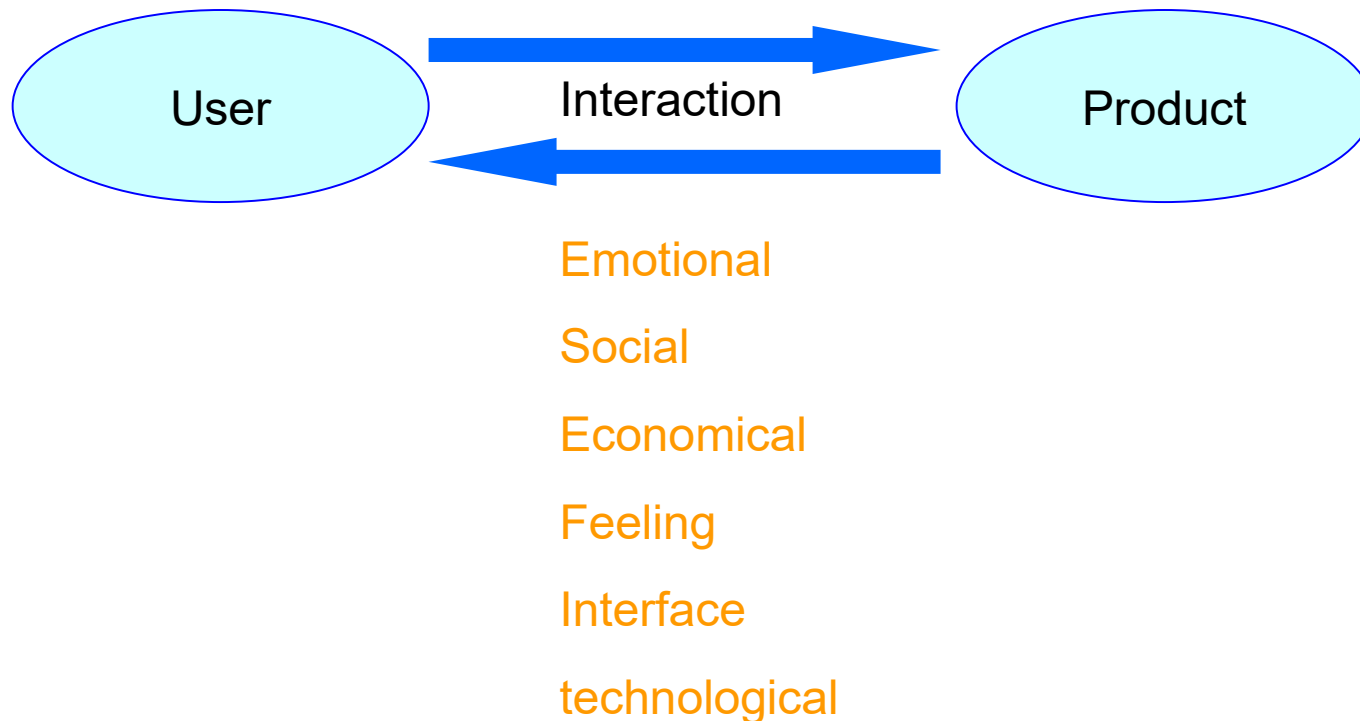


3 D form generation
Through
Emotions

- Due to increased competition in the market, companies are coming up with new products with new looks, everyday.
- More and more, products in the same category have identical technical performances so that consumers base their purchase decisions on the pleasure a product will give.
- Companies have come to realize that technology driven product design does often not fit with real user needs and concerns. In intelligent product design a need for emotional or affective intelligence is prevalent.
- Today's market is customer driven market. Everyone wants to be different. Customer likes to have his own identity, his own likings in the product so customization is very important now days.

This research project aims to extend the methodology of extracting the form elements from inspirational visual, representing emotion and transforming it into 3 D form.

