

Reducing desk work fatigue through positive work habits

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Project report submitted in partial fulfilment of the requirements
of the course of Design Project-III

by

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Approval Sheet

This Design Project-III titled 'Reducing desk work fatigue through positive work habits' by Midhun Mohan is approved for partial fulfilment of the requirement for the degree of Masters of Design in Communication Design.

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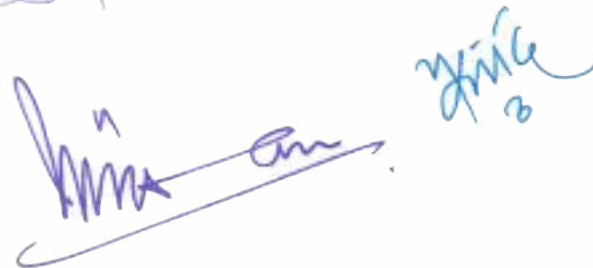


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Declaration

I declare that this written submission represents my ideas in my own words and where other's ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all the principles of academic honesty and integrity and have not misrepresented, fabricated, or falsified any idea/ data/ fact/ source in my submission. I understand that any violation of the above will cause disciplinary action by the institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

Unhealthy habits at workspaces could lead to a lot of physical and mental exhaustion. Desk works that demand people to sit at a place, working on a desktop or a laptop for prolonged period could cause so much strain that in turn affect their productivity.

Over exertion at work without giving proper care to one's health could end up being more counter productive, even when the intention was otherwise. It is important to take timely breaks in regular intervals, in between work to relax and refresh the body and mind, that has been working continuously to keep you going.

This project explores the possibilities of reducing health hazards from fatigue caused by unhealthy habits built specifically around desk work, by giving constant nudges and visual cues that would remind people to care for their health as well as suggest how to do the same by providing relevant information on how to act upon and avoid them.

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1. Introduction

It's a fine day at work. You can't wait to get started with all that you have scheduled for the day. You get your cup of coffee (or tea), plant yourself in that chair in your cubicle and spend hours looking at a screen, checking on mails and updates, attending meetings and pushing yourself through a typical day at work, as you cross your checklist entries one by one. But the end of the day doesn't feel so good as the start. Your eyes are dry and itchy, probably red too. Your neck feels stiff. Your lower back hurts like anything and all you want is to get home and lie down for some much needed rest. If this sounds like a typical day of your work life, then dear friend, you too are clearly in clutches of work fatigue.

First of all, let's be clear about the definition of the term 'fatigue', that will be used for the whole of this project. It is necessary to define this in the beginning since it was found during background study that the intended medical meaning of the term changes with the context in which it is referred to. For the entirety of this project, fatigue refers to 'persistent tiredness, weakness or exhaustion that could be mental, physical or both'.

Reason for fatigue may be different from person to person depending on their way of working. One of the main reasons is over exertion at work which again may be a result of various other reasons. Another cause of fatigue is by not giving timely breaks to the body and mind in between work. Many parts of the body are working in coordination to keep you sit focused and carry out your work. Without proper breaks and refreshment, the body wears out towards the end of the day causing a lot of pain and tiredness.

Other possible common reasons for fatigue include poor planning, which can lead to piling up of work which keeps adding more weight on people until the end of the day, when they would have to force themselves to sit through all of it, or getting too into the work that they end up sitting for too long looking at a screen as their blinking rate goes down resulting in irritation due to dry eyes, a stiff neck and back since there have been very less movement that would help the muscles to relax.

As a result of one or more of these reasons, a person feels too exhausted at the end of the day which may even carry on to the next day. This affects not jus the productivity of the person but also their

quality time after working hours which is usually saved for personal growth and family, in turn affecting the people around you too.

It has always been a personal observation that a little bit of stress can be a good thing as it helps me to get done with the things I need to do. It also helps me to be better prepared for what awaits so that they are handled in a much more better way than expected. But over stressing and the resulting exhaustion is a totally different case. Often forgetting to wash the eyes with cold water, to stretch or even to take a break and move about, it does take a toll on the body and mind.

This project intend to address this problem of fatigue experienced by people who works at a desk, by studying the ways in which it impacts their health as well as the preventive measures available. It explores the various existing interventions and their accessibility, ways of configuring the workspace and positive habits that could help to reduce stress to the body. The project also demands a thorough understanding of the factors that are in the control of the intended users as well as those that are not, to come up with solutions that can be implemented without any delay of adapting it to the system.

1.1 Aim

Facilitate to develop positive work habits among desk work employees, that will help reduce fatigue.

1.2 Objective

1. Study and understand the various health problems faced by people who are involved in desk work, identify what exactly causes them and what can be done to reduce or prevent these conditions.
2. Gather content on the various ways of configuring workspaces
3. and the habits that contributes towards the well being of desk work employees.
4. Explore ways on delivering the content in ways that will produce the intended results
5. Implement the idea, test and refine to further improve them.

