of how things can be modified to convey a completely different meaning in visual design. Our thinking and interpretation process has become more logical and analytical. This is because now we know how to interpret any abstract form.
VDC 10	Understanding the concept of form, form generation, and space	Understanding form and space by form generation by generating forms from a geometric form by extraction of portions.	We, on doing this assignment, realised that most of the man-made objects around us are just modification of the basic geometric forms and that these basic geometric forms can teach us a lot of things about product design.	We started to apply reverse engineering to the objects/compositions we saw around us, breaking them down to basic recognisable forms. This made us more aware of how these complex things are shaped/formed. We started looking at things with the perspective of its creation and this instilled ideas/thoughts which can be used for its improvement.
VDC 11	Understanding the concept of form, form generation, and space	Understanding form and space by form transformation by generating forms by morphing geometric and recognisable forms respectively.	While doing the transformation of forms by morphing assignments, we were able to visualise the various steps of transformation taking place in an animated manner in our mind.	We became more clear and efficient in transitions from one form to another, in terms of smoothness, change of attributes, resemblance with the previous form, etc. This instilled a better understanding of animation in us.
VDC 12	Understanding the Principles of Visual Design	Understanding Principles of Visual Design by using the elements of design such as the dot, line, letter form, geometric form, natural form, abstract form, man-made form to make compositions that demonstrate the principles of design. The principles being movement, rhythm, repetition, balance, contrast, juxtaposition, unity, and emphasis.	We developed an understanding of <i>why it works</i>, which is quite essential for a designer. It not only helps in understanding other people's artwork and why it's effective but also helps in coming up with the most effective way of communicating a message through an artwork. We developed an eye of appreciation whenever such concepts are used in compositions. We now notice the various principles being followed in visually appealing products. I noticed how I became more organised and balanced when arranging things on my table after	We learnt about the importance and impact of these principles of visual design and amalgamated our learning from the elements of visual design to portray these. This resulted in a better understanding of the relationship between the elements and principles of visual design. We developed an eye for identifying these principles and the role they were playing in the products/objects /compositions that were seen around us. This put us in the shoes of its creator/designer which inspired and improved our designing.

			learning about Visual Design Principles. We developed a deeper understanding of perception and how our brain perceives a group of images as a concept if composed appropriately. We developed an understanding of the principles and their role in our daily life and surroundings. We consciously started noticing the presence of these principles being in use in real life and how they are contributing. We developed an understanding of how minimalism and these principles are essential. In order to make our product/website look pretty, we might fill it up with lots of design and patterns and whatnot, thinking if it's gorgeous, it's good. But as these principles of visual design taught me, there should be a balance between all the elements. All the elements must be in unity/harmony so that it doesn't take the attention away from the product, but instead enhance it and communicate better.	
VDC 13	Understanding colour as an element of design	Understanding colour and its usage and importance, by 1) Identifying at least 12 different colour schemes and explaining them (Drawing+ Text). 2) Taking photographs from the environment in the colour schemes studied.	We have become much more aware than before of the relationship between different colours and how colour schemes can be formed using these relationships between different colours. Developed a connect with human nature. Developed a better understanding of human psychology. Developed a connect with the immediate surroundings, i.e., natural and built environment.	We've started to develop an understanding of how things can be related to or associated with each other. We've started to understand how different things work mutually with each other to produce a combined effect. We have started to look at things from a new perspective: how our brain perceives them. We have developed a synesthetic mind to see colours in objects and surroundings with a different meaning.

		Natural Environment/Built Environment 3) Studying the colour psychology and representing compositions derived from the emotions using appropriate colours.	Developed the understanding of how colour affects our mood. Developed a connect with the Self and conscious realisation of elements in the surroundings affecting one's thoughts. Colours can influence thinking, change actions, and cause reactions. They are present everywhere and we cannot escape them, so they are a very important part of our lives. So getting to know more about colours helped us to be more connected with our surroundings as it helped us understand why certain things are of certain colours, especially when it comes to the built/man-made environment because it ultimately depends on the mindset of the creator and thus colour psychology is a big part of it. Developed a connect with our surroundings, by developing a more keen and observing eye. Realised the fluidity of colour. We noticed the different meanings and forms the same colour can take depending on the supporting visuals. Noticed how our perception of colour changes due to our interaction with surrounding colours. Realised that we associate certain colours with certain feelings and memories. This is why we can often visualise emotions or even objects in terms of colour. For example, the beach always reminds us of blue and yellow.	As we have become aware of the fact that colour can affect mood, so we have gained more self-control. Became more thoughtful of things around us. Strengthened analytical ability to understand colours in the natural and built environment. We came to realise when working with colour, it is very essential to keep the medium of our final product in mind, as we will need to choose our colour wheel and scheme according to that, lest our final product will have colours different from what we designed and might give another effect than intended.

VDC 14	Understanding typography for Visual Communication	Understanding the use of typography for Visual Communication by: 1) Selecting appropriate fonts for yourself and another keeping your and the Other's attributes in mind, selecting appropriate colours, font size and placement in a given format. 2) Writing a CV for yourself and applying a hierarchy to the information using typography.	We have developed a more detailed understanding of the various fonts that we use every day, in terms of what meaning they convey. We became more curious to know about the various types of fonts and how they are used in the industry by designers. Typography helps me connect with the viewer/audience and we can lead them to read certain text first using hierarchy in size, colour, etc., without explicitly telling them to do so. This helps to create an information hierarchy. Typography also helps connect a certain text with other text just like we connect ourselves with the reader. The connection is also there because we can grab their attention, and also, we can convey a certain feeling through the font when the reader hasn't even started reading the text yet. Typography also helps connect a certain text to a certain company, brand or image because people start associating a certain font with that company/website when the organization uses that font in their logo or uses it a lot.	We have learnt to make meaning of style, typeface and font of any text. We have developed a curiosity to know about something. We developed an understanding of the mechanism of prioritization that our brain follows while reading the text. We realized that we needed to be careful and responsible while leading the reader. We realized that the style of writing is as important as the content. We realized that text can be a means of association with something. We realised one's strengths, weaknesses, experiences and abilities.
VDC 15	Understanding typography for Visual Communication	Understanding expressive typography by enhancing meanings of words and selecting letterforms and	We developed an understanding that using a certain font, or even writing it in a certain way can enhance the meaning of the text and convey the message more clearly and thus have a greater impact on the viewer.	Helped us connect to the Other, ourselves and the human mind in general. Realized that we can grab the viewer's attention and convey a certain feeling through the font when the reader hasn't

		creating interesting patterns.	Developed a connect with history. We developed a better understanding of the letterform as not just font but as an element of visual design too which could be used to form more complex patterns. We learnt how to express things through visuals in typography as an interesting mode, and realised that any representation can be done in ways other than simple text. This also helped us understand the hierarchy and the focus on the elements the viewer's eye could focus when taking in the visual.	even started reading the text yet. We got to know about the development of the typefaces over the years which gave us the insight helpful to choose the appropriate font according to our need, as well as to develop our own font styles.
VDC 16	Understanding typography for Visual Communication	Understanding the use of Typography by designing/redesigning logos and creating typographical symbols and creating appropriate colour options.	Forming an understanding of the relationship between text and visuals and developing the ability to combine them and form logos. We started questioning the purpose and functions of organisations and compositions and then applying our understanding of typography and visual design to make appropriate logos and symbols for them and enhance their meaning respectively. We developed an intuitive attitude while working with others. It is essential to create a connect with the Other as a designer. When we need to represent their identity, we must know and understand them, what they do and wish so as to completely do justice with what they want to depict and so we can depict it and enhance their purpose and essence in that picture.	There is a very popular demand for logo designing in the industry. We got an opportunity to do that and thus understood the other's characteristics and needs. We learnt how to create a logo that would be appropriate and the best representation, and this required iterating over various versions and improving upon shortcomings over each iteration. We learnt how to use appropriate colours based on the need. For example, coming up with an appropriate colour scheme for a symbol through intuition. The connection was established through understanding the functions, roles, motives and the essence of the club to design their logo.

			We developed empathy and emotional connect with the Other, the Other being the members of the club and the club itself.	
VDC 17	Understanding typography for Visual Communication	Understanding the use of typography by using typography and colour on a piece of prose or poem and illustrating it appropriately.	Realised the importance of emphasis in our content. The right emphasis helped us get across our point more effectively even if the user just glances at the text. Realised the importance of content writing as part of the job of a designer. Creating content is practising design in itself. Realised the interdependence of design elements. Realised the fluidity of colour. We noticed the different meanings and forms the same colour can take depending on the supporting visuals.	We have realized that there can be many diverse interpretations of the same thing, the main deciding factor being the <i>context</i>. We learned how to use visual design principles to attract the viewer's attention to the focal point or the main subject of an artwork. We realized the fact that the idea/information that we plan to present is as important as the aesthetic part itself. Both are an important part of the design. We learned from our mistakes and the numerous iterations that we did, that how to combine all the principles and concepts that we have learned and apply all the appropriate ones on a visual to make it as close to perfect as possible.
VDC 18	Design for Social Change	Understanding application of all inputs of elements of design, principles of design, typography, photography, etc., by designing a leaflet of A4-size (with the option of a 2, 3 or any number of folds) and developing content text that explains the concept of <i>Composite Heritage</i> as a tool for Conflict Transformation & Violence Protection.	Developed a connect with our heritage. We have realised the importance of Composite Heritage in our lives. It unites us and thus, is a means of transforming conflict. Developed a connect to one's surroundings and sensitising oneself to the events and occurrences around us. Developed a connect with the Other and sensitized oneself to the Other. We have developed the ability to create a layout, write content text, and choose appropriate visuals for a leaflet, to convey a particular message.	We realized that Composite Heritage can bring a group of people together who may not even know each other personally and thus help create a bond and togetherness in the society which may also sometimes stand stronger than the conflicts and thus become a tool to eliminate violence from the society. Realised how small design decisions together completely change the entire meaning of the visual.

			Realised the interdependence of design elements. Realised the importance and role of every single element in a composition. We realised the difference made by even a single dot. Realised the importance of reiteration in design. Realised the importance of context in design. Realised the importance of following a design process.	Realised how different elements complemented and balanced each other in a visual. How using a particular font with a colour worked or why it didn't. The context defines a lot of associations and meanings elicited out of colours/visuals. It is important to first understand the contexts and the attributes we wish to convey before moving forward with deciding upon the visual representation.
VDC 19	Photography Workshop	Understanding the basic controls of a camera, i.e., ISO, shutter speed, aperture and getting comfortable with the camera. Understanding how zoom affects the quality of the photograph and also understood the concept of distortion. Understanding how to look, notice, and frame various compositions present around and how light and shade can affect the composition of a photo. Understanding the importance of	We developed a skill and a connect with photography, by getting introduced with the camera and its controls. Realised and learnt how ISO, aperture and shutter speed affect the exposure of a photo. Developed a skill to understand the amount of zoom needed and to avoid errors like distortion. We realised how different shooting techniques can affect the composition of a photograph. We understood the elements of visual design present around us can be useful in framing, using design principles for our composition. We developed a skill to use the camera the way we wanted, to click a photograph by having full control of it at all times. We developed an intuitive critiquing attitude towards our and others' work. We also understood how patience and determination are important	Delving into photography made some of us develop a passion for both design and photography as now we have a way of capturing moments and subjects. We have developed an intuitive attitude towards making a composition interesting and applying the design principles automatically. We became more sentient towards the beauty around us as now we could see it more easily. We developed an eye for detail, minimalism and perfection, we could now notice even small details present in our frames. We realised how choosing our background for a photostory could change the essence of a photograph. We realised photographs can be very useful in communicating our thoughts.