An affective experience refers to a large variety of psychological states such as **emotions, feelings, moods, sentiments, and passions**. It can be induced by just looking at an object, by using it, playing with it, or even by thinking of it. In all cases, we can speak of an interaction between a user and a product, whether it is passive or active.



Emotional experience

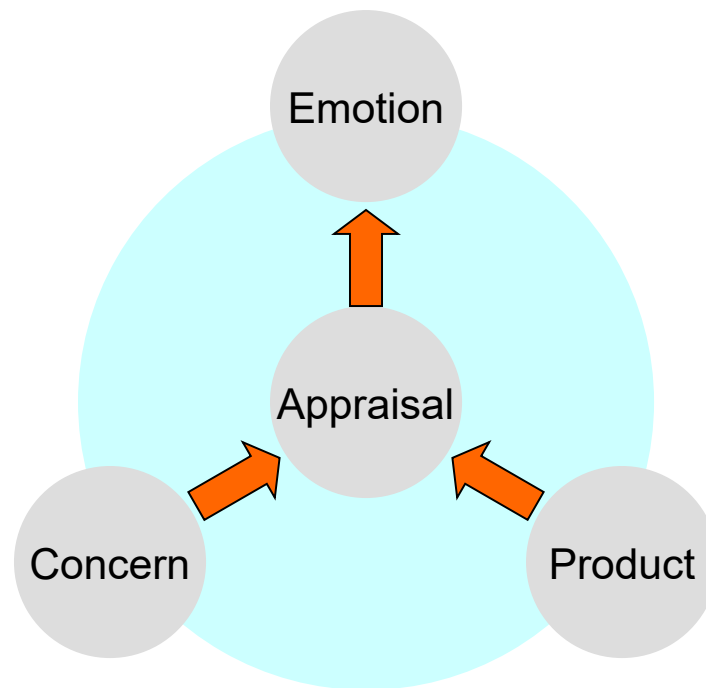
Of all affective states or experiences, the emotional experience is the most relevant for understanding product experience because only emotions imply a one-to-one relationship between the experience.

Aesthetic experience

Emotion that has linked with a product appearance, aesthetic pleasure. Whether it constitutes a single emotion category or can include diverse emotions.

Consumer-product attachment

How to prolong the aesthetic appeal of products or , more broadly , to create a sustainable bond between user and product.



How product elicit the emotion?

- For a designer it is very important to design products that 'fit' the emotions of the users.
- While generating new forms it is important that a designer integrates many demands and wishes that the prospective users of the product may have.
- Not only technical and objective demands are important, but also aesthetic, emotional, and other experiential factors, some of which are hard or impossible to express objectively.

For generating the 3D form from emotions following methodology is developed and implemented at IDDC IIT Delhi by Prof. B.K.Chakravarty

Methodology:

- The emotion (like Joy, excitement, serene etc) is decided.
- According to the emotion, main visual was chosen.
- To support the main visual, supporting visuals also were chosen.
- The grammar of the visual is result of interaction between different elements in the visual.
- The visual is divided in to different elements.
- The element which is most prominent of all is treated as primary element and subsequently others are treated as secondary and tertiary element.



Visual depicting Excitement

- The grammar from the visual representing the emotion is transformed in to the 3D form. The elements and their interaction giving rise to the desired emotion is followed to transform it in to 3 D form. Then refinement is done in the form to achieve the emotion to maximum level. The resulted 3D form best represent the

emotion with the help of the visual. If we take different visual representing the same emotion, we will get the similar 3D form.



Initial form exploration in Clay



Refinements in Form

- This methodology is tried by students at IDDC IIT Delhi. Different emotions like joy, gloomy, excitement etc. were tried by the students. The results (3D forms) were matching with the emotion. At the end of the exercise one product was selected which was best representing the desired emotion. This methodology is subjective.

For generating the visual grammar the volcanic eruption as made up of two main formal elements .The eruption as the primary form element and the mountain base as the secondary element.