1.3 Personal motivation

As a student, I myself spend a large portion of my day sitting at a table, looking at a screen and experience a good number of health conditions these very same habits have to offer. Especially towards the end of a semester, when there is so much work left to be completed in so little time, due to inefficient planning on my side. Then happens a cycle of forcing my mind and body to work continuously, even when it starts to hurt by over exertion. Either being too involved in the work without realising the passage of time and the degree of exertion or working ever so harder in a self torment way because there is no other choice, people like me often find ourselves to be too tired at the end or even throughout the day.

And it is not just in my case. This practise is seen in many of my fellow academic peers as well as friends and family who work in a firm as a professional, with their working hours extending beyond the regular and bleeding into nights and weekends. Especially among the professionals the culture of working too hard in the weekdays, to live for their rightful break in the weekends is a well rooted habit passed on to the fresh joiners.

A solution that would help pick up habits that would help reduce stress to the body in a work environment would definitely help professionals as well as students like me who would be further spending a good part of our life sitting and looking at a screen.

2. Background study

2.1 Initial background study

The initial study was intended towards getting a basic understanding of the various practises by people in desk work spaces that make way for different kinds of adverse physical and mental stress

1. Common unhealthy practises at a work that could lead to fatigue and further lifestyle disorders:

- Increased screen time
- Prolonged sitting
- Prolonged exposure to loud sound
- Lack of good posture
- Lack of proper body support

2. Common health conditions that results from these unhealthy habits are as follows

- **Related to eyes:**

Refractive error: short sight, long sight

Dry eyes (affects curvature of the eye)

Astigmatism (caused by irregularities in the curvature of the eye)

- **Related to ears:**

Prolonged exposure to loud sound (wearing earphones most of the time) can lead to sensorineural hearing loss.

- **Related to neck:**

Lack of good posture leads to severe neck pain (cervical spondylosis)

- **Related to elbow:**

Taking support on the desk along the wrist area for prolonged periods jams the median nerve resulting in tingling numbness, pain and weakness along the course of the nerve (Karpaltunnelsyndrom).

- **Related to metabolism:**

Prolonged sitting leads to reduced metabolic activity resulting in obesity, diabetes, abnormal cholesterol, high blood pressure which ultimately leads to cardiovascular problems like stroke,

heart attack etc.

- **Others:**

Hemorrhoids, pilonidal sinus, deep vein thrombosis, constipation leading to hernia, and more.

2.2 Existing interventions

1. Software interventions that target increased wellness and productivity at work

The goal of the software is to raise consciousness in a natural, non-forced way that a small break is needed. Their features include:

- Setting reminders and content that suggests to take break
- Gives users the ability to customise their own plan (the user can choose a setting that best represents their needs)
- Breaks range from stretch breaks, to short-cut key tips, to world news
- Targets different types of fatigue

How do they do it:

- The software measures the time and intensity to which employees engage with their computer. If the computer user works for too long without taking a natural break, the software will advise that they need to take a micro-break.
- Computer users get feedback on their computer usage and intensity and the software lets them know what they are doing well and what they could improve on to have more comfort and energy
- Admins can view statistics to see how employees are doing and better target which departments could use more coaching and support

2. Anti Fatigue wearables

Features of these wearables include:

- Monitor fatigue through a smartwatch/band that collects data on health such as level of rest, quality and quantity of sleep.
- Shares data with the admin who monitors the wellbeing of their employees

- The admin can suggest orientation programs and other means of reducing fatigue based on the data collected
- Works in combination with the supporting softwares

3. Ergonomic Work Desk Setup

- Chair with proper height and body support
- Viewing angle and screen calibration while using desktops or laptops
- Keeping frequently needed things at a reachable distance
- Adjust lighting accordingly to avoid eye strain

4. Work stress management and health training programs

These are workshops and other health related orientation programs that are conducted in offices for the employees to help them be conscious of their wellbeing by creating awareness on the various ways they could do the same. These programs might also include various personalised health checkups and therapy,

which are made available for who are in need of it.

One common problem that can be seen across all these interventions is that there are put into use in limited offices. Mostly it is MNCs and other larger companies that have these kinds of interventions made available in their offices for their employees. With the ever growing startup culture and the rising demand for workspaces, there are countless companies that share a common workspace.

2.3 Study on target user groups

To better understand the people in workspaces, the workspaces itself and the various health problems that can arise from them, a study was done among people who belonged to the target users category. At this stage of the project, the intervention was targeted towards professionals and students who spend a large part of their day sitting and working on a desktop or laptop. With a questionnaire designed to get into the details of the work, the various activities that are done at the office/academic space, a detailed account of their typical working day: from waking up to going back to bed as well as more direct questions of their identified reasons for stress at work/academics if they experience so, their ways of coping etc were asked about.