		exposure, composition and context in capturing a photograph. Understanding how a photo can convey a message by creating a photo-story. Understanding how a photographer's perspective changes when the use for a photograph changes by creating a poster using the photo captured.	while getting multiple iterations of the same frame for the perfect shot. We learnt how to convey a message through a photo-story and understanding how the viewer will proceed through each photograph in the sequence. We developed an understanding of how to set the best frame with all the elements that we need and eliminate the rest which does not contribute towards our message or concept. We understood how to communicate through simple visuals and appropriate text. We learnt how to guide the viewer's eye trail by using design elements and principles in our visuals and posters.	We developed an analytical and critical mind as we broke a composition down to each detail and analysed its appropriateness or scope of improvement present there.
VDC 20	Videography Workshop	Understanding the power of videos, films to communicate. Understanding how to create films, movies and how a production set works. Understanding how to use a video editing software and work with sounds and footage.	We realised the power of films to communicate and that it is the best way to communicate and influence mindsets. We developed a skill to take required shots with the equipment we have and how to incorporate the message. We developed a skill to choose from a given set of shots, the best shot suited for given requirements. We developed a skill to arrange all the footage in a manner that could create meaning and convey our message. We learnt about how a production unit works and what all goes behind the making of even a small film.	Realised about the working style, pattern and methodology of the movie industry. We got to know about the hard work that goes into the making of something as short as a 30-seconds long clip. This made us appreciate the other, their struggles and toil that goes into the making of any work. We understood how the ad films are made and thought of, so as to capture the attention of the viewer. We learnt how to convey our message in a few minutes with the most essential or interesting elements, keeping it crisp and short. We understood how to weave a story and articulately express

				our idea; how important it is to understand the viewer. Realised the importance of role division and teamwork and planning.
FNP 2	Final Project (DPP & VDC)	(USABILITY TESTING 1.1 HMIS Portal 1.2 PHC Visual Aids 2.1 ISD Videos 2.2 ISD Posters 2.3 ISD Newsletters 2.4 ISD Leaflet 3.1 IIT-D CDN 3.2 IIT-D website) 1) Usability testing of a web-portal of Health Management Information System (HMIS). This may include a set of design solutions based on a detailed analysis of findings. 2) Usability testing of communication products (posters & handouts in the area of health literacy & awareness to inform and empower) for the health sector at two health centres. In other words, reaching the neediest through media. This may include a set of design solutions based on a detailed analysis of findings.	We learned how to effectively work in groups. It helped us getting creative ideas and increase our learning. We learned that everybody might have different strengths and we should divide the work in such a way that everyone's skills and abilities are used to a maximum extent. Relying on other people helped build trust and strong relationships with the other team members. It taught us how to resolve conflicts effectively. All the team members might not have the same working style or habits and this could lead to differences and conflicts. We learned the different methods and techniques that can be used to carry out usability testing. Working on digital solutions gave us the opportunity to apply visual design in a digital format rather than for print media We developed an understanding of various methods of a user study and the importance of the user's role in the designing process We laid our focus on the user and understood them before starting to think of solutions and eliminating the scope of coming up with inapplicable	Putting all the differences aside and overcoming obstacles to complete the work on time. Brainstorming ideas as a group prevents stale viewpoints and combining unique perspectives from each team member leads to more effective solutions. We get a different experience from working in a group and it helps us acquire new skills. Despite occasional disagreements, we enjoyed working together and shared a strong bond. It helped us open up which is the key when working in a team. We realised how essential it is to understand the user (almost as much as we understand our self) as they are our final consumer. We ultimately need to deliver the required features and functions in a way that is effective and the user can benefit—otherwise the design will be redundant. This helped us set aside our ego and pride, put the user's needs and opinions over the designer's. This also helped us develop a self-critiquing attitude towards our work and made us able to let go of designs that don't work according to our personal goals, needs or personal choices and invite different ideas and iterations that are optimal for the other. We learnt that wins and losses will affect everyone on the

		3) Popular material (communication products, visual aids, etc.) for the social sector. This is coordinated by the Institute for Social Democracy (ISD). 4) Developing web links for IIIT-D.	situations. It also helped us empathize with our user and be synergistic with them. We realised that it will be highly redundant to make a service which can't be used by any other but the creator, and is not in accordance with the user's habits and characteristics. We came to know how to go about developing applications. We developed an understanding of the design and prototyping process and developed a systematic approach towards creating solutions. For the first time, we got an opportunity to work on building interactive, high-fidelity prototypes and learn how to present them in a professional manner. We got a first-hand experience of working with real-life situations on projects given by clients and learnt how to deal with professionals.	team and we need to have confidence in each other. We developed an understanding of the 10 Heuristic Principles by Jakob Nielsen which assisted us in our process. We realised the power of films to communicate and that it is the best way to communicate and influence a mindset. We learnt how to convey our message in a few minutes with the most essential or interesting elements, keeping it crisp and short. Realised how small design decisions together completely change the entire meaning of the visual.

Annexure 14

REFLECTION OF THE ABILITIES SUGGESTED (ABS) IN VDC ASSIGNMENTS FROM STUDENT LEARNINGS: INSIGHTS FROM STUDENT PARTICIPANTS

ABS #	Abilities Suggested by Design Educators	Assignments that Addressed Suggested Abilities	Insights from Students
ABS1	Adapt to different learning systems	VDC1, VDC2, VDC3, VDC4, VDC5	We learnt about the basic building blocks of design and their power as elements. Just like we start from the ABC, we created our foundation for communication through a visual medium. We became proficient at observing and appreciating the presence of the basic elements of visual design in our surroundings. We were trained to think beyond the face value by understanding the deeper emotions attached to an object.
		VDC6	We developed the ability to draw natural and manmade forms using the power of observation and recollection. We also brushed up on our visualisation skills by drawing abstract forms.
		VDC7, VDC8	We developed sensitivity towards various aspects of human perception by gathering knowledge about design and psychological principles.
		VDC9, VDC10, VDC11	We attained the skills to transform forms and thus transform their meanings.
		VDC12	We were able to portray the psychological principles visually through the basic visual design elements.
		VDC13	We used photography as a medium of documentation and record the different colour schemes in the environment that we identified using our observational skills.
		VDC14	Explored the Self, using introspection as a tool to attribute words to ourselves. Explored the Other, used extrospection as a tool to attribute words to a fellow group member.
		VDC15	Introduced to design software like Adobe Illustrator and InDesign.

		VDC16, VDC17	Creating and designing logos as well as improving upon existing logos, compositions and other illustrations using the acquired knowledge of typography, psychology, and design software.
		VDC18	Becoming familiar with completely new social concepts through group discussions, class activities and group presentations. Being able to portray the concepts grasped by designing real-life applications like leaflets.
		VDC19, VDC20	Introduced to photography and videography as a method of communication and expressing one's thoughts, ideas, stories, and concepts.
ABS2	Be curious and questioning; think critically	VDC1, VDC2, VDC3, VDC4, VDC5	Started critically observing the environment trying to find the basic design elements everywhere. Becoming more questioning and inquisitive by trying to find the reason or the function behind every design detail. Exploring emotions and questioning the emotional context behind artefacts.
		VDC6	Exploring the various types of forms...
		VDC7, VDC8	Exploring the diverse set of principles and theories of form and space. Critically observing the surroundings, compositions, illustrations, and artworks and questioning oneself what principles are being/can be applied there.
		VDC9	Thinking critically to attribute qualities like mature, active, etc., to a non-living 2D figure that might as well be abstract.
		VDC9, VDC10, VDC11	Thinking critically and analysing ways to transform a shape/form, given a set of requirements, constraints and guidelines.
		VDC12, VDC13	Exploring ways to illustrate the design principles using the basic design elements so as to produce compositions that are visually appealing, but at the same time representing the principle precisely and appropriately.
		VDC13	Ideating and pondering over the principles and theories of colour psychology to represent one's emotions through suitable colours.
		VDC14	Exploring the Self and Other, using introspection and extrospection as tools, to attribute words to ourselves and the other.
		VDC15	Thinking critically to determine ways to strategically place letterforms to create interesting patterns.

		VDC16, VDC17	Questioning the purpose, meaning, role and functions of university clubs, artworks, prose and compositions and successively applying our understanding of typography to enhance them further.
		VDC18	Developing meaningful content keeping in mind the various contexts.
		VDC19, VDC20	Exploring the effectiveness and quality of shots in different lighting conditions, from different angles, in different scenarios and sequences.
ABS3	Develop a risk-taking approach	VDC1, VDC2, VDC3, VDC4, VDC5	Expressing one's emotions visually, constrained to only using the basic elements of visual design, so that the viewer clearly identifies the emotion that is being conveyed and there is the least ambiguity.
		VDC6	Creating abstract forms for the first time, depicting one's ideas and thoughts pictorially using non-recognizable forms in a way that is effective and accurate as much as possible as there is a high possibility of misinterpretation by the viewer.
		VDC7, VDC8	Everybody has different opinions, thinking and perception. Creating compositions, using design principles and theories, that can be perceived by everyone as similar to one another as possible, is quite difficult.
		VDC9, VDC10, VDC11	Transforming forms into other forms constrained to a given set of rules to follow and aiming to achieve a specific end-result.
		VDC13	Reproducing visual compositions depicting certain emotions, using appropriate colours being familiar with the fact that different colours might be associated with different emotions in different cultures.
		VDC19, VDC20	Shooting videos and capturing photos at different angles, modes, keeping certain perceptions, ideas in mind to convey our message/story clearly.
ABS4	Be humble	VDC1, VDC2, VDC3, VDC4, VDC5	Attributing emotions to objects by associating them with experiences and memories and understanding the deeper meaning of our interactions with these objects.
		VDC7, VDC8	Developing sensitivity to various aspects of human perception.
		VDC13	Realised the fluidity of colour. Noticed the different meanings and forms the same colour can take depending on the supporting visuals.

		VDC14	Realistic representation of the Self and the Other through attribution of words.
		VDC18	Making conscious design decisions to develop meaningful content keeping in mind the various contexts.
ABS5	Have an ethical understanding of responsibility to the Other	VDC7, VDC8, VDC12	Learning about the tendency of human beings to perceive visuals in a particular way. Exploring different possible perspectives, attributes, context and interpretations that can be made from an observation.
		AS13	Understanding the colour psychology and its impact on personalities/emotions/characteristics of the Other.
		VDC14	Understanding and attributing relevant words to the Other using extrospection technique.
		VDC14, VDC16, VDC17	Developing the ability to use various elements and aspects of typography for optimal effectiveness and understanding the impact of typography in different situations.
		VDC18	Developing deep insights about composite heritage and its importance in other people's life. Learning how to present the concept in an effective and unbiased way. Working in groups in the form of group discussions and presentations, it was important to understand and cooperate with other group members.
		VDC19, VDC20	Developing the ability to portray our message/story vividly through the medium of photography and videography, so that there is no room for misinterpretation.
ABS6	Find a balance between commercial activities and real needs	VDC14, VDC16, VDC17	Identifying the real necessity that needs to be satisfied in different situations in a commercial field using typography, and not just blindly following old notions or current trends.
		VDC18	Learning a way to present ideas to people in such a way that people pay attention to it and become aware of it, and at the same time ensuring that the idea is conveyed in the right manner such that there is no scope of misinterpretation by the people.
		VDC19, VDC20	Exploring and understanding the things that fascinate people in photos and videos and blending the real purpose/needs/message with them.

ABS7	Be able to self-critique dispassionately	All	Iterating over various versions and improving upon shortcomings over each iteration.
ABS8	Develop an intuitive attitude	VDC1, VDC2, VDC3, VDC4, VDC5	Exercised ability to sketch from intuition, the exercise of recreation of emotional feelings and learning how to represent the emotions experienced through the basic elements of visual design.
		VDC6, VDC7, VDC8, VDC9, VDC10, VDC11	Coming up with abstract forms on the basis of past experiences, observations, personal thoughts, feelings and emotions. Attribution of characteristics to abstract forms on the basis of personal understanding of stability, maturity, dynamics, rigidity, weight, etc. Coming up with examples, via intuition, to enhance understanding of the Gestalt theory.
		VDC12	Developed an understanding of principles of visual design in a way that they can be intuitively applied in future to artwork, compositions, illustrations, etc.
		VDC13	Learning to observe various colour schemes around us, choosing an appropriate colour scheme through intuition for applying to a composition.
		VDC14, VDC15, VDC16, VDC17	Learning to come up with the most effective font, style and typeface for some piece of text through intuition. Developing an intuition to choose appropriate colours based on their need. For example, coming up with an appropriate colour scheme for a symbol through intuition. Developing an intuition to use typography to enhance any piece of text to make it more effective.
		VDC18	Understanding the interrelationship of various design elements in a leaflet so that they can be applied intuitively in future to brochures, posters, leaflets, books, web pages, etc. Developing an intuitive thinking approach to write content in a print material to be circulated among the public in such a way that it can convey the right message to the people in an effective manner.
		VDC19, VDC20	Developing an intuition to use light and shade in enhancing a composition in photography. Developing an intuition to set the right scene along with the appropriate props and materials while shooting a video.