- The primary element pointing upwards has a sudden break away from the secondary element.
- The secondary element is strong and forms a base.

Visual depicting Excitement

- The primary element has a sense of dynamism and freedom.
- Both the elements together signify a sense of dynamism The final form created fits the grammar well.



Initial form exploration in Clay



Refinements in Form



Final Form depicting the Emotive quality of Excitement

*Vinay Rama Rao
1998*

- The emotive metaphor chosen for doing the form generation in helmet exercise is Ambitious Teenage.
- The very step after selection of the topic was to make an image mapping of emotive metaphor to understand the nature and feelings of teenager.
- Two image mapping exercise were done where number of visual, images and photographs, which depict teenage ambitions.



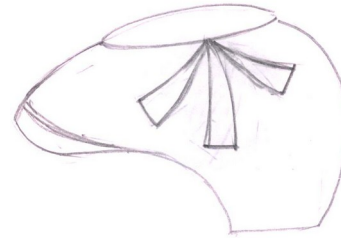
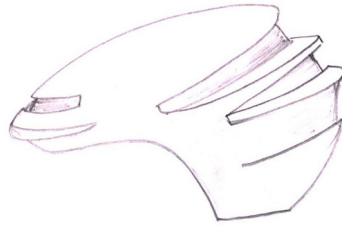
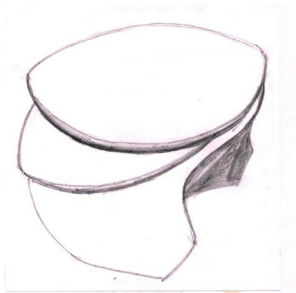
Emotive forms in helmet

(Advance form Studies)

By: Deepti



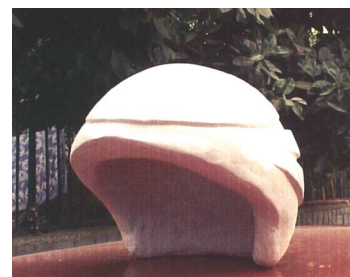
Guide: B.K.Chakravarthy
At (IDDC)



Initial sketches



Clay models



POP models

Ambition



Rural



Soft



Passion



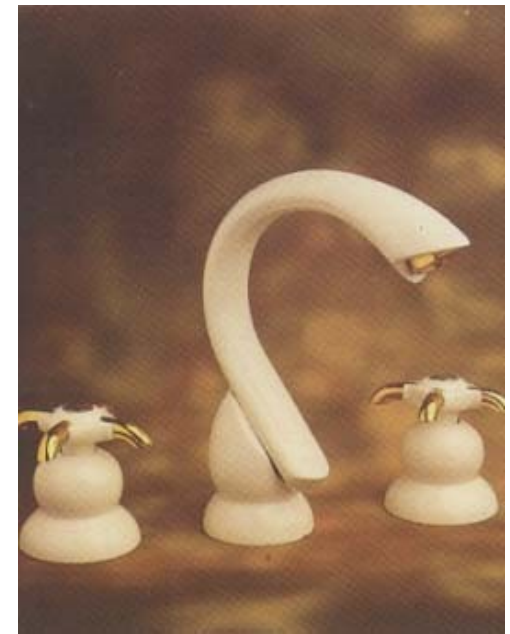
Emotive forms in helmet
(Advance form Studies)
Guide: B.K.Chakravarthy
At (IDDC)



Mood as a joy represent state of a mind or a particular emotional quality which has a predominating attitude.

Visual grammar:

Rising Upward, roundness, calm nature, no sharp edges , sincerity, smooth surfaces.