There were many reasons for the cause of fatigue, stated by the users. One common reason that both students and professionals faced was the lack of proper planning and further lack of discipline to execute the work that was planned ahead. This results in piling up of work towards the end of deadline, which increases the load on the people. This brings them to the situation where they keep forcing themselves to sit and complete the work as much as possible.

Another common reason among the user groups is the extra time that they have to spend working to make up for a leave of absence or other reasons. In this case, the strain of extra hours be put into work to meet the expected working hours will depend on how understanding and flexible the employer will be towards these matters.

One of the reasons for the professionals to experience fatigue is due to toxic work culture that exists in many office environments. Employees struggle with the load of work increasing by day without proper acknowledgement on the same from the employer.

There have also been instances of people being too involved in their work such that they don't realise the passage of time or be aware of their sitting posture, until something disrupts their flow or the work is done. Even this can lead to fatigue as they end up sitting at a place for a prolonged time with limited movement. Studies also show that the blinking rate gets reduced while doing focused work leading to dryness and irritation to the eye.

2.4 Focused target user group

Even though there are similarities between the groups of users considered, it was important to focus on a specific group to scale down the scope of the project to what is possible for exploration in the given time frame.

Upon further consideration, working professionals were chosen as the primary target group since their demands from work are less flexible compared to that of a student enrolled in an academic program. With stricter deadlines and much higher cost of error if they fail to perform at satisfactory level, working professionals are under constant pressure to be productive.

A solution that works well for working professionals can also be tested among students to see if it can create similar impact for them as well. Since, they are tomorrow's professionals it is thoughtful to keep their problems and needs in consideration while addressing this common problem of fatigue.

2.5 Study on workspaces and how they contribute to a certain desired outcome

Environments play a key role in influencing the behaviour of the people within it. There are multiple design decisions that are consciously made for the purpose of increasing the productivity of a workforce and not just for their aesthetic appeal. To better understand these various steps taken, one of the most celebrated among workspaces, Google's workspaces were studied for their underlying ideologies and how they are designed to boost the productivity of their employees.

Google's workspaces are designed based on their idea of collaborative work increasing productivity. Studies had shown that productivity increased by 15% within those workspaces that encouraged their employees to work collaboratively. These workspaces are designed to have multiple 'collision points' which are places that create the opportunity for people to meet, interact and share their thoughts and ideas. Google believes that people engaging in unexpected conversations gives way for new and inspiring ideas.

The workspaces incorporate three types of spaces: those designed for deep focus work, for collaboration and meetings, and to build a sense of community and spark innovation.

There are several architectural aspects that make their workspaces complement thinking and productivity, such as double-height spaces with high ceilings, daylight access, long span between columns and exposed internal structures.

Visuals of the workspaces are designed with an abundance of space, using bright colours and lights, flowing organic shapes and use of natural materials. These elements help to create a stimulating space that sparks ideas.

2.6 Study on ways of configuring workspaces to reduce adverse impact on health

The following are a set of recommended configurations to reduce stress to the body while working at a desk with a digital screen:

1. Computer screen configuration:

- **Higher contrast of display**

Our screens show us pixelated images, that is, images that look solid but are in fact composed of thousands of tiny, single-coloured patches of colour. These low-resolution images create “hard points of focus” that compete for our eyeballs’ attention. The result is that our focusing system is always in a state of trying to find exactly where the pixel is. That constant focusing causes still more eye strain.

- **Larger text size**

Upsized fonts means downsized risk of strain to the eyes. Larger font sizes have clearer forms when rendered on a digital screen made up of square pixels.

- **Screen brightness**

Brightness of the screen should be the same as the environment.

Neither brighter nor darker to reduce strain to the eye.

- **Higher refresh rates for the display**

Higher refresh rate of screens can reduce flickering of display.

- **Reduce blue light**

Blue light rays having a short wave-length, is known for causing damage to the eye as well as affecting sleep patterns.

- **Reduce blue light**

Blue light rays having a short wave-length, is known for causing damage to the eye as well as affecting sleep patterns. Blue light can be adjusted by:

1. Using special blue light filter glasses
2. Reduce the colour temperature of your screen

- **Reduce glare on from the screen**

Glare on your computer screen can cause eye strain as it stops your eyes adjusting as easily as they should to the content you're

trying to focus on. Glare on screen can be reduced by the following ways

1. Use anti-glare matte screen
2. If you wear glasses, use one with anti-reflective coated lenses

- **Softwares that provides screen configurations for different purposes**

Softwares that adjusts screen settings depending on the task are available. Their functions include:

1. Screen presets for office work, reading, gaming etc
2. Gives reminder to take a break

Example of such softwares:

1. <https://care-eyes.com/>
2. <https://justgetflux.com/>

2. Device placement:

1. Do not set up the device near a window. Reduce as reflections and glare on the screen that causes eye strain.

Reflections can force the eye to shift between focal lengths rapidly, which causes strain.