ABS9	Develop a passion for the profession	VDC1, VDC2, VDC3, VDC4, VDC5, VDC13	Introduced to a new method of data documentation/observation, that is, photography.
		VDC1, VDC2, VDC3, VDC4, VDC5, VDC13	Introduced to the basic elements of visual design that helped us see the world differently. Started noticing these elements in our environment and started appreciating the presence of these in our day-to-day lives.
		VDC6	Introduced to the wide range of forms present around us.
		VDC7, VDC8, VDC12, VDC13	Introduced to new theories and principles that connected design with human psychology.
		VDC7, VDC8, VDC12, VDC13, VDC14	Became more understanding of the Other, how the Other thinks, accepting that there can be an endless number of perceptions and everyone sees the world differently.
		VDC13, VDC14, VDC15, VDC16, VDC17, VDC18	Introduced to design software which the industry is using on a large scale and thus making us more fascinated by the design profession.
		VDC19, VDC20	Integrating the professional tips and concepts in our works and enhancing its quality and realising our interests in the field of photography and videography.
ABS10	Work in difficult scenarios	VDC7, VDC8	Distinguishing form and space in compositions in Gestalt Theory images and appreciating the power/ importance of negative space.
		VDC19, VDC20	Working in different lighting, sceneries, conditions, etc., to get the best possible shots and making the best out of the present situation.
ABS11	Develop empathy and an emotional connect to the Other in design	VDC7, VDC8	Getting a chance to glance into the Other's mind by becoming familiar with the Gestalt principles and design theories, and realising that how everyone can be connected through the same principles, despite the fact that everybody thinks so differently and has a unique perspective to everything.
		VDC14	Developing a connection with the Other through attribution of appropriate words.
		VDC16, VDC17	Developing a connect with the Other through understanding the functions, roles, motives, and the essence of the club to design their logo and enhancing the literary compositions.
		VDC18	Developing an emotional connect with the society, our culture and our heritage by understanding the various causes of conflicts, and how composite

			heritage can be used as a means to prevent violence and conflict in the society.
		VDC19, VDC20	Developing a connect with others by working with them to get the desired shots and realising their qualities/attributes that can enhance those shots.
ABS12	Deal with a variety of perceptions	VDC1, VDC2, VDC3, VDC4, VDC5	Developed an eye for perceiving elements of visual design in nature/man-made forms and at the micro and macro levels. Expressed emotions using these elements in a variety of perceptions.
		VDC6, VDC7, VDC8, VDC9, VDC10, VDC11, VDC12, VDC13	Understanding different types of forms and what we perceive as form and space in various compositions, developing insights on how people can perceive things when they see them. Learning about the variety of ways in which principles of visual design can be portrayed using elements of visual design.
		VDC14, VDC16, VDC17, VDC15	Analysing and listing down the set of attributes associated with different fonts. Realising that certain qualities/attributes can be vividly represented using certain fonts. Developing a better judgement of choosing an appropriate font in a particular situation.
		VDC18, VDC19, VDC20	Understanding the views, experiences and theories of the experts in different fields and developing insights based on the above and our experiences.
ABS13	Draw on information from other disciplines	VDC7, VDC8, VDC12, VDC13	Identifying and sketching forms that are part of various disciplines that are natural, educational, etc. Developing an understanding of the design principles that are derived from psychology.
		VDC16, VDC17	Developing an understanding of icons, index and symbols and furthermore, semiotics, semantics and syntactics.
		VDC18	Learning and exploring the concept of Composite Heritage that can primarily be considered as a part of social sciences.
		VDC19, VDC20	Exploring the different concepts and techniques of photography, videography and film-making.
ABS14	Work with a team of experts in different fields	VDC18, VDC19, VDC20	Gaining the opportunity to get tips, inputs and insights from experts in their areas and learning from their experiences. Getting professional help, exposure and a new learning environment.

ABS 15	Take on a bottom-up approach	VDC11	Learning about forms and space and understanding their importance, distinguishing between form and space and learning different ways to generate them.
ABS16	Work at the grass-root level	FN2	Observing and working with the stakeholders, getting a first-hand experience, and getting inputs and insights from the stakeholders themselves.
ABS17	Adopt an indigenous approach	VDC14, VDC16, VDC17	We looked for design solutions appropriate to each person's and the club's identity, and moved forward with our design thinking incorporating each identity's unique characteristics.
		VDC18, VDC19, VDC20	We captured the essence of our heritage, culture and daily life in our surroundings through our design specific to these aspects.
ABS18	Ability to identify and address wicked problems/difficult situations/complex concerns and add value to society	VDC18	Understanding how composite heritage can be used as a means to prevent violence and conflict in the society.
		VDC20	Realising the power and effectiveness of photography and videography for the conveyance of a message/story and realising that it can be used for addressing wicked problems and complex concerns.

Annexure 15

PILOT COURSE 3: DESIGN PROCESSES AND PERSPECTIVES (DPP) – COURSE DESCRIPTION

Course	DESIGN PROCESSES AND PERSPECTIVES		
Credits	4 (39 hrs Lecture/Demo/Discussion + 39 hrs Practice + 39 hrs Non-Contact)		
Course Offered to	UG		
Course Description	This course introduces students to the theoretical and practical aspects of design-evolving processes. The course presents the varied palette of design, from design of physical objects, to design of human-computer interactions, to design of services, to design of micro systems and connected/complex systems. It offers tasks that initiate the process of learning fundamental skills such as observation and representation, investigation, analysis, synthesis, conceptualization, reflections, projection, visualization and representation. Topics such as Design Processes, Design Perspectives, Design Context & Concerns, Problem Solving Methods, Idea Generation, User-Focused Thinking and Basic Communication are covered during the course. It also introduces students to various stages of problem-solving processes, from problem identification to investigation and analysis of needs as well as tools and techniques used for generation, iteration, evolution and communication of ideas and design concepts. This course helps sensitize students to study the social, cultural and physical environment in which his/her design has to operate, so that the design has a meaning or relevance to the people concerned. Broadly, the course gives students the opportunity to develop essential design thinking skills, such as exploring the designed space to identify problem, applying the design-thinking process to problems, visualizing design solutions, refining final designs, and communicating ideas in visually appropriate form through assignments and projects.		
Course Objectives (CO)	1. Develop the ability to identify, reflect, analyse and evaluate an issue or problem, keeping subjective views of all stakeholders in mind, in order to develop insights, which can help develop a well-defined problem statement. 2. Develop the ability to empathise with the Other while developing the ability to reflect critically on the designer’s Self, thus developing the ability to create scenarios and initiate, express, and communicate concepts. 3. Develop the ability to select methodologies and develop processes in problem solving and apply it to simple problems. 4. Develop the ability to engage in complex problem solving, and to create collaborations engaging by planning and generating design solutions in a more holistic approach, which includes all stakeholders, systems, communities, and complexities of issues.		
Weekly Lecture Plan			
Week Number	Lecture Topic	COs Met	Assignment/Practice
1.	CLASS 1. INTRODUCTION TO THE PROBLEM-SOLVING PROCESS i. Factors Influencing Design.	CO1	1. IDENTIFYING A MICRO/SIMPLE PROBLEM/NEED/OPPORTUNITY OR AN EXISTING DESIGN

	ii. Brief/Opportunity/Need/'Leap of Faith' iii. Research/ Investigation iv. Analysis/Synthesis/Findings/Insights v. Problem Statement vi. Conceptualisation/Ideation/ Visualization vii. Options & Alternatives viii. Final Solution, Implementation/execution, ix. Evaluation/Validation/Testing x. Improve/Modify/Amend/Revise		THAT REQUIRES IMPROVEMENT i. Identify a Micro/Simple Problem from the local environment or public space which can include product, space, communication, system, services, human interaction, experiences, activities, issues of concern, etc. ii. Conduct a field study in a chosen environment–communication of its understanding and identifying problems through maps, sketches, illustration, interaction with people and textual reports. iii. Articulate a Problem Statement. iv. Design/Conceptualise the Research. 2. SCOPING THE CONTEXT OF THE PROBLEM AREA i. Identify a Simple Problem/Need/Opportunity, etc. and scope the context ii. Analyse the problem /need/ opportunity using different methods
2	CLASS 2. ANALYSIS OF A SIMPLE PROBLEM IN A GIVEN CONTEXT i. Mind Maps, ii. Affinity Mappings, iii. Empathy Mapping iv. User-Story Mapping v. Semiotic Analysis (Syntax-Semantic-Pragmatic) vi. Observations, Insights and Opportunities v. Soft Prototyping the Idea/Concept vi. Documentation, Report Making and Presentations	CO1	3. MICRO TO MACRO PROBLEMS/NEEDS/ OPPORTUNITIES i. Identify five personal problems (ask the Self). ii. Identify five problems from 5 people. iii. Identify five problems from the newspaper. iv. Identify five city-level problems. v. Identify five problems from the planetary crisis. vi. Mapping of the 4/5 W's an H to one in each of the above categories. vii. Create an exhaustive mapping of the stakeholders in the problem area identified. viii. Describe Wicked Problems and illustrate with examples. ix. Write short essays on the following: a) Your definition and interpretation of Context. b) Your understanding and articulation of Concerns. c) Meaning and significance of inclusive design practices.
	CLASS 3 & 4. DESIGN PERSPECTIVES: CONTEXT & CONCERNS i. Understanding and defining Context– Exposure to different perspectives, concerns, and issues in the context of design. ii. Understanding and defining Concerns–Fundamental yet subjective questions like what makes a good designer. Areas of concerns: social concerns, economic concerns, political concerns, environmental concerns, etc. iii. Tangible and Intangible relevance of broadening one's perspectives in Arts, Aesthetics, Science and Technology in Design. iv. The Challenges in Design-- Designing for the Real World v. Emerging Areas of Design vi. Relevance of Design in the Context of India vii. Importance of Sustainable Design Practices--Preserving traditional practices and designing for the underserved communities. viii. Wicked Problems		

3	CLASS 5. THE NOTION OF THE DESIGNER <i>SELF</i> AND THE <i>OTHER/USER</i>–RELATIONSHIP BETWEEN THE TWO i. The Hierarchy of the Other PROBLEM STATEMENT i. Framing the Problem with Reference to Context ii. Framing Research Questions iii. Framing the Design Process: Identifying Methodologies and Strategies related to the different stages of the Problem-Solving Process	CO4, CO2	4. DESIGNER SELF AND THE OTHER i. Create an exhaustive mapping of the stakeholders in the problem area identified–Extrospection of the Other/User in the community, society and environment. SCOPING A PROBLEM AND IDENTIFYING A PROBLEM STATEMENT i. Identify areas for potential design solutions and choose one–PROBLEM X ii. Research, data collection and analysis of findings. iii. Redefining or reinterpreting the design problem taking into account the analysis and synthesis of the relevant information collected.
	CLASS 6. CREATIVE DESIGN THINKING METHODS Introduction to various Techniques/Tools for Ideation: i. Brain Storming, ii. Browsing, iii. Word Association, iv. Attribute Listing, v. Mind Mapping, vi. Affinity Mapping, vii. Card Sorting, viii. 3 W's & H, ix. SCAMPER, x. SWOT Analysis.		6. EXPLORING IDEATION METHODS i. Using the analysis of PROBLEM X, apply appropriate ideation methods to scope possible solutions. Explore creative thinking experiences–Visual (Mapping, Diagrams, Scamper, SWOT, etc.), Verbal (Brainstorming, etc.), and Spatial (Role Play, etc.).
4	CLASS 7 & 8. VISUALISATION/CONCEPTUALISATION/IDEATION OF MULTIPLE SOLUTIONS AND EXECUTION OF THE FINAL SOLUTION	CO3	7 & 8. CONCEPTUALISING AND EXECUTING SOLUTIONS i. Conceptualise solutions based on the problem statement of PROBLEM X and following a process of extensive explorations. ii. Select effective options and work on them to culminate into 3 Alternative Optimal Solutions. iii. Identifying one final optimal solution. iv. Translate Concept Drawings to Working Drawing. v. Execute Model, Prototype, Mock-up, etc.
5	CLASS 9 & 10. CONTINUATION OF IMPLEMENTATION OF FINAL SOLUTION/EXECUTION	CO3, CO2	10. TRANSLATING FINAL SOLUTIONS TO DIGITAL PROTOTYPES.