Clay models



Foam models



Student's projects

AFFECTION



Main visual



Supporting Visuals



GLOOMY



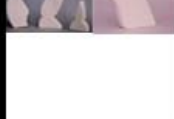
HOPE



INNOCENCE



JOY



PAIN



SERENE



AFFECTIONATE
INTEMACY



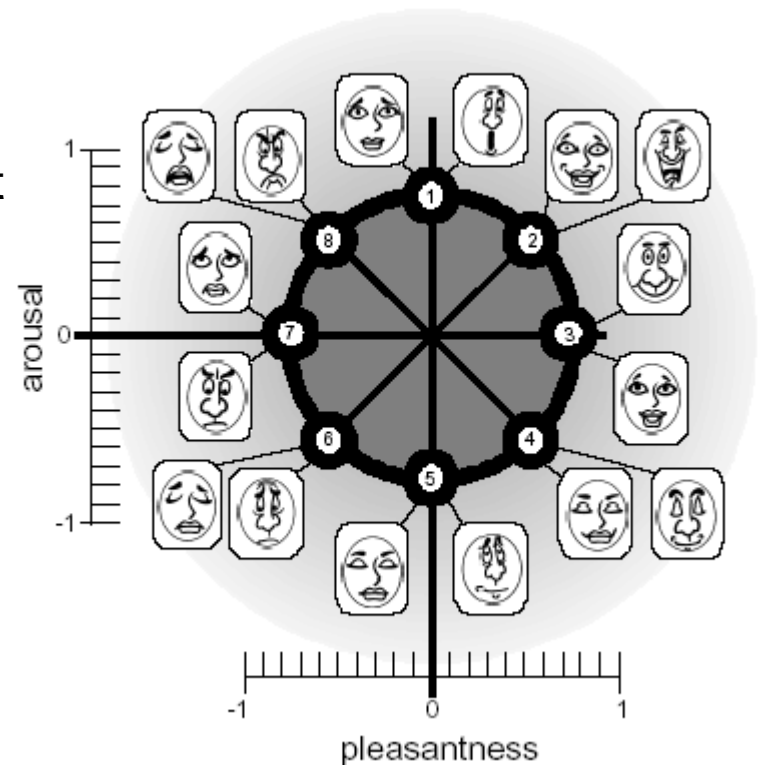
CRUELTY



This paper presents an approach to include the user in the design process in order to obtain an emotional fit between the product expression and the resulting emotional construal.

Emocards are developed. The emocards are based on the dimensions 'pleasantness' and 'arousal'.

In an experiment, Subjects can express their emotional responses to products by pointing out the card that best indicates their response.



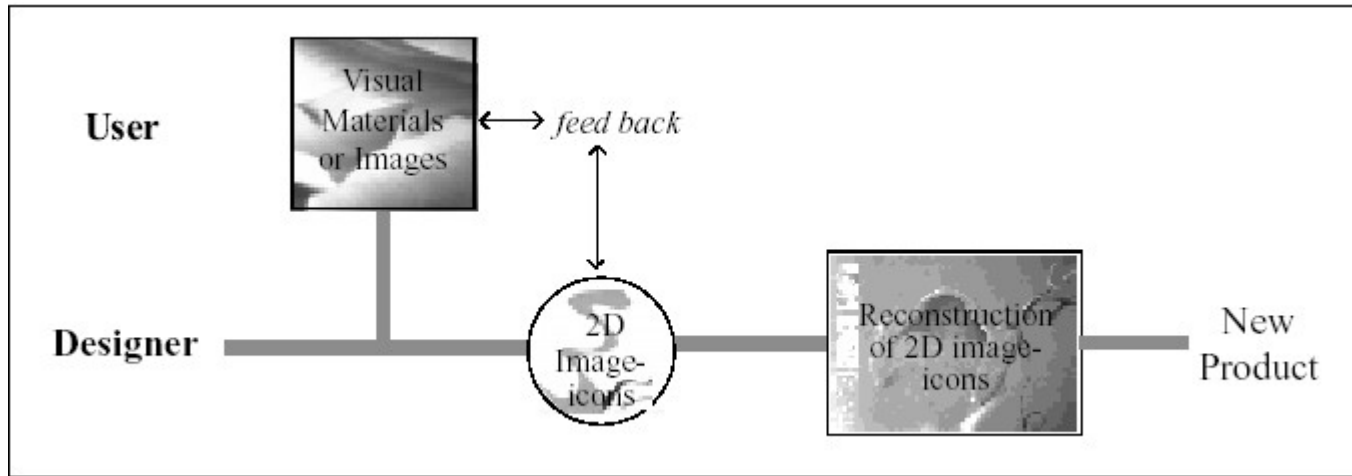
- While generating form of a new product, designer needs to integrate many demands and wishes of the prospective users of the product. The aesthetic, emotional factors are very much important along with other technical issues.
- Kansei design approach visual imagery is used to carry the subjective meanings, and the designer extracts form elements from inspirational material into abstracted 2D image-icons (pictorial image).