3. If you are looking simultaneously at another document, place it at the level of the monitor, just beside it. Doing so reduces eye and neck movement required.
4. You should be seated at 25 inches or at an arm's length from your device.
5. Adjust the height of your seat so that you are looking slightly downward at your screen.
6. Adjust the height of your seat so that you are looking slightly downward at your screen.

3. Lighting configuration:

1. Make sure the office isn't too bright. Lesser light is better while using computers.

2. Make sure the office isn't too bright. Lesser light is better while
3. Avoid harsh light from outside
4. Use dim, indirect light
5. Reducing the use of fluorescent lights
6. Position the source of light behind you if possible rather than having it above or in the front
7. Do no work in too low light such that the screen glares at the eyes

Referred from:

(American Optometric Association, n.d., Computer vision syndrome)

(Essilor, 2022, 8 Eye Care Tips If You Look At Screens All Day)

(Nvision, 2023, The Short-Term & Long-Term Harm of Screens)

(ViewSonic, 2021, Best Monitors for Eye Strain – A Complete Guide)

(Ansoerge, 2023, 13 Tips to Prevent Eye Fatigue)

2.7 Study on various practises advised to follow in workspaces to reduce strain to the body

Habits to reduce digital eye strain

The following are a set of recommended habits that could reduce the adverse effects of spending too much time interacting with a digital screen.

1. 20-20-20 Rule

After 20 minutes of work, look at something 20 feet away for 20 seconds. This relaxes the eye muscles and reduces strain.

2. 2Hrs : 15Mins

After 2 hours of continuous computer use, give 15 minutes of break for the eye.

3. Frequent blinking

Blinking keeps the eye fresh and prevents it from getting dry. We tend to blink less during screen-use. Normally, we blink about 17 times a minute, but this often drops to 12-15 times per minute

during computer use. That may not seem like a big deal, but it can lead to damaging dryness.

4. A thorough eye exam every year

Regular checkup is recommended for the eye to assess and rectify vision errors. If not corrected at the starting stage of deviation from perfect vision with the help of proper measures, it can lead to strain and result in the requirement for permanent vision correction.

5. Proper glasses for the task

If correction lenses are used, discuss with the doctor about your daily use of computers or laptops and get glasses that are apt for that purpose as well.

6. Timely task breaks throughout the day

Breaks are essential for the eyes, body and the mind to function perfectly and in coordination.

1. Rest your eyes for a couple of minutes
2. Wash your eyes with cold water
3. Do not take a single long break between prolonged working hours. Take frequent smaller breaks instead.

7. Healthy diet for healthy eye

Consume vitamin A rich food that helps to keep your eye healthy

1. Important for a healthy vision and reinforces the macular tissues in your eyes
2. Include cheese, egg yolk, milk, and butter in the diet

8. Make time for physical activity

Sitting at a place for long durations of time can have adverse outcomes on the body. Increasing screen time should be balanced by frequent breaks for physical activity. Take time to go for a short walk, frequently stand up, stretch your arms, legs, back and neck.

Referred from:

(American Optometric Association, n.d., Computer vision syndrome)

(Essilor, 2022, 8 Eye Care Tips If You Look At Screens All Day)

(Nvision, 2023, The Short-Term & Long-Term Harm of Screens)

(Ansorge, 2023, 13 Tips to Prevent Eye Fatigue)

(Loeye, n.d., Balancing your screen time and eye health)

(Disha Eye Hospital, 2017, Balancing your screen time and eye health)

Kraff Eye Institute, 2023, How to Protect Eyes from Mobile and Computer Screens)

2.8 Study to understand various workspace setups and identify those elements that are common across workspaces.

Photos of workspaces were collected from people belonging to the targeted user group. The photos included personal as well as common shared office spaces, from both who worked in an office and from home. The purpose of the study was to identify the objects which are commonly seen in different office spaces. Identifying these elements will help towards ideation of solutions that can be applied across offices, regardless of the type of work done in them. This study gave an understanding of different types of work desk setups and the various objects that are present in the space. The photos are also studied to understand the possibilities in which the messages intended to be communicated can be placed into work environments without making it too obvious and standing out.

The objects that goes into an office surely depends on the type of work done. For example, graphic artists tend to have devices that supports sketching and larger screen displays for better visual experience with finer details that the work demands. Similarly, multiple displays were

used if the work involve switching different content and so on.