	OF FINAL SOLUTION INTRODUCTION TO DIGITAL TOOLS FOR PROTOTYPING		i. Translate working drawings on paper to the digital platform. ii. Execute model, digital prototype, mock-up, etc.
6	CLASS 11. VALIDATION AND TESTING		11. EVALUATION OF FINAL SOLUTION i. Evaluate and review the final solutions through tests and interviews.
	CLASS 12. DOCUMENTATION METHODS		12. DOCUMENTATION OF DESIGN PROCESS (applied on the selected PROBLEM X) i. Documentation of PROBLEM X.
7	CLASS 13 & 14. SELF-ACTUALISATION i. Mapping of the Self based on Maslow's Hierarchy of Human Needs. ii. Mapping of the Self based on the Ownership of Position taken on Political, Social, Economic, Environmental, Technological, Health, etc., Issues.	CO3, CO2	13 & 14. REFLECTIVE THINKING AND SELF-DISCOVERY i. Create a Mind Map of the Self based on Maslow's Hierarchy of Human Needs. ii. Create a Mind Map of the Self based on personal positions taken by individual students.
8	CLASS 15 & 16. DESIGN PROJECT (COMPLEX) – GROUP PROJECT i. Solving Wicked Problems ii. Introduction to Sustainable Development Goals	CO3, CO2, CO1	15 & 16. APPLYING A PROCESS TO AN IDENTIFIED DESIGN PROBLEM Scope a problem area, design and execute a project in a group keeping in mind a digital solution.
9	CLASS 17 & 18. END-TERM PROJECT – GROUP PROJECT	CO3, CO2, CO1	17 & 18. WORKING IN A REAL-LIFE SITUATION AND APPLYING ALL THE LEARNINGS TO FIND A SUITABLE SOLUTION i. Studying the existing problem. ii. Doing an exhaustive study by collecting all available/possible data on/of the situation/problem. iii. Research existing design by conducting a usability study.
10	CLASS 19 & 20. END-TERM PROJECT – CONT.	CO3, CO2, CO1	19 & 20. WORKING IN A REAL-LIFE SITUATION AND APPLYING ALL THE LEARNINGS TO FIND A SUITABLE SOLUTION i. Analysing the data by all methods researched earlier and identifying a Problem Statement. ii. Identifying stakeholders and understanding their needs. iii. Defining a Problem Statement.

11	CLASS 21 & 22. END-TERM PROJECT – CONT.	CO3, CO2, CO1	21 & 22. WORKING IN A REAL-LIFE SITUATION AND APPLYING ALL THE LEARNINGS TO FIND A SUITABLE SOLUTION i. Identifying problem areas and solution scenarios. ii. Exploring solutions. iii. If required, conduct a usability study to test possible solutions.
12	CLASS 23 & 24. END-TERM PROJECT – CONT.	CO3, CO2, CO1	23 & 24. WORKING IN A REAL-LIFE SITUATION AND APPLYING ALL THE LEARNINGS TO FIND A SUITABLE SOLUTION i. Improving solutions. ii. Commencing work on the final solution.
13	CLASS 25 & 26. END-TERM PROJECT – CONT.	CO4, CO3, CO2, CO1	25 & 26. WORKING IN A REAL-LIFE SITUATION AND APPLYING ALL THE LEARNINGS TO FIND A SUITABLE SOLUTION i. Final solution and presentation.
	END-TERM EXAM & JURY		
Assessment Plan			
	Type of Evaluation	% Contribution in Grade	
1.	Continuous Assessment of Assignments	40% (20% before mid-semester & 20% before end-semester)	
2.	Mid-Semester Exam	10%	
3.	Maintenance of a Sketchbook & Journal	10%	
4.	Attendance	10%	
5.	End-Term Project	20%	
6.	End-Term Exam and Jury	10%	
Resource Material			
Type	Title		
Text Book	1. Balaram, S., Thinking Design , Sage Publications India, 2011.		
Text Book	2. Papanek, Victor, Design for the Real World: Human Ecology and Social Change , Academy Chicago Publishers, USA, 2003.		
Text Book	3. Heskett, John, Design: A Very Short Introduction , Oxford University Press, 2005.		
Other Resources	1. Vyas, Kumar, Design and the Environment , National Institute of Design, Ahmedabad, India.		

	2. Kumar, Vijay, 101 Design Methods: A Structured Approach for Driving Innovation in Your Organization , John Wiley & Sons, 2012.
	3. David Lauer, Design Basics , Wadsworth Publishing, 2007.
	4. John F. Pile, Dictionary of 20th-Century Design , Facts on File, 1990.
	5. Jones, Chris Jones, Design Methods, 2nd Edition , John Wiley & Sons, 1992.
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	13. Brown, Tim, Change by Design: How design Thinking Transforms Organizations and Inspires Innovation , Harper Collins, 2009.
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	21. Bonsiepe, Gui, Interface: An Approach to Design , Dawn Barrett (Ed.), Jan van Eyck Akademie, 1999.
	22. Garrett, Jesse James, The Elements of User Experience , New Riders, 2010.
	23. Moggridge, Bill, Designing for Interactions , MIT Press, 2007.
	24. Tidwell, Jenifer, Designing Interfaces , O'Reilly Media, 2005.
	25. Buxton, Bill, Sketching User Experiences: Getting the Design Right and the Right Design (Interactive Technologies) , Morgan Kaufmann, 2010.
	26. Lawson, Bryan, & Dorst, Kees, Design Expertise , Taylor & Francis, 2009.
	27. Dorst, Kees, & Crabill, Phyllis, Under-Standing Design , Gingko Press, University of Michigan, 2006.
	28. Surowiecki, James, The Wisdom of Crowds , Anchor Books, 2005.
	29. Ackerman, Diane, A Natural History of the Senses , Vintage, 1990.
	30. Khan, The Third Curve , Mansoor Khan Productions, 2013.
	31. Thackara, John, How to Thrive in the Next Economy , Thames & Hudson, 2015.
	32. Oakley, Mark, Design Management: A Handbook of Issues and Methods (Part IV – The Nature of Design Process) , Blackwell Publication, 1990.

Annexure 16

CATEGORISATIONS OF THE DESIGN PROCESSES & PERSPECTIVES (DPP) COURSE

Student Participants (4): Mayank, Angel, Himanshu, Varnika

- 1. Problem Area – Identification and Investigation**
 - i. Context and Levels of Complexity
 - ii. Field Research and Observation
 - iii. Data Collection
- 2. Analysis, Synthesis and Problem Statement Formation**
 - i. Organising and Categorising Data
 - ii. Objective Examination
 - iii. Articulation of a Problem Statement
- 3. Ideation and Solution Scoping**
 - i. Exploring Creative Thinking Experiences
 - ii. Proposing Universal and Sustainable Solutions
- 4. Evaluation and Testing**
 - i. Activities Involving the User (card sort, usability testing, onboarding)
 - ii. Step-by-Step Prototyping
 - iii. Next on Agenda/Way forward

Assignments in Each Categorisations

1. Problem Area – Identification and Investigation	Assignments
Context and Levels of Complexity	DPP1, DPP3, DPP4, DPP5
Field Research and Observation	DPP1, DPP5
Data Collection	DPP1, DPP5
2. Analysis, Synthesis, and Problem Statement Formation	Assignments
Organising and Categorising Data	DPP2, DPP5
Objective Examination	DPP2, DPP5
Articulation of a Problem Statement	DPP1, DPP5
3. Ideation and Solution Scoping	Assignments
Exploring Creative Thinking Experiences	DPP2, DPP5
Proposing Universal and Sustainable Solutions	DPP2, DPP5
4. Evaluation and Testing	Assignments
Activities Involving the User (Card Sort, Usability Testing, Onboarding)	DPP5
Step-by-Step Prototyping	DPP5
Next on Agenda/Way Forward	DPP5

Annexure 17

ASSIGNMENTS DESCRIPTION OF DESIGN PROCESSES & PERSPECTIVES (DPP) COURSE & THE SELF AS DESCRIBED BY STUDENT PARTICIPANTS

Student Participants (4): Mayank, Angel, Himanshu, Varnika

Assignm ent	Title	Description	Self as Described by Student Participants
DPP1	Identifying A Micro/Simple Problem/Need/Opportunity or An Existing Design That Requires Improvement	i. Identify a Micro/Simple Problem from the local environment or public space which can include product, space, communication, system, services, human interaction, experiences, activities, issues of concern, etc. ii. Conduct a field study in a chosen environment—articulation of its understanding, and identifying problems through maps, sketches, illustration, interaction with people and textual reports. iii. Articulate a Problem Statement. iv. Scope the context of the problem area.	By being at the problem site, we felt more connected to both the environment and the people. By having a deeper look at the problem, we were able to put ourselves in the stakeholders' shoes and look at the problem with a different perspective altogether. This not only broadened our horizon but also made us more observant. We started paying more attention to the tiniest of the details which we earlier might have taken for granted. Observing our environment allowed us to inculcate patience and an eye for detail. We also learnt to translate shortcomings as opportunities for improvement and betterment of both ourselves and our environment. --empathy --patience --observant --unbiased --openminded Interviewing and conducting surveys allowed us to shed all our stereotypes and preconceived notions and take in information with an unbiased mind. We could be open-minded, set aside our personal preferences and take in information in its raw form. In addition to that, successfully communicating with strangers made us more confident and was a boost to our communication skills. --shed stereotypes --communication skills At first, the problem statement formation looked like a meaningless formality but later it proved to be a very important part because it clarified the purpose and context of the study for both, the user and ourselves. Also, it made us think more logically and plan a methodological approach to the issue at hand. --logic --methodological approach

DPP2	Scoping Possible Solutions for The Above Identified Problem	i. Analyse the problem/need/opportunity using different methods. ii. Create an exhaustive mapping of the stakeholders in the problem area identified–Extrospection’ of the Other/User in the community, society and environment. iii. Identifying areas for potential design solutions and choose one– PROBLEM X. iv. Research, data collection and analysis of findings. v. Redefining or reinterpreting the design problem taking into account the analysis and synthesis of the relevant information collected. vi. Using the analysis of PROBLEM X, apply appropriate ideation methods to scope possible solutions. Explore creative thinking experiences–Visual (Mapping, Diagrams, Scamper, SWOT, etc.), Verbal (Brainstorming, etc.), Spatial (Role Play, etc.).	This assignment was greatly aimed at understanding the Other. We were able to view the problem through the eyes of the stakeholder, who were experiencing the problem first-hand. We learnt that a level of patience was required to interact with the people who were facing the problem and how it could be frustrating for them to talk about their situation. We, by observing their daily activities, were able to sensitise ourselves towards their routine and temperament. By inculcating a way of communication that would allow us to appreciate and respect their views, we were able to build a rapport with them. This not only helped us gain respect for them and their daily schedules, but also taught us to be grateful for others’ contribution. --empathy --patience Understanding the scope of design in a problem and having the realisation and alertness to identify the need of a design intervention in a situation/problem. --observation --alertness Developing a connect with the Other and understanding their point of view of the problem which may result in improving our understanding and changing perspectives towards the issue. --connecting to the Other --changed outlook Finding a problem area made me realise the areas or the conflicts I have which were different from the conflicts stakeholders have. Realising the need to develop an acceptive and confident attitude towards approaching and enquiring the stakeholders about the problem. --sensitive --confident As a designer there will be a constant requirement to scrap existing ideas and situations and revisit and rework based on the dynamic and changing situations and problem areas. It helped us to embrace our flaws and work on them constructively and come up with a solution. --patience --self-criticism --letting go --open to new ideas

			We realized that sometimes a preferred solution works better than a perfect solution as perfect is subjective and may not be the same for both the designer and the Other. We were more sensitive towards the viewpoints of the Other and would learn from their preferences and experiences. We realized that sometimes good design may need to include the opinions, perspectives and context of people from various strata of society and as many diverse people as possible. It helps to encompass the diverse thoughts and problems faced and in turn help in coming up with a more expansive solution. We realized the need to develop a concern for sustainable options. We realized the need to develop a serving and responsible attitude towards society. Understanding the responsibility, a designer holds to do good to the world and society by designing products or communications which are ethical, and socially responsible. Understanding the responsibility of the designer to make universal designs so as to not limit their reach to a few people only.
DPP3	Identifying Micro to Macro Problem/Need/Opportunity or An Existing Design That Requires Improvement	i. Identify: a. Five personal problems (ask the Self) b. Five problems from 5 people c. Five problems from the newspaper d. Five city-level problems e. Five problems from the planetary crisis ii. Mapping of the 4/5 W's and an H to one in each of the above categories.	This assignment let us on a journey into ourselves. We explored the Self in a more intricate way. We could introspect and learn about our weaknesses and strengths and be more self-aware while searching for mini problems in our lives. We were able to differentiate real needs from created needs that emerge from materialism. By diving into other peoples' problems, we were able to sympathise with them. But later we understood that there was a significant difference between sympathy and empathy. It was easier to sympathise and feel pity than to empathise. However, once we began to understand the concept of empathy, we had a better understanding of what situation they were dealing with. In this process we could build a stronger rapport with the person. -- Self-realization -- Empathy -- Emotional bond As the problems turned from micro to macro, we realised that our bond with the problem also starts to loosen. So, this assignment gave us an outlook that we give undue importance to the problems that happen in our vicinity but we seldom consider the problems that affect us on a much grander stage. This assignment was a true eye-opener on our all-consuming self-involved lifestyle. Now designing solution for real-world problems is something that is on our future

			agenda. -- Motivation -- Realization -- Eye-Opener By exposing ourselves to the problems at the city and global levels, we realised the gravity of the issues and could inculcate a sense of social responsibility and awareness. While we are out there fighting for tangible while breaking the impeccable intangible bond that we have with each other. This assignment as a whole was a true game changer for us due to the self-realization on our part. -- Social Responsibility -- Awareness
DPP4	Wicked Problem	Describe Wicked Problems and illustrate with examples.	It is important to look at the sociological and ecological impact of the products that we design. Designing is not only about making products that satisfy the needs of your consumer. Designers also have to be well-versed with the fact that their product is contributing to the amelioration of the society as a whole. Products should not be a means to an end but source of a new and better beginning. So, we learned that a thorough background check should be done on things that we intend to make. Thinking outside the box is not always the way forward, sometimes staying inside the box and improving the box is also a viable alternative. In this, the learning element was our realization that the box is just an element holding us back. Context is one of the most important elements of design. In order for the product to be beneficial, the context behind the product has to be understood. In order to gain maximum output from the product designed, you need to be aware about the context. We realized that it's not always that easy to scope, research, understand and contextualize a problem. Some problems are twisted and have multiple dimensions to it and the dimensions are dynamic. Hence the solution worked out should also be multi-layered and each layer will work towards solving the problem individually and as a whole.