Extending of design approach based
on Kansei By dynamic manipulation of 3d objects

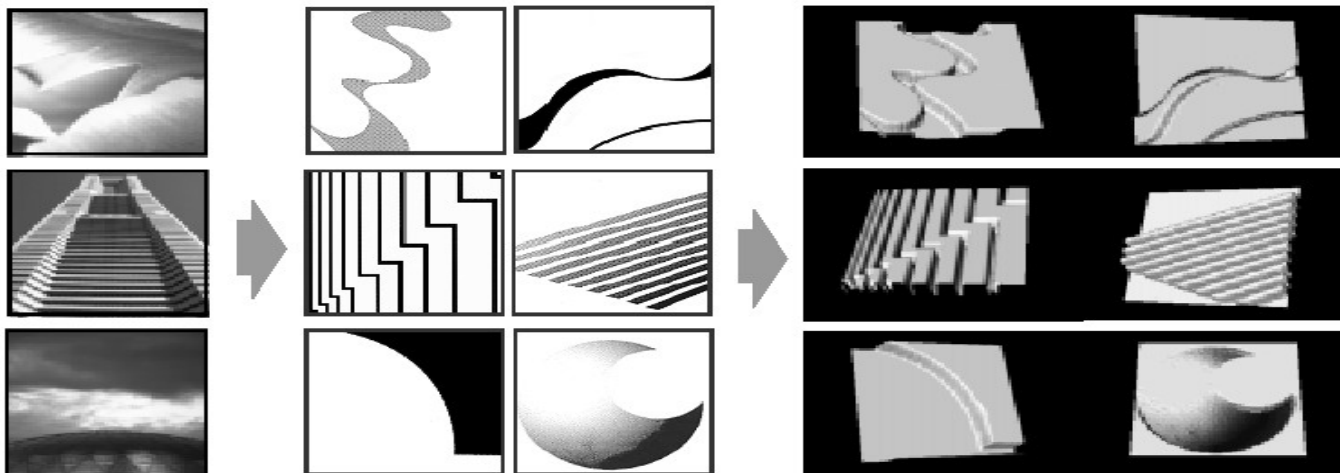
SeungHee Lee

Pietwr Jan Stappers

Akira Harada



The *Kansei* model is needed in design to understand how people receive their **impressions or emotions** from the objects.

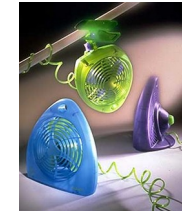


How the method of understanding emotive qualities of visual , representing the emotion and extracting it to the 3D form, will be useful in customization?

The logic of converting emotion into 3D form is subjective. Effort was made to understand how different user group react to same emotion. A particular product may be exciting for young but it may not be exciting for old people.

Excitement

Direction



Precision



The diagram illustrates the evolution of mobile key pads through two main stages:

- Excitement:** This stage shows four examples of key pads:
 - A green and white keypad with large, rounded buttons.
 - A blue keypad with a more complex, multi-colored layout.
 - A grey keypad with green buttons and a small screen.
 - A blue keypad with a complex, multi-colored layout.
- For Mobile key pad:** This stage shows four examples of key pads:
 - A blue and white keypad with a small screen.
 - A white keypad with a small screen.
 - A blue and white keypad with a small screen.
 - A white keypad with a small screen.