Here are few among the photos that were collected for the purpose of the study:



Elements found:

- Calendar
- Pen holder
- Mouse
- Soft board
- Sticky notes
- Notebook
- Plant pots
- Bottles
- Dustbin
- Multiple screens



Elements found:

Notebooks
Bottle
Backpack
Desk lamp
Table cloth
Plug point
Multiple screens

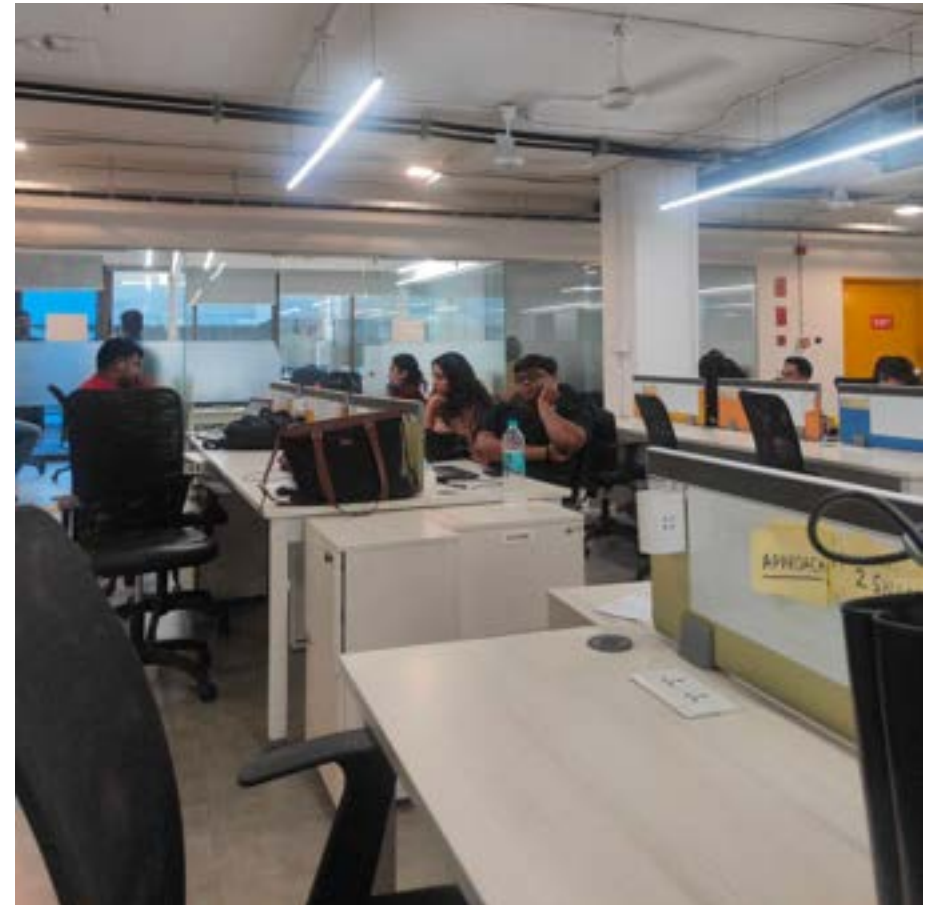


Elements found:

Notebook	Screen
Calendar	Keyboard
Pen holder	
Mouse	
Plant pot	
Bottle	
Switchboard	
Printer	



Spaces adjacent to the work desk were also looked at to get an idea of what goes into it and identify possible carriers of messages if the intervention involves placing messages in the environment.



Elements found: Backpacks/handbags, Pen holder, Soft board, Sticky notes, Paper cups, Tissue papers, Plug points, Calendars, Posters, Signages, Vending machine.



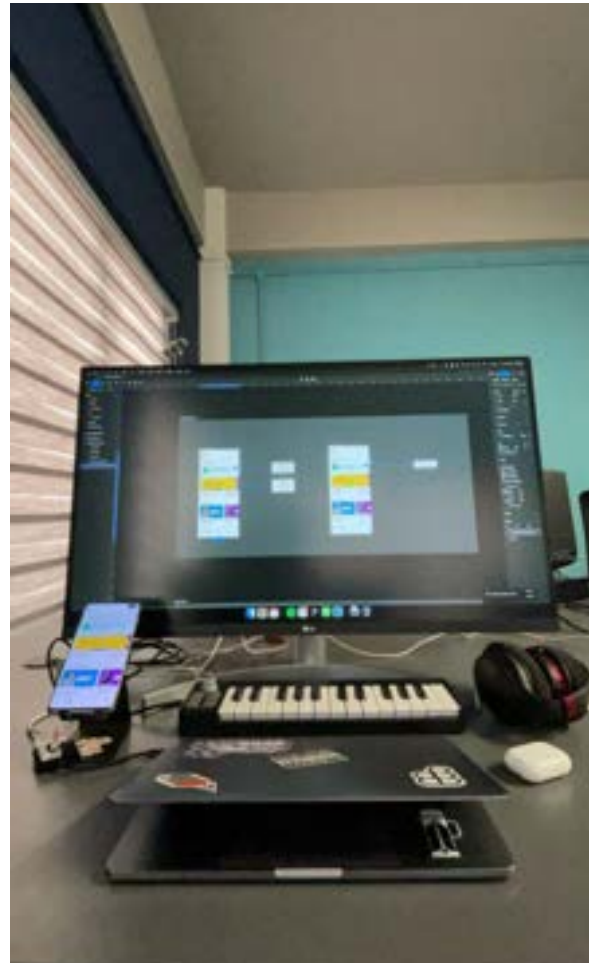
Elements found: Laptop, Bottle, Earphones, Plug points