DPP5	Macro Problem	1. Select any one area from the Sustainable Development Goals. 2. Scope a problem area, design a Project in a group of 4 keeping in mind a digital solution. 3. Design an App and a Website following a planned Design Process keeping the user or target audience to be the youth. The app should be engaging, participatory, interactive and should promote awareness (educative). The Design Process should, at the least, include the following: 3a. Ideas and One Research Plan or Agenda 3b. Competitive Analysis 3c. User Interviews and Report (Level of Awareness) 3d. Persona Study 3e. Affinity Mapping 3f. Research Insights 3g. Problem Statement 3h. Solutions–3 Options and 1 Final that is detailed out as follows: 3i. Feature Prioritisation 3j. Card Sort 3k. Site Map 3l. User Flow (Initial and Updated User Flow) 3m. Low Fidelity Paper Prototype (Key Screen Sketches) 3n. Wireframes 3o. Annotated Wireframes 3p. High Fidelity Final Prototype 3pi) Give your App and Website a name. 3pii) Design the Symbol and Logo for the same. 3piii) Design the typography for Content, Features, Information. 3piv) Design the Colour Scheme/Palette. 3pv) Design the elements like Buttons, Rollovers, Cursors, Animations, Background, Images, Graphics, etc. 3q. Usability Testing 3r. Onboarding 3s. Final Prototype 3t. Next on the Agenda–Way Forward	This assignment first of all helped us gain insight into the gravity of the problem the world faces today. We learnt about the wider aspects of problems that plague our society in this day and age and especially about the UN’s global sustainability goals. We now look at the problem like cement that is waiting to be put through a sieve in order to get the best building material. We as individuals now know the importance of looking between the lines and really looking at the news with a deeper cognizance. -Finer elements look through the sieve -developed understanding Although these issues are far away from the technical domain, we saw how technology can intervene (how we can connect technology to people for better connectivity) and help increase the reach of solutions and accelerate the inclusion of the masses. Also, we found out how people are increasingly growing comfortable with the use of technology, hence it is viable to come up with solutions that cater to the comfort of people. Evolution of idea is important. The final idea is as important as intermediate ideas as they lead to a more refined final idea. Also, the very first idea that one might get, is not always and most of the times is not the best idea one might be able to come up with. Hence an iterative process involving thinking and rethinking, visiting and revisiting is integral in ensuring that finally we reach the most optimal solution. You should never be stagnant and stuck up in your ideas. Keep thinking, maybe the right idea is just around the corner. We learnt the merits of the research methods and how they bring us closer to the stakeholders and their perspective on the issue. Research takes us towards an unbiased point of view that ensures that we don’t get our emotional perspective in between. We also realised proper design solutions cannot be formed without it being centred around people. Feedback is integral at every step of the way. The consumer has to be integrated in every step-in order to get the best suited product for them. Celebrating failure. From the very beginning, we are taught perfection and we should always aim for success. Designing has taught us that not everything we make will scream success and innovation in the very first attempt. Every failure is a step towards

			innovation. Hence, we now take failures as triumphs and encourage them when we encounter one. Being in a group and working with three of our other classmates, we started to appreciate a synergetic way of working. We could appreciate each other's strengths and build a better bond with the other person. Working with known people is easy as we know their strengths and weaknesses but working with strangers is a completely different case. We learnt to understand our strengths and work on our weaknesses. We got to have a live assessment of all our individual ideas.

Annexure 18

REFLECTION OF THE ABILITIES SUGGESTED (ABS) IN DPP ASSIGNMENTS FROM STUDENT LEARNINGS – INSIGHTS FROM STUDENT PARTICIPANTS

ABS #	Abilities Suggested by Design Educators	Assignments that Addressed Suggested Abilities	Insights from Students
ABS1	Adapt to different learning systems	DPP1, DPP2, DPP5	Students got the opportunity to explore various ways of conducting a research and looking at the problem statement from different perspectives, which helped us learn from our experiences, our mistakes, existing design solutions and what the other thinks.
ABS2	Be curious and questioning; think critically	All	Exploring various point of views from which the same problem can be looked at, questioning the context behind a problem. Its cause, consequences and other important attributes related to it. Being curious about the problem made us think from all perspectives and include as many diverse approaches as possible for our solution.
ABS3	Develop a risk-taking approach	DPP2, DPP5	Research based on the problem area identified meant gathering data and doing fieldwork. Sometimes the research meant interacting with a whole range of people who constitute the array of stakeholders. Many a times the situations in which work is carried out isn't particularly desirable but since the work calls for it, a designer manages to adapt.
ABS4	Be humble	DPP1, DPP2, DPP3, DPP5,	Understanding the social, emotional and cultural context associated with a problem and realising there's an opportunity to learn since there's so much that the students can expand their knowledge upon, working in the real world while dealing with actual problems that may cause inconvenience to the society.
ABS5	Have an ethical understanding of the responsibility to the Other	DPP1, DPP2, DPP3, DPP5	Exploring relationship with Others, deep extrospection, realisation of moral responsibility to help Others, identification of problem areas and the people that are affected by it.
ABS6	Find balance between commercial activities and real needs	DPP5	Since the students were required to work on one of the sustainability goals stated by the UN, they were required to keep a balance between what is needed and what will be actually viable. The students had to keep in mind how their idea would pan out in the commercial arena and whether it was going to be universally acceptable or not.

ABS7	Be able to self-critique dispassionately	All	Learning to critique your own work and figuring out the flaws; redoing work to improve upon your shortcomings; taking constructive feedback and including other perspectives and point of views to create a wholesome solution.
ABS8	Develop an intuitive attitude	DPP2, DPP5	Understanding the little nuances, developing an intuitive sense of the hidden and apparent, developing an instinctive way to interpret scenarios and situations which make up the problem.
ABS9	Develop a passion for the profession	All	Understanding the need to have a methodological approach to problem solving and coming up with a solution that is sustainable and universal.
ABS10	Work in difficult scenarios	DPP1, DPP2, DPP5	Developing resilience and patience. Being adjusting and sensitive to the needs of the Other.
ABS11	Develop empathy and emotional connect to others in design	All	Exploring relationship with others, and how their interactions affect others. Being able to put oneself in the Other's shoes and look at the problem with a different perspective
ABS12	Deal with a variety of perceptions	All	Being able to incorporate various opinions and biases into the common solution so as to make the solution universal. Being able to keep aside our own stereotypes and perceptions and open oneself to new information.
ABS13	Draw on information from other disciplines	All	Learning to construct mind maps, rough map sketches, affinity maps, wireframes and annotations based on the information gathered to ensure accurate communications.
ABS14	Work with a team of experts in different fields	DPP2, DPP5	Working in a group having varying opinions, learning to contribute constructively, contributing to the project in a complementary manner, disagreeing respectfully, coming up with an all-encompassing solution.
ABS15	Take on a bottom-up approach	DPP1, DPP2, DPP5	Be able to work on a problem by taking the users' perspective and then come up with the solution based on the information gathered.
ABS16	Work at the grass-root level	DPP1, DPP2, DPP5	Work in close relation with the people directly affected by the problem.
ABS17	Adopt an indigenous approach	DPP1, DPP2, DPP3, DPP5	Students followed an approach where they interacted at the grass-root level. Gained various perspectives, opinions and preferences to devise a solution which was the preferred one.
ABS18	Ability to identify and address wicked problems/difficult situations/complex concerns and add value to society	DPP4, DPP5	Understanding scenarios from someone else's perspective. Identifying the underlying emotions and connect it with similar scenarios. Addressing the social issue forming the root of all these issues and situations. Understanding what makes a problem complex enough to be called Wicked.

KEY

VDC: Visual Design and Communication

DPP: Design Processes and Perspectives

FNP: Final Project

ABS: Abilities

Annexure 19

SIX S AND THE HOLISTIC SELF FOR THE DESIGNER

Synesthetic - Ability for one sense to be perceived with the other senses.

Sustainable - Ability to support/maintain viability of things in harmony.

Sentient - Ability to perceive and feel things. To be conscious.

Synergetic - Ability to interact with another. Ability to produce a combined effect greater than the sum of separate effects.

Symbiotic - Ability to engage in mutually-beneficial interactions between agents.

Systemic - Ability to relate to systems.

Student Participants (8): Vaibhav, Nishtha, Jatin, Shruti, Himanshu, Mayank, Angel, Varnika

MAPPING THE SIX S WITH THE ABILITIES GAINED FROM THE DDV ASSIGNMENTS – IDENTIFIED BY STUDENT PARTICIPANTS

Assignment	Title	Six S Identified by Student Participants
DDV1	Sketching simple scribbles: Drawing analogues from thoughts	Sentient - Learning how to reach within ourselves to represent emotions.
DDV2	Drawing freehand controlled lines	Sentient - Developing an awareness of the arm and hand movement to maintain straight lines. Sustainable - Maintaining the distance between the lines to produce equally distant lines.
DDV3	Drawing freehand controlled lines: Exploring different pencil grades	Sentient - Developing an awareness of different pencil grades producing different shades and thickness of lines. Synesthetic - Developing a sense of how various mediums of drawing can be used. Sustainable - Developing a sustained sense of discipline by maintaining equal distance between the lines while keeping the thickness of the lines gradual.
DDV4	Drawing a simple 3D cube	Sentient - Understanding functions and properties of cubes. Sustainable - Developing a sustained sense of discipline by maintaining the size of

		edges and the 90-degree angle at the vertices.
DDV5	Drawing simple cubes in 1, 2, and 3-point perspective	Sentient - Understanding at least three perspective views and how cubes look when viewed from various positions. Systemic - Understanding the existing methods of drawing cubes in various perspectives.
DDV6	Drawing ellipses	Sentient - Understanding ellipses and their properties. Sustainable - Developing a sustained sense of discipline by maintaining the shape of ellipses.
DDV7	Drawing simple cylinders-1	Sentient - Understanding the three perspectives and how objects look when viewed from various perspectives. Sustainable - Understanding how to maintain the shape of cylinders. Systemic - Understanding the existing methods of drawing cylinders in various perspectives.
DDV8	Drawing simple cylinders-2	Systemic - Understanding the existing methods of drawing cylinders in various perspectives.
DDV9	Drawing objects-1	Synesthetic - Sensitizing our senses to the various intricacies of drawing objects. Sentient - Understanding the structures of objects. Synergetic - Combining various techniques of perspective drawings to draw an object.
DDV10	Drawing Objects-2	Synesthetic - Sensitizing our senses to the various intricacies of drawing objects. Sentient - Understanding the structures of objects. Synergetic - Combining various techniques of perspective drawings to draw an object.
DDV11	Drawing light and shade-1	Sentient - Understanding and learning how to perceive and integrate light and shade in drawings.