Excitement

1992 1993 1994 1995

For Mobile key pad

1996 1997 1998 1999



Precision



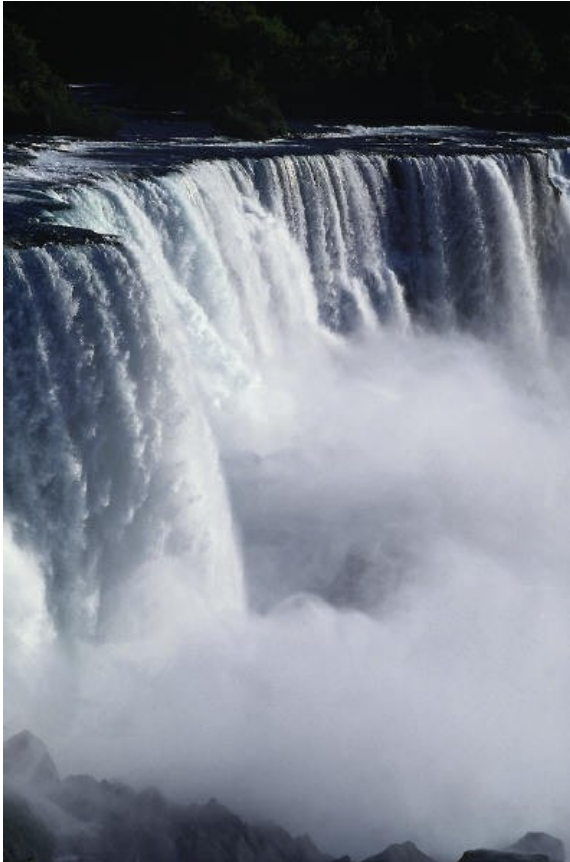
The image displays three distinct objects arranged horizontally. On the left is a yellow mobile phone keypad with a standard 12-key layout. In the center is a silver mobile phone keypad, also with a standard 12-key layout. On the right is a silver handgun, specifically a Glock G1010, shown from a side profile. The handgun has a black grip and trigger, and the text 'G1010' is visible on the slide.



Different proposed applications-

- As an educational tool in design institute.
- Online request to have customized form can be developed.(Internet application)
- Software can be developed to change the form of product according to emotion.
- Customization of product form by involving user in design.

- Can a visual given by user as his/her perception of that particular emotion be converted into product form? Or
 - Can a product be customized as per visual representation of user's idea of emotion?
-
- How relevant is the methodology ?
 - Can it be simple to understand ?
-
- In basic method developed by Prof. B.K.Chakravarty, the image is selected after the emotion is decided. But when we are saying customization of the product form the user will come with the image and designer will interpret the image and transform it into form.