Elements found: Paper cups, Coffee Machine, Noticeboard, Soft board, Poster, Trash bin



Elements found: Laptop, Bottle, Earphones, Plug points



Elements found: Screen, Smartphone stand, Headphones, Earphones, Laptop, Stickers

Common elements found across workspaces include: laptop/desktop and accompanying devices such as mouse, keyboard, chargers and plug points, headphones/earphones. Other common item are notebooks, water bottle and plants in pots or cups.

2.9 Literature study on habit building

Atomic habits

Written by James Clear, Atomic habits is a book that talks about how to develop better habits and lose bad ones. It details out the science and practical implications of building habits that can change live through minuscule changes over a long period of time (Clear, 2018). Here are a few learnings from the book that resonates with the project:

Key insights:

1. A habit is a routine or behaviour that is performed regularly, and in many cases automatically.
2. Author's four step model of building habits: cue, craving, response and reward
3. Environment plays a key role in shaping behaviour
4. Make it easier to see the cues for desired habits
5. Avoid bad habits by making them invisible
6. The habits you want to adapt should be made obvious, easy, attractive and satisfying
7. It is our relationships with objects that shapes out behaviour. We tend to associate certain ideas with a certain object. For example, if the bed is a place where you rest and relax, working while being on the bed will not be a good idea.
8. Framing habits in terms of the frequency of repetition is the best way to go.
9. Small habits over a long period of time make a huge differences

There are detailed content on how a workspace should be configured such that it does not cause a lot of stress to someone who spends their entire day sitting on a chair at a desk, looking at a screen as they work on a desktop or a laptop. Also, there are several practices that can be followed to reduce strain on body such as the 20-20-20 rule or the 120-15 rule. They make sure the body gets the break it deserves at regular intervals to keep it refreshed and continue with the work. Even though these content on how to configure workspaces and several practices that can create a positive change to people who experience fatigue in this very same workspace environment. Even when the content is available, has it reached the intended people? As a person with first hand experience of strain from sitting and working with for too long, neglecting the signs for break from the body, I have never really taken the trouble of searching for ways to make the situation better, other than trying to plan the how the work left need to be attended and completed. The clues of these rules that could help towards reducing burnout have never been seen in workspaces that I have been in, including both academic and professional.

How will these ideas reach people if they are not communicated well, especially for those who can benefit a lot from them. If the employer,

regardless of the size of the company, does not take any measure to make sure the wellbeing of their employees, it comes down to the employees themselves to take action on it.

Project directions at this stage:

1. Designing a defined space with attributes that prevents people from over exerting and help reduce that chances of experiencing fatigue.
2. Creating content on configuring workspaces to reduce possibilities of health hazards and making is accessible in these very spaces.
3. Creating a space that specifically facilitates focused work without affecting the physical or mental wellbeing of a person.

There are two ways to go about at this stage. One involves choosing a defined space and designing it such that it facilitates towards an intended outcome. This would require the availability of a defined space as well as resources required ready on demand. Since both these requirements are out of scope at this moment for this project, other directions need to be explored. Another approach is to ideate on solutions that can be applied to any space that involves desk work. With the hit of pandemic, work has turned more remote which enables

people to work from almost anywhere. The idea of a place to work has seen a shift from a proper office or workspace to any that has a comfortable seating and a decent network connection. It could be their home, in a cafeteria or even open public places, based on the person's liking. So when we say desk work, it is not just limited to an office anymore, but rather almost any space that has a desk, chair and an environment suitable to do work. Therefore, it is essential for the solution to be able to adaptable to multiple places, as if it follows wherever you go and wherever you are sitting to work.

The study so far had covered many aspects including habits at desk work that contributes towards fatigue, various health conditions that arise in the users, existing interventions that help reduce fatigue, ways of configuring the workspace to reduce stress to the body as well as ways of developing positive habits. All these aspects were indeed essential for the project to gain a better understanding of the problems and possible solutions. What was lacking at this point was a proper model to proceed with all the information gathered so far, to analyse and define the attributes and functions of the solution. Thankfully, a deeper dig into the subject helped to sort out this block and proceed to the further stages of defining, ideating, implementing and testing.