		Synesthetic - Sensitizing our senses to light and shade of objects. Sustainable - Using different thicknesses of the pencils to create an accurate depiction of an object taking into account its light and shade.
DDV12	Drawing light and shade-2	Sentient - Understanding and learning how to perceive and integrate light and shade in drawings. Synesthetic - Sensitizing our senses to light and shade of objects. Sustainable - Using different thicknesses of the pencils to create an accurate depiction of an object taking into account its light and shade.
DDV13	Drawing human forms	Synesthetic - Using our senses to understand the shape of the human body. Sentient - Understanding the shape of the human body and perceiving it in various poses. Synergetic - Combining various techniques of free-hand drawing to draw a human figure. Sustainable - Maintaining the shape and proportions of the human form while drawing.
DDV14	Drawing perspectives: indoor and outdoor	Sentient - Learning to identify the perspectives while looking at our environment. Sustainable - Maintaining the shape and perspective of the environment while drawing. Synergetic - Combining various techniques of free-hand drawing to draw the perspective view of indoor and outdoor.
DDV15	Geometrical construction of regular polygons	Systemic - Exploring existing methods of drawing various regular polygons.
DDV16	Geometrical construction of Golden Rectangle and	Sentient - Exploring the existence of Golden Ratio in nature.

	Golden Ratio	Systemic - Exploring existing methods of drawing Golden Rectangle and Spiral.
DDV17	Interrelationship of shapes in tessellations	Sustainable - Using shapes to create patterns that maintain their harmony and provide an overall understanding to the viewer. Symbiotic - Learning how to keep each individual element of the tessellation in mind and understanding its relationships with the other elements.
DDV18	Orthographic projections	Synesthetic - Sensitising ourselves to visualising the various orthographic views of a modified cube.
DDV19	Isometric simple drawings	Synesthetic - Sensitising ourselves to visualising cubic and cuboidal strips from an isometric perspective. Sustainable - Maintaining the shape of moving strips so that a viewer is easily able to move along with them.
DDV20	Isometric complex drawings	Sustainable - Maintaining the shape of moving strips and intersecting planes so that a viewer is easily able to move along with them. Synergetic - Combining various moving strips and planes into a single form which adds up to something better.
DDV21	Isometric object drawings	Sustainable - Maintaining the shape of the object while working in an isometric perspective.
DDV22	Drawing from Observation, Memory and Future Projections	Synesthetic - Using our senses to draw associations from our elder relatives to visualize how we ourselves would look like when at their age and using our memory to remember how we looked like when younger. Sustainable - Maintaining a realistic view as to how we would age and have aged and ensuring that these are in harmony. Sentient - Becoming aware of the shape and intricacies of our own faces and understanding the change that our face has gone through and will be going through.

		Synergetic - Combining various techniques of free-hand drawing to draw the human face.
DDV23	Drawing out Attributes	Sentient - Getting in touch with ourselves to understand our own reflections, thoughts, interests, viewpoints and experiences. Systemic - Understanding and using an existing approach to organise and display our findings.
DDV24	Abstract Drawing	Synesthetic - Getting in touch with our senses to draw out associations with the listed attributes to display them as masks. Sentient - A deep inner reflection to develop our understanding of oneself and developing a drawing style based on it. Sustainable - Drawing the masks such that they communicate with one another and are able to together display a reflection of us.
DDV25	Drawing Narratives	Synesthetic - Getting in touch with our senses to draw out associations with the listed attributes to display them as masks. Sustainable - Learning how to use all the attributes and the associations we drew with them earlier and combine them together in a concise form (a single mask) such that they work harmoniously with each other to reflect oneself. Synergetic - Combining various associations and masks to create a single mask that can be associated with a person.
DDV26	Drawing the built environment from observation	Sentient - Understanding the shape and texture of the paper cup. Sustainable - Maintaining the shape and texture of the paper cup while drawing.
DDV27	Drawing out attributes of the built environment	Sentient - Getting in touch with the Other to understand its properties, uses, build, etc. Systemic - Understanding and using an existing approach to organise and display our findings.
DDV28	Drawing out the human object (built environment) interactions	Sentient - Observing and understanding the interaction of the cup and hand.

		Sustainable - Drawing them such that the observed interaction is maintained.
DDV29	Drawing out the human-object (built environment) interactions	Sentient - Learning to perceive the various other functions that the paper cup can perform. Sustainable - Maintaining the shape of the paper cup while drawing it for use in various functions.
DDV30	Visualise change in the built environment-1	Synesthetic - Using our senses to visualise the change in how we will see the cup if made of different material. Sentient - Perceiving the functions that the cup can now perform after undergoing a change in material. Sustainable - Maintaining the basic structure of the paper cup while visualising it in a different material.
DDV31	Visualise change in the built environment-2	Synesthetic - Using our senses to visualise the change in how we will see the cup if its size changes. Sentient - Perceiving the functions that the cup can now perform after undergoing a change in size. Sustainable - Maintaining the basic structure of the paper cup while visualising it in a different size and performing various functions.
DDV32	Visualise change in the built environment-3	Synesthetic - Using our senses to visualise the change in how we will see the object if made of different material and if made of different size. Sentient - Perceiving the functions that the cup can now perform after undergoing a change in size and a change in material. Sustainable - Maintaining the basic structure of the paper cup while visualising it after the various changes.
DDV33	Drawing from observation to visualising drawings and attributes from observation to attributes for visualisation + scoping a problem area	Synesthetic - Using our senses to visualize changes in what we have observed and their attributes to alter their meaning completely.

		Sentient - Learning to look or observe properly and learning how to depict the interaction between humans. Also learning how to associate attributes to our observations.
DDV34	Sensitising the Self	Sentient - Connecting with the Self to explore our deep reflections and thoughts.
DDV35	Empathising with the Other	Sentient - Connecting with the Other to explore how they may feel and what their deep reflections and thoughts may be regarding something.
DDV38	Observing and drawing nature–micro to macro reflections	Synesthetic - Sensitizing our senses to the texture of the natural objects like leaves, trees, etc. Sentient - Becoming conscious of the various intricacies associated with drawing the natural environment.
FNP 1 (36,37,39,40)	Create an exhaustive Mind Map of your problem area through a process of analysis, where each keyword should be carefully chosen and validated by facts. This may require a fair amount of research. i. Iteration of preliminary analysis of the problem area to initiate a process of identification of the potential areas of solutions. ii. Based on the iteration of preliminary analysis of the problem area, visualise solutions as follows: a) Identify solution scenarios b) Identify all elements within the scenarios i. Collate all the solution scenarios and elements. Convert these solutions into activities, services, experiences, interactions, communication, products, etc. ii. Imagine a hypothetical situation where a large space has been donated to execute these solutions. The space provided is the reception area and atrium area of the New Academic Block of IIIT-D. Draw an isometric view of this area and space. Integrate the solution into the given area and space in the given reception area and the atrium area of the New Academic Block. Draw the activities, services, experiences, interactions, communication, products,	Synesthetic - Using our senses to visualize a future scenario where our problem may exist and use the derived associations to develop them. Sustainable - Creating a viable solution scenario that is self-sufficient in the long run. Sentient - Understanding how to work in a team and accessing each other's strengths and weaknesses and allocating work accordingly. Synergetic - Combining each other's strength and skillset to produce a viable solution. Symbiotic - Ensuring at all times that the possible solution is able to be self-sufficient and able to tackle any problems that come while its running. Systemic - Understanding the current system to gather data about what needs to be worked upon.

	stakeholders, etc. in the area and space in any scale—same size or enlarged to any size. Finally, last and not the least, imagine all of this in the future—20 years from now. Visualising futuristic projections stimulates the imagination to push its limits. i. Collate all the solution scenarios and elements. Think of a name for a Mobile App. ii. Convert these ideas for solutions into screens of the Mobile App.	

MAPPING SIX S TO THE ABILITIES GAINED THROUGH THE VDC ASSIGNMENTS – IDENTIFIED BY STUDENT PARTICIPANTS

Assignment	Title	Six S Identified by Student Participants
VDC1-5.1	Understanding elements of design through their existence	Sentient - Developing a sensitivity to the various elements of visual design in the natural and man-made environments. Synesthetic - Developing the senses to understand how visual elements like dots and lines alter the texture of an object when used interchangeably.
VDC1-5.2	Understanding the elements of design through their functions	Sentient - Developing an ability to understand the functions that the elements of visual design can perform. Synergetic - Combining and applying various techniques that were learnt in the DDV course to create the illustrated adaptations of their understanding of the various functions that the elements of design contribute in the design of an object.
VDC1-5.3	Understanding the elements of design through their emotions	Sentient - Developing an ability to connect with artefacts and express the emotions felt using elements of visual design Synergetic - Combining and applying various techniques that were learnt in the DDV course to create the illustrated adaptations of the emotions experienced from the artefacts using the basic elements of design.
VDC6	Understanding form and space by drawing different types of forms, i.e., recognisable forms from the nature, man-made forms,	Sentient - Developing an eye and understanding of what we identify as form and understand the difference between what is recognisable and what is abstract.

	geometric forms, letter forms, symbols, etc., and abstract forms.	
VDC7	Understanding form and space by demonstrating how the eye perceives form and space in different situations through visual representations	Sentient - Developing an eye to perceive form and space in our immediate environment and simultaneously developing the ability to visualise form and space. Symbiotic & Sustainable - Developing an ability to design illustrations keeping the interaction of form and space in mind, and how an observer will perceive and distinguish between form and space.
VDC8	Understanding form and space by understanding Gestalt Theory of Visual Perception through research	Sustainable - Looking at how to create illustrations keeping the various principles of Gestalt Theory in mind. Sentient - Looking at how illustrations can be used to portray stories and how small changes can change the meaning. Synergetic - Using various elements together to create meaningful illustrations.
VDC9	Understanding form and space by form generation by constructing forms and assigning attributes and modifying them accordingly	Synesthetic - Associating attributes to abstract forms using our senses and understandings. Sentient - Perceiving how changes in form can completely alter the understanding received from an abstract form.
VDC10	Understanding form and space by form generation by generating forms from a geometric form by extraction of portions	Sustainable - Generating meaningful abstract forms while learning how to keep them viable and understandable.
VDC11	Understanding form and space by form transformation by generating forms by morphing geometric and recognisable forms respectively	Sustainable - Understanding and implementing transformation of forms while keeping track of the end form and the intricacies of its form.
VDC12	Understanding Principles of Visual Design	Sustainable - Learning how to create various illustrations while portraying a certain principle in its various forms. Sentient - Looking at our environment to perceive how elements can be used to represent principles. Synergetic - Combining various principles and methods to create illustrations. Symbiotic - Working with various elements and learnings in tandem to produce emphasis on a particular element.

		Systemic - Understanding the current meanings of a particular principle while leaving room for integrating our own understanding.
VDC13	Understanding colour as an element of design	Synesthetic - Utilizing vision and using colours to associate principles with them based on what our senses perceive and interpret. Sustainable - Adding colour to illustrations while maintaining the principle being displayed. Sentient - Perceiving the changes colour makes in the meaning of illustrations. Synergetic - Combining various principles, colours and methods to create illustrations.
VDC14	Understanding typography for Visual Communication	Sentient - Getting sensitised to the typography we see while using digital equipment. Symbiotic - Finding and applying typography keeping in mind the attributes of the person.
VDC15	Understanding expressive typography by enhancing meanings of words and selecting letterforms and creating interesting patterns	Synesthetic - Associating typography with words to enhance the meaning using how we perceive these words. Sustainable - Using typography and letters to create patterns that maintain their harmony and provide an overall understanding to the viewer. Sentient - Getting sensitised to the typography we see while using digital equipment. Symbiotic - Using typography to enhance the meaning of words and for a better understanding of how words and typography can be used together so that they benefit each other.
VDC16	Understanding the use of typography by designing/redesigning logos and creating typographical symbols and creating appropriate colour options	Sentient - Looking at what existing similar clubs and organisations have as their logo and understanding the role the various elements and typography play in emphasising the purpose of the club. Sustainable - Designing a new logo using typography and visuals while making sure that they can work in harmony and enhance each other. Synergetic - Designing the various elements of the logo using different methods but making sure that the elements enhance each other for better output to the viewer.

		Symbiotic - Using typography and visuals harmoniously such that they are mutually benefiting and combining to create a better meaning. Designing the logo keeping the need of the club in mind and interacting with them to get a better understanding of the club so as to design a fitting logo.
VDC17	Understanding use of typography by using typography and colour on a piece of prose or poem and illustrating it	Symbiotic - Using typography to enhance the meaning of the prose and for a better understanding of how prose and typography can be used together so that they benefit each other.
VDC18	Designing a leaflet on Composite Heritage as a tool for conflict transformation and violence protection	Sustainable - Using text, typography, and visuals in harmony to create a suitable leaflet for providing knowledge about a topic. Sentient - Looking at various leaflets to gather an understanding of how leaflets distribute information and applying it to our own leaflet. Synergetic - Developing the ability to combine various elements to produce a leaflet where the elements are not only complementing each other but enhancing their meaning as well.
VDC19	Photography Workshop	Synesthetic & Sentient - Developing our senses to look at the environment to find visual designs which can be used for photography. Sustainable - Developing an ability to design shots that are able to tell a story by themselves, as well as provide a greater meaning to the other connected shots, to create a photo story. Synergetic - Developing an ability to work in a team to design shots in the environment which are able to communicate a story. Symbiotic - Developing an ability to design shots with human elements and natural elements such that they are able to intermix and create meaningful shots.
VDC20	Videography Workshop	Synesthetic & Sentient - Developing our senses to look at the environment to find shots which can be used for the video; also developing the senses to look at the environment to design shots based on a story. Sustainable - Developing an ability to create meaningful stories which are exciting, and developing an ability to design shots that are able to

		tell a story by themselves, as well as provide a greater meaning to the other connected shots to create a video.