Main Visual

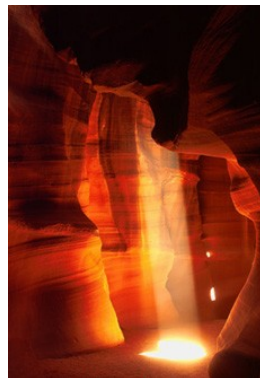
Excitement-

Enthusiasm, Anticipation, Stimulation, Pleasure, Thrill

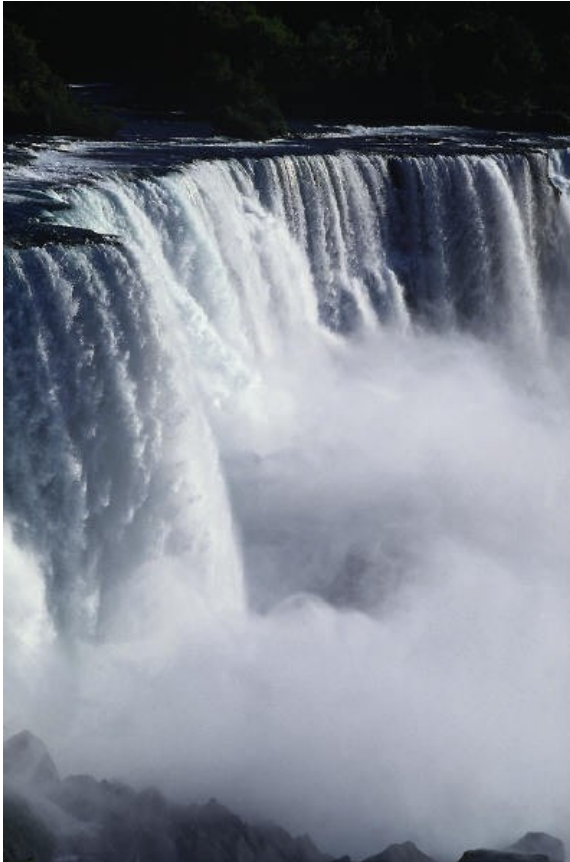
The excitement means the feeling of lively and cheerful joy or its something that agitates and arouses.

This image of waterfall is exciting because it is giving feeling of lively. The dynamic nature of water shows the flow at the center of the image.

The focal point of image is the spilling, dancing, bouncing water. It is mixture of energy, live ness. It forms white foam which is pleasurable and joyful to watch.



Supporting
Visual



In this image the primary element is water flowing downwards. The whitish steam is secondary element. The background can be treated as tertiary element which is silent.

Same methodology can be extended to all the mobiles.

**A****B****C****D****E****F****G****H**

E (8.00)
A (7.00)
D (6.50)
H (6.00)
C (4.00)
G (4.00)
F (3.50)
B (3.00)

Aim:

- Knowing the weightage of the element and deciding primary , secondary according to it.
- Main idea is to correlate 2D visual elements to 3D form.
- Testing the possibility of using this methodology at various levels.

As this method is subjective a check from the user is required. The level of checking was done at 3 different levels.

Level 1:

In this survey user was provided with only 8 mobile images and nothing else. They were asked which mobile they find exciting and rate them accordingly.

Nikhil				F	G C H	D B	A	E		
Nisha				H	D	B	G C	F		E A
Piya					H B	D	C	G F		E A
Guru preet					D	B	G	C	E	F A H
Abhinav			C		D B	E		H G	F A	
Sachin			C B F		G E	D	A	H		
Amit			F	B	C D	G	A	E		H
Sonali C	D B F				G	E	A	H		
Monali			C	B	D	F A	G	E	H	
	1	2	3	4	5	6	7	8	9	10

Level 1:



A



B



C



D



E



F



G



H

A (8.17)

E (8.00)

H (7.72)

G (6.83)

F (6.06)

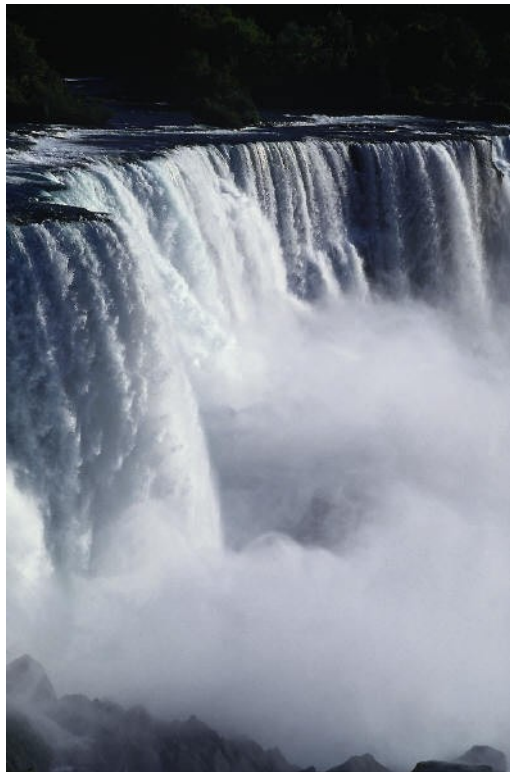
D (5.44)

C (5.33)

B (5.00)

Level 2:

In this survey the user was provided with a visual (Which represent (excitement) and same 8 mobile images. He was not told about the emotion. Only he was asked to relate the mobile with the visual. The rating was done on the basis that the mobile will get more points which best represent the visual.