3. Methodology

Background study gave insights on process models that are intended towards developing effective behavioural change interventions that aim for health outcomes. Further probe into these models showed how the study done so far was in fact in line with the initial phases of this process and paved the path, to proceed with all the information gained related to the context of the project: the various health problems faced by the target user group from desk work and the practices to reduce its ill effects on them. Key insights from the model, its correlation with this project and further stage wise proceedings are documented below.

Behaviour has a huge impact on health outcomes among other factors that contributes towards it. There are various categories of health behaviour such as those which involve care seeking and adherence to treatment, delivery of healthcare, adoption and usage of health technology etc. The category of interest for this project are behaviours that contribute towards prevention of a condition. Examples for such behaviours include: stress management, physical activity, diet changes and so on. (MadPowLLC, 2020, Behavior Change Design: A Comprehensive Yet Practical Approach to Improving Health Outcomes)

Typical methods applied in the case of behavioural change include:

1. Providing information:

Providing the right information is a good start that is essential but not sufficient. Even after knowing what is to be done, people may not do it. What is to be done then?

2. Nudge to behave in a certain way:

Nudging can be useful for one-off or 'in the moment' behaviours, changing decisions in the moment. Health outcomes typically require sustaining behaviours consistently over the long term

3. Scare them:

Only works with some people in some circumstances for certain behaviours. Without clear action plans (what to do, when to do and how to do) to change and the confidence to succeed, people often get defensive, thus having minimal effectiveness.

4. Pay them:

Payment in the form of incentives or rewards (treatment in exchange for cash). But behaviours stop along with the incentives.

The following sections shall discuss and define the four phases of behavioural design in detail and how it applies to the context of this project.

3.1 Diagnosis

This initial stage involves understanding and defining the problem or opportunity space, for whom are the interventions meant for, what is the behaviour that needs to be developed and nurtured, how will it be done and the context in which it will be done. Let's define them in the context of this project.

Target audience:

A person at a desk on a laptop or a computer, a major part of their day.

Target behaviour:

The intended users should take timely breaks in between work to refresh their body and mind. They also should plan their day's work beforehand and execute them as per the plan so that the works are completed on time without causing burnout at the end of the day.

Engagement pattern:

There are different ways in which these habits can be built. The behaviour needs to be achieved throughout the time they are working. Let's consider the working hours to be a 9-6 job.

Context:

The context in which the behaviour needs to be achieved is in a desk work space setup in an office or home. It may be a shared workspace where there are a lot of people working at their own desk or cubicle or a personal workstation that people have setup at home.

Understanding the behaviour in context:

Study on the target user group gave insights on the various ways they over exert themselves while doing at work and possible reasons for it.

3 major ways people over exert at desk work are as follows:

1. Sitting continuously for a long period of time:

The need to put extra effort in the work might be a result of the following reasons:

1. Demand of urgent work/short deadline from the employer
2. Compensating for leave of absence at work
3. Fear of not meeting deadlines and losing credit due to poor planning
4. When one gets too into the work and forgets the passage of time
5. Doing side hustle to make more money for a better living
6. Getting too involved with the work such that one forgets about how long they have been sitting in a stretch

2. Working without taking eyes off the screen for long periods

The reasons for having to look at a screen continuously for a long time are the very same as that of sitting as they are activities that happen simultaneously.

3. Not maintaining good posture while sitting

The reasons for not sitting properly are as follows:

1. Been sitting for too long and it already hurts the body but one has so much piled up work left to complete in very less time
2. Getting too involved with the work such that one forgets about

the way they are sitting. (How many times to people get conscious and think about the way they are sitting)

3. Not sitting properly may not have been a practice even before they started working at a desk in an office.
4. Lack of awareness on the importance of maintaining a good posture
5. Lack of an ergonomically designed chair that supports good posture
6. Having a medical condition that restricts a person from sitting in a good posture.
7. Work demands sitting in a unhealthy posture.

There are various reasons why people are demanded to over exert at work. Understanding those reasons on which you have certain control over to bring about a positive change is important to come up with a suitable intervention that could reduce the situations of stressing themselves at work.

The following are the reasons identified as those over which users have certain level of control:

1. Fear of not meeting deadlines and losing credit due to poor planning
2. When one gets too into the work and forgets the passage of time
3. Getting too involved with the work such that one forgets about how long they have been sitting in a stretch and how they have been sitting (if they were maintaining a good posture)
4. Been sitting for too long and it already hurts the body but one has so much piled up work left to complete in very less time
5. Not sitting properly may not have been a practice even before they started working at a desk in an office.
6. Lack of awareness on the importance of maintaining a good posture

Solutions at a management level in an office will require much more time and investment to be actualised. The proposed solution should be user oriented such that it intervenes in the area where the users have control to make decisions. This makes the intervention **easier and faster** to be implemented.