MAPPING THE SIX S WITH THE ABILITIES GAINED FROM THE DPP ASSIGNMENTS – IDENTIFIED BY STUDENT PARTICIPANTS

Assignment	Title	Assignment	Six S Identified by Student Participants
DPP1	Identifying A Micro/Simple Problem/Need/Opportunity or An Existing Design That Requires Improvement	i. Identify a Micro/Simple Problem from the local environment or public space which can include product, space, communication, system, services, human interaction, experiences, activities, issues of concern, etc. ii. Conduct a field study in a chosen environment–articulation of its understanding and identifying problems through maps, sketches, illustration, interaction with people and textual reports. iii. Articulate a Problem Statement. iv. Scope the context of the problem area.	Synesthetic - Using our senses to properly observe our local environment to understand how a problem is occurring, who all are the stakeholders. Sentient - Conditioning ourselves to look deeply into our environment to find problems and further look deeper to collect data about them. Systemic - Learning to understand systems for where a particular problem is occurring and why it is necessary to do so.
DPP2	Scoping the Possible Solutions to The Above Identified Problem	i. Analyse the problem /need/opportunity using different methods. ii. Create an exhaustive mapping of the stakeholders in the problem area identified–Extrospection of Other/User in the community, society and environment. iii. Identifying areas for potential design solutions and choose one–PROBLEM X. iv. Research, data collection and analysis of findings. v. Redefining or reinterpreting the design problem taking into account the analysis and synthesis of the relevant information collected. vi. Using the analysis of PROBLEM X, apply appropriate	Synesthetic - Using our senses to properly observe our local environment to understand how a problem is occurring, who all are the stakeholders and collect data. And using these senses to go through an ideation process to come up with possible solution scenarios. Sentient - Conditioning ourselves to look deeply into our environment to find problems and further look deeper to collect data about them. We also learn to perceive and anticipate any problem that may occur with

		ideation methods to scope possible solutions. Explore creative thinking experiences—Visual (Mapping, Diagrams, Scamper, SWOT, etc.), Verbal (Brainstorming, etc.), Spatial (Role Play, etc.).	the possible solutions that we may come up with. Symbiotic - Ideating solutions keeping in mind all the various stakeholders and the challenges they are facing and what they feel will be an ideal solution to reach a practical and applicable solution. Synergetic - Applying and sometimes even combining various techniques to understand what works best for us and reach an ideation process that takes into account our strengths and weaknesses and helps us in ideating good possible solutions.
DPP3	Identifying Micro to Macro Problem/Need/Opportunity or An Existing Design That Requires Improvement	1. Identify: a. Five personal problems (ask the Self). b. Five problems from 5 people. c. Five problems from the newspaper. d. Five city-level problems. e. Five problems from the planetary crisis. 2. Mapping of the 4/5 W's and an H to one in each of the above categories.	Sentient - Learning to identify problems ranging from micro to macro by connecting with Ourselves and later with people we know. Understanding how to search for problems in various mediums such as newspapers and the social media. Learning to differ in as to what we can classify as micro and macro and how micro problems can transform into macro problems with changes in perspective.
DPP4	Wicked Problem	Describe Wicked Problems and illustrate with examples.	Sentient - Looking and understanding the depth of a problem so as to understand the root causes and based on that how to classify a problem as a wicked problem. Systemic - Understanding the role of existing systems in tackling with wicked problems and to see their effectiveness and any repercussions.
DPP5	Macro Problem	1) Select any one area from the Sustainable Development Goals.	Sustainable - Designing solutions that will be viable with changing scenarios and

		2) Scope a problem area, design a Project in a group of 4 keeping in mind a digital solution. 3) Design an App and a Website following a planned Design Process keeping the user or target audience to be the youth. The app should be engaging, participatory, interactive and should promote awareness (educative). The Design Process should at the least include the following: 3a. Ideas and One Research Plan or Agenda 3b. Competitive Analysis 3c. User Interviews and Report (Level of Awareness) 3d. Persona Study 3e. Affinity Mapping 3f. Research Insights 3g. Problem Statement 3h. Solutions–3 Options and One Final that is Detailed Out as follows: 3i. Feature Prioritisation 3j. Card Sort 3k. Site Map 3l. User Flow (Initial and Updated User Flow) 3m. Low Fidelity Paper Prototype (Key Screen Sketches) 3n. Wireframes 3o. Annotated Wireframes 3p. High Fidelity Final Prototype 3pi) Give your App & Website a Name. 3pii) Design the Symbol & Logo for the Same. 3piii) Design the Typography for Content, Features, Information 3piv) Design the Colour Scheme/Palette 3pv) Design the Elements like Buttons, Rollovers, Cursors, Animations, Background, Images, Graphics, etc. 3q. Usability Testing 3r. Onboarding 3s. Final Prototype 3t. Next on the Agenda–Way Forward	can maintain themselves for a long run. Sentient - Identifying various problem areas in a given problem and classifying them by their threat level (i.e., the amount of effect they have on the problem) so as to create a hierarchy among them and a sequence in which they need to be tackled. Synergetic - Combining various strengths of the team to produce a viable solution for the problem at hand. Symbiotic - Ensuring at all times that the research done with the help of prospective users is interactive and mutually beneficial hence the quality of data received should be good. Systemic - Understanding existing institutions, systems and competition to understand what they may lack and what all we need to improve upon to attract their user base as well.

MAPPING THE SIX S WITH THE ABILITIES GAINED FROM THE FINAL PROJECT – IDENTIFIED BY STUDENT PARTICIPANTS

Assignment	Title	Six S Identified by Student Participants
FNP 2	Final Project	Synesthetic - Utilizing the senses to observe the problem areas thoroughly to collect data. Sustainable - Developing possible solutions that can be maintained easily and can adapt to changes in the problem area. Sentient - Perceiving various problems that are existing in the problem area and prioritization of these problems. Synergetic - Combining each other's strengths to actively work on the problem to get the best possible result. Symbiotic - Designing possible solutions keeping the various stakeholders in mind to create a mutually beneficial solution. Systemic - Working with existing systems to understand how they work and what is effective and what is not.

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Researcher's Resume

Indrani De Parker

Communication Design Consultant, Foundation Design Educator & Research Scholar

Graduated in Visual Communications, specializing in Graphic Design from the National Institute of Design, Ahmedabad, Gujarat, India, in 1986.

Professional Practice since 1986 as a Communication Design Consultant, specializing in Visual Identity, Branding, Promotional Graphics/Collaterals, Publication Design, etc.

Partner in PHOTODESIGN, a design studio offering services in Communication, Photography, Design, and Design Education.

Currently, registered as a Ph.D. Scholar (External) at the Industrial Design Centre (IDC), Indian Institute of Technology Bombay (IITB), Mumbai, India, batch of July 2010, and in the final stages of writing the thesis. Research in Design Education, titled: DESIGN EDUCATION IN 21ST CENTURY INDIA: A Human-Centered Foundation Design Education.

Involved in design education since 1999, teaching both undergraduate- and post-graduate-level students.

Details of the involvement in Design Education:

CURRENT STATUS

Full-Time visiting faculty, Human-Centered Design Department, INDRAPRASTH INSTITUTE FOR INFORMATION TECHNOLOGY (IIIT-Delhi), New Delhi (2016–Present).

CURRICULUM CONSULTANT

Consultant, Curriculum Development for FOUNDATION DESIGN EDUCATION for the UG B.Tech. Programme in Computer Science and Design, at INDRAPRASTH INSTITUTE FOR INFORMATION TECHNOLOGY (IIIT-Delhi), New Delhi (2016–Present).

Developed four core design courses to adapt to a CS engineering educational domain:

1. Design Drawing & Visualisation
2. Visual Design & Communication
3. Design Processes & Perspectives
4. Research Methods in Design

Consultant-Invitee, academia expert for the discipline of Visual Communication in a workshop to articulate and establish the vision and mission for the NATIONAL INSTITUTE OF DESIGN, Kurukshetra, Haryana (2020).

Consultant-Invitee, Curriculum Restructuring Meeting, NATIONAL INSTITUTE OF FASHION TECHNOLOGY (NIFT), New Delhi (2018).

Consultant, Curriculum Development and Faculty Training for FOUNDATION PROGRAMME in DESIGN for both UG and PG programs, at INSTITUTE FOR APPAREL MANAGEMENT (IAM), Gurgaon (2009-2010).

Consultant, Curriculum Development for the UG program in COMMUNICATION DESIGN at IILM School of Design, Gurgaon (2009-2010).

Consultant, Curriculum Development and Faculty Recruitment for the UG program in COMMUNICATION DESIGN at PEARL ACADEMY OF FASHION (PAF), New Delhi. (This entailed assistance to the institute in setting up of the Communication Design Department.)

COURSES TAUGHT AS PROGRAMME COORDINATOR

Coordinator and curriculum development for the UG FOUNDATION PROGRAMME in DESIGN at the IILM SCHOOL OF DESIGN, Gurgaon (2007-2010).

Courses Taught: Design Fundamentals, Drawing For Design, Typography, Environmental Studies, Design Process, And Design Thinking.

Coordinator and curriculum development for the UG programme in COMMUNICATION DESIGN at the IILM SCHOOL OF DESIGN, Gurgaon (2009-2010).

Courses Taught: Typography, Symbol Design, and Graphic Design For Print And Web.

COURSES TAUGHT AS VISITING FACULTY

INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY DELHI (IIIT-D), New Delhi

Full-Time visiting faculty for B.Tech. students of Human Centered Design (HCD) Department, IIIT-D, New Delhi (2017–Current).

Courses Taught: Design Drawing & Visualisation; VISUAL Design & Communication; Design Processes & Perspectives
PEARL ACADEMY OF FASHION (PAF), New Delhi

Visiting faculty for UG students of Foundation Programme, Design, PEARL ACADEMY, Noida (2012).

Courses Taught: Design Fundamentals, Design Process and Concepts

Visiting faculty for UG students of Foundation Programme, Design, PEARL ACADEMY, New Delhi (2002-05).

Courses Taught: Design Concepts, Design Process, And Environmental Studies for Design

Visiting faculty for UG students of Communication Design, PEARL ACADEMY OF FASHION (PAF), New Delhi (2002-05).

Courses Taught: Typography, Basic Graphic Design, And Print Design

Visiting faculty for PG students of the Fashion and Web Design, PEARL ACADEMY OF FASHION (PAF), New Delhi (2000-02).

Courses Taught: Graphic Design for The Web

INSTITUTE FOR APPAREL MANAGEMENT (IAM), Gurgaon

Visiting faculty for UG students of Fashion and Lifestyle Design, IAM, Gurgaon, New Delhi (2010).

Courses Taught: Fundamentals of Design

Visiting faculty for PG students of Fashion Design and Management, IAM, Gurgaon, New Delhi (2010).

Courses Taught: Fundamentals of Design

NATIONAL INSTITUTE OF FASHION TECHNOLOGY (NIFT), New Delhi

Visiting faculty for UG students of Accessory Design and Fashion Design at the NIFT, New Delhi (1999-2007).

Courses Taught: Documentation & Presentation Techniques In Design And Colour

Visiting faculty for PG students of the Fashion Communication Department, NIFT, New Delhi (2000-2002).

Courses Taught: Graphic Design

TVB SCHOOL FOR HABITAT STUDIES, New Delhi

Visiting faculty, ART & GRAPHICS (IP University) for 1st and 2nd year UG students, TVB SCHOOL FOR HABITAT STUDIES, an architecture school, New Delhi (2000-2005).

Courses Taught: Art and Graphic Design

JURY MEMBER

Jury member for COMMUNICATION DESIGN, NATIONAL INSTITUTE OF DESIGN, (NID), Kurukshetra, Haryana (2018, 2019).

Jury member for FOUNDATION YEAR, NATIONAL INSTITUTE OF DESIGN, (NID), Kurukshetra, Haryana (2018).