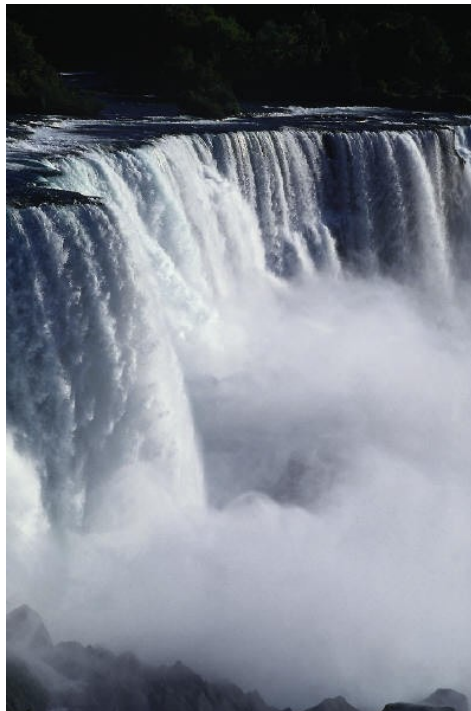
**A****B****C****D****E****F****G****H**

E (6.67)
G (6.11)
B (5.55)
D (5.44)
F (5.38)
H (5.38)
A (4.78)
C (4.55)

Research Example													
Sham	A			H				D	G	E	F		
Yogesh				F C	H B		A	E D G					
Ashish	F	C	H	G D	B	A		E					
Roopali					C		F	G B	D A		H E		
Dinesh	D A						E	H	C B F	G			
Ainapure					A			H	C D E	F B G			
Kishor				A	C		H			G B	D	F	E
Sameer	D B		C	G F	E			H		A			
Bhushan	F A		G E H	D B								C	
	1	2	3	4	5	6	7	8	9	10			

Level 3:

In this survey the users chosen were design students. They were provided with the methodology of emotive form generation. They were given visuals and mobile images and then they were asked that to rate the mobile with excitement as parameter.

**A****B****C****D****E****F****G****H****E (7.67)****H (7.50)****G (7.33)****A (6.83)****D (6.67)****F (5.42)****C (4.25)****B (4.25)**

Anand					C F	F B	D A	G	H E	
Vaibhav			C B F		G	E D		A	H	
Ajay				C	B H	F	D	G E	A	
Krishna		B	C	A	F	D	H	E	G	
Nikhil					B	C	A E F	H G	D	
Abhijeet				C B	D	F A G	H	E		

12345678910

- In a case study of mobile at all levels of survey the results were almost same.
- According to methodology of visual representation of emotion whichever mobiles were exciting same were rated as exciting by all the three different surveys.
- In survey 1 user were provided with only the word excitement. In survey 2 users were not given word excitement but they were asked to draw relation between visual and the mobiles. In this case results were almost same as survey 1. This shows that without knowing that the visual is for excitement the user came to know the visual grammar, the emotion behind the visual.
- Survey 3 was done to keep check on my subjective definition of emotion. In that case also the results were matching.

- This methodology of emotive form generation will be helpful in cases of customized product design where user is involved in design process with his/ her emotional requirements, feelings about the product to be designed.
- The designer will develop the form according to the visual which will be matching with the idea in use's mind. There will not be ambiguity.
- This will help in generating customized product forms from the visual given by the user.