Another aspect to consider for the solution is if it will be **affordable** for the users and further how to make it affordable for a larger group of users. A solution that is not affordable to the intended users does not

serve its purpose and remains as nothing but useless. Same is the case with interventions that remain as ideas and not implemented.

To understand the affordability of existing product interventions, current lowest prices for a considerably decent products were and are as follows:

1.



Ergonomic chair:
~1,100₹

<https://fabcraf.com/index.php/product/high-back-adjustable-height-ergonomic-executive-office-chair/>

2.



Ergonomic table:
~14,200₹

https://astrixinc.in/products/office-table-with-adjustable-height-free-large-mousepadvariant=39801737248922¤cy=INR&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic

3.



Height adjustable
laptop stand:
~1,800₹

<https://www.amazon.in/Adjustable-Portable-Removable-Ergonomic-Standing/dp/B07BLX8426?source=ps-sl-shoppingads-lpcontext&ref=fplfs&pssc=1&smid=A2ALO4747KZR6Q>

4.



E-ink display:
~4,687₹

<https://rarecomponents.com/store/7.5inch-e-paper>

Even though the cost to own one or a few of these interventions does not go up to fortunes, how easy it will be to afford them will depend on the income of an individual which may range from a few thousands to lakhs. The solution should therefore be inclusive of the wide spectrum of user groups by bringing down the cost as much as possible.

Attributes decided for the solution:

1. Adaptable to any space
2. Takes lesser time to implement
3. Affordable

3.2 Prescription

This stage involves defining how the problem/opportunity will be addressed. This includes the various functions of the intervention, behavioural change techniques applied and the various components of the intervention that helps achieve the same.

Intervention functions:

1. **Education:** making people aware of the adverse effects of over exertion at desk work and the resulting fatigue and what can be done to reduce the same to lead a healthier life.
2. **Persuasion:** The various elements of the intervention use an appealing and motivating tone to the users so that they take a positive decision towards trying it out and continue to use the intervention.

Behavioural change techniques:

1. **Goal setting:** The intervention should encourage the user to think ahead and set goals for the work to be completed in a fixed amount of time and execute it.

2. **Action planning:** The intervention should help the user to plan their work so that they are more organised, execute the work properly and on time, which will reduce the chances of overexertion at work.

3. **Repetition:** One of the ways to build a habit is to keep repeating it. The users need to be reminded about the habits that need to be developed. Ideas or elements that encourage these habits needs to be made more visible in the environment such that it constantly reminds them of it which can lead to positive actions taken by the users.

4. **Feedback:** Self monitoring of behaviour and their outcome so that the user can understand if the intervention is working for them by improving their well being.

Intervention components:

1. Visual cues that will remind the user about the habits need to be built.
2. Ways of nudging to motivate people to perform a certain action

3.3 Execution

Designing the solution based on the prescription and implementing it. Several ideas are generated with an understanding of the specific behaviours that are aimed for from the users. Multiple ways of achieving these behaviours were explored and narrowed down to the best solutions and tested among the intended users.

3.3.1 Ideation

1. Hey, blink! (The blinking eye poster)

Problem:

Focussed digital work can reduce blink rate leading to conditions that can affect vision.

Why blinking is important:

Blinking nourishes the eye, makes vision clearer and cleanses the eye with fresh tears.

Not blinking for extended periods can lead to:

- Higher chance of eye infection
- Dry eyes and irritation
- Diminishing clarity of vision

Idea:

A physical moving poster that visualises blinking action. Helps towards the repetition aspect of the proposed intervention.

How it works:

The poster with this subtle blinking movement will be strategically placed in the workspace such that it will always be in the peripheral vision when a person is working at the desk with the laptop.

The action of blinking in the poster should be such that it is visible and perceived even when the person is not actively looking at it.

The abstractness of the visual needs to be explored and decided: should it look like an actual eye or rather suggest the idea of blinking.

Further:

Explore and understand the response it creates in people.

Theory:

1. Power of manifesting and the science behind it:
 - a. Manifesting means to turn a thought or idea into reality.
 - b. Manifesting and manifestation methods

Belief alone will not help in manifesting. It requires action. Belief along with positive thinking and taking action helps manifest your

goals. The science suggests that our beliefs bring about behaviours (and responses from others) that lead to the outcomes we desire.

(<https://www.psychologytoday.com/us/blog/click-herehappiness/202009/what-is-manifestation-science-based-ways-manifest>)

Scientific researches that support manifestation:

1. **Research by Dr. Carol Dweck:** Growth mindset (believing that you can do something and succeed at it) can help you succeed in it. Truly believing in something = ready to work hard for it.
2. **Self-fulfilling prophecy:** If we think that we won't be able to achieve something, we will ourselves set out a motion of events that will more likely end up with us not achieving it. Your beliefs set in motion circumstances that affect your ability to manifest an Outcome.
3. **Negativity bias:** If we are already feeling bad