Jury member for ART AND GRAPHICS, SCHOOL OF PLANNING AND ARCHITECTURE (SPA), New Delhi (2012, 2013, 2014, 2017, 2018).

Invited for Jury for FOUNDATION YEAR, WORLD SCHOOL OF DESIGN, Sonipat, Haryana (2016)

Jury member for FOUNDATION YEAR, UPES SCHOOL OF DESIGN STUDIES (SODS), UPES University, Dehradun, Uttaraanchal (2014, 2015, 2016).

Jury member for FOUNDATION YEAR, SUSHANT SCHOOL OF DESIGN (SSD), Ansal University, Gurgaon, Haryana (2014, 2015).

Jury member for FOUNDATION YEAR, STATE INSTITUTE OF DESIGN (SID), Rohtak, Haryana (2012, 2013).

Jury member for FASHION COMMUNICATION RESEARCH PROJECT, NATIONAL INSTITUTE OF FASHION TECHNOLOGY (NIFT), New Delhi (2011).

Jury member for FASHION AND LIFESTYLE DESIGN, FOUNDATION PROGRAM FOR DESIGN, INSTITUTE FOR APPAREL MANAGEMENT (IAM), Gurgaon (2010).

Jury member for FASHION COMMUNICATION DESIGN GRADUATING PROJECT, NATIONAL INSTITUTE OF FASHION TECHNOLOGY (NIFT), New Delhi (2007-2009).

PANEL MEMBER FOR ENVISIONING MISSION & VISION OF NIDK

Expert, Visual Communication, for workshop to articulate and establish the vision and mission for National Institute of Design, Kurukshetra (2019).

MEMBER, BOARD OF STUDIES

Member of Board of Studies for Communication Design, World University of Design, (WUD), Sonipat (2018–2019).

EXAMINER, ADMISSIONS

External Examiner for Admissions, NIFT, Kolkata (2015).

PAPERS PRESENTED

“REFLECTING ON THE FUTURE OF DESIGN EDUCATION IN 21ST CENTURY INDIA: Towards A Paradigm Shift In Design Foundation” As Research In Progress...

International Conferences:

DESIGN RESEARCH SOCIETY (DRS) 2012, CONFERENCE ON RESEARCH: Uncertainty, Contradiction, and Value in Contemporary Design Research, Education and/or Practice, Chulalongkorn University, Bangkok, July 2012.

4TH INTERNATIONAL CONFERENCE ON RESEARCH INTO DESIGN (ICORD'13): Global Product Development, IIT Madras, Chennai, India, January 2013.

DESIGN HISTORY SOCIETY ANNUAL CONFERENCE, 2013: Towards Global Histories Of Design: Postcolonial Perspectives, National Institute of Design, Ahmedabad, Gujarat, September 2013.

National Conferences:

TECHNOLOGY, INNOVATION AND SOCIAL CHANGE: Centre for Social Entrepreneurship, TISS, in collaboration with the Center for Social Innovation and Entrepreneurship, IIT Madras and Academic Partner Society for Entrepreneurship Educators, Mumbai, August 2012.

DESIGNING DESIGN EDUCATION FOR INDIA (DDEI): Conference hosted by India Design Council (IDC), an autonomous body of Government of India established under the aegis of the Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, Pune, India, March 2013.

COLLABORATIVE CONNECT BETWEEN THE RURAL AND URBAN IN DESIGN EDUCATION: A Case Study Towards A Paradigm Shift In Design Foundation In 21st Century India.”

International Conference:

5th INTERNATIONAL RURAL NETWORK WORLD FORUM, on RURAL & REMOTE RESILIENCE: Making the Priorities Possible, Whyalla, South Australia, September 2012.

DESIGN EDUCATION IN 21ST CENTURY INDIA: Reflecting On The Foundation Programme In Design In The Post Independent India

DESIGN HISTORY SOCIETY ANNUAL CONFERENCE, 2013: Towards Global Histories of Design: Postcolonial Perspectives, National Institute of Design, Ahmedabad, Gujarat, September 2013.

DESIGN EDUCATION FOR THE CHALLENGE OF SUSTAINABILITY IN 21ST CENTURY INDIA: Reflections On The Foundation Programme In Design

INDO-DUTCH INTERNATIONAL CONFERENCE, 2014: Design for Sustainable Well-Being & Empowerment, Indian Institute of Science, Bangalore, India, June 2014.

MOVING WITH THE TIMES IN INDIA: Re-Thinking The Foundation Programme In Design, 5th INTERNATIONAL CONFERENCE ON RESEARCH INTO DESIGN (ICORD'15): Design Across Boundaries, Indian Institute Of Science, Bangalore, India, January 2015.

PUBLICATIONS

Non-Refereed:

11TH CII-NID DESIGN SUMMIT, Conference Booklet, New Delhi, December 2011

POOL MAGAZINE, Monthly Design Magazine, Issue No 25, Published by Design India, Pune, July, 2012

DESIGN RESEARCH SOCIETY, DRS 2012, Conference Booklet, Bangkok, July 2012

TECHNOLOGY, INNOVATION AND SOCIAL CHANGE, Conference Booklet, CSE, TISS, in collaboration with CSIE, IIT Madras, and APSEE, Mumbai, August, 2012

Peer Reviewed:

ANTI-PO-DES, Online Journal of Research in Design and Related Disciplines, Published in New Zealand, (2011), www.anti-po-des-designjournal.org.nz

SEMINARS & WORKSHOPS ATTENDED

INDIA-UK DESIGN EDUCATION WORKSHOP SERIES – The topic of deliberation for the first workshop was “Future of

Design Education;” the focus of the second workshop was on “Capacity Building;” the third workshop theme was “Design Research & Scholarship,” National Institute of Design, Ahmedabad, 2017, 2018.

RE-THINKING BASIC DESIGN – An interactive workshop, organised by India Design Council, held at National Institute of Design, Ahmedabad, March 2015.

DESIGN EDUCATION QUALITY MARK (DEQM): Program Reviewer Training Workshop–An interactive workshop, organised by India Design Council, held at National Institute of Design, Ahmedabad, March 2015.

BASIC DESIGN: LOOK Back-LOOK Forward – HfG, Ulm and Design Education in India: International conference organized jointly by HfG, Ulm and NID, a conference and workshop on Basic Design Education in India, Kolkata, August 2010.

LOOK Back-LOOK Forward – International conference organized jointly by HfG, Ulm and NID on Future of Design Education in India, Bangalore, March 2010.

WORKSHOPS CONDUCTED

Conducted a WORKSHOP ON BRANDING & PACKAGING for a one-week certificate course, Uttar Pradesh Institute of Design, (UPID), Lucknow, UP, 2016.

Conducted a WORKSHOP ON GRAPHIC DESIGN AS A VOCATIONAL MODULE for examiners of Malaysian schools, MINISTRY OF EDUCATION, MALAYSIA, 2005.

Conducted ART WORKSHOPS with school children in Punjab, Jammu, and Delhi for the BRITISH COUNCIL as part of a program to Promote Awareness on Child Rights through the Visual Language, 1995.

Conducted a DESIGN WORKSHOP with Mr. A. Balasbramanium, Product Designer, with 12th-standard students of CONVENT OF JESUS & MARY SCHOOL, New Delhi, 1990.

SELECTED PROFESSIONAL DESIGN PROJECTS

Co-ordination for a fine art photography exhibition KAVADSA, at the TERRACE ART GALLERY, JEHANGI ART GALLERY, Mumbai, 2018.

Co-ordination for a multimedia photography exhibition KAVADSA, at the VISUAL ART GALLERY, India Habitat Center, New Delhi, with a team of professional designers, 2016.

Visual identity and branding for KUBBA CLINIC, a new state-of-the-art skin clinic, which involved creating Symbol, Logo, Stationary, Packaging, Signage, Photography, Promotions, etc.

Corporate brochure for SARITA HANDA, a leading exporter of home furnishings, New Delhi.

Conceptualization, visualization, design, and layout for a coffee-table book, A LEGACY OF ART, for Dhoomimal Gallery, New Delhi.

Conceptualization, visualization, design, and layout for a coffee-table book, EMOTION PICTURE, by Narendra Panjwani, Mumbai.

Conceptualization, visualization, design, and layout for a coffee-table book, JHUPU: A LIFE DRAWING.

Conceptualization, visualization, design, layout, and art direction for a coffee-table book, POTTERY AND THE LEGACY OF SARDAR GURCHARAN SINGH, published by Delhi Blue Pottery Trust.

Design Consultant to DANISH BOOKS, publishing books and journals on social, economic, and political issues, since 1997.

Design Consultant to RAINBOW PUBLISHERS, publishing books and journals on social, economic, and political issues, since 1997.

Presentation, conceptualization, visualization and design of school furniture for PRF School, an ADITYA BIRLA GROUP venture at Mathura, in partnership with CANE KRITI, a furniture production enterprise.

Design Consultant to FRONTLINE PROCESS, a pre-press processing house, since 1992.

Communication Consultant to HAQ-Centre for Child Rights, an NGO, since 2000.

Report Design for UNICEF (ROSA) on Commercial Sexual Abuse of Children.

A one-year experience as part of the design team at INTERSOLUTIONS Pvt. Ltd., an IT company providing e-solutions.

Visual Identity package for GALLERY TWENTYFIVE, an art gallery exhibiting only ceramics and photography consisting of symbol, logo, applications on stationery, promotional materials like invitation cards, posters, advertisements, etc.

Design of product catalogues since 1990 for ROMSONS, a leading manufacturer of surgical and medical disposables in

India.

Design of promotional material for OORJA, a roadshow organized by APPAREL EXPORT PROMOTIONAL COUNCIL, consisting of a series of fashion shows and exhibitions in London, Paris, and New York, in the form of advertisements in the Vogue Magazine, and posters and invitation cards for the events.

Visual identity for HOTEL WOODROCK, Manali, consisting of symbol, logo, and their applications and a brochure.

Consultant to PARALLEL LINES EDITORIAL AGENCY from 1989-1991. Agency offered design and print production services. Nature of work varied from leaflet design to brochure design to package graphics, and design and production of three in-house magazines—SAIL, ORIENTAL INSURANCE, and INDIAN PORTS—work involved planning the grid, typographical specifications, layouts, cover design, editorial illustrations, and supervising artwork and printing.

Design and execution of exhibition for TIMES OF INDIA PUBLICATION GROUP at the IITF, 1987.

Visual identity and branding for KUBBA CLINIC, a new state-of-the-art skin clinic, which involved creating Symbol, Logo, Stationary, Packaging, Signage, Photography, Promotions, etc.

Corporate brochure for SARITA HANDA, a leading exporter of home furnishings, New Delhi.

Conceptualization, visualization, design, and layout for a coffee-table book, A LEGACY OF ART, for Dhoomimal Gallery, New Delhi.

Conceptualization, visualization, design, and layout for a coffee-table book, EMOTION PICTURE, by Narendra Panjwani, Mumbai.

Conceptualization, visualization, design, and layout for a coffee-table book, JHUPU: A LIFE DRAWING.

Conceptualization, visualization, design, layout, and art direction for a coffee-table book, POTTERY AND THE LEGACY OF SARDAR GURCHARAN SINGH, published by Delhi Blue Pottery Trust.

Design Consultant to DANISH BOOKS, publishing books and journals on social, economic, and political issues, since 1997.

Design Consultant to RAINBOW PUBLISHERS, publishing books and journals on social, economic, and political issues, since 1997.

Presentation, conceptualization, visualization and design of school furniture for PRF School, an ADITYA BIRLA GROUP venture at Mathura, in partnership with CANE KRITI, a furniture production enterprise.

Design Consultant to FRONTLINE PROCESS, a pre-press processing house, since 1992.

Communication Consultant to HAQ-Centre for Child Rights, an NGO, since 2000.

Report Design for UNICEF (ROSA) on Commercial Sexual Abuse of Children.

A one-year experience as part of the design team at INTERSOLUTIONS Pvt. Ltd., an IT company providing e-solutions.

Visual Identity package for GALLERY TWENTYFIVE, an art gallery exhibiting only ceramics and photography consisting of symbol, logo, applications on stationery, promotional materials like invitation cards, posters, advertisements, etc.

Design of product catalogues since 1990 for ROMSONS, a leading manufacturer of surgical and medical disposables in India.

Design of promotional material for OORJA, a roadshow organized by APPAREL EXPORT PROMOTIONAL COUNCIL, consisting of a series of fashion shows and exhibitions in London, Paris, and New York, in the form of advertisements in the Vogue Magazine, and posters and invitation cards for the events.

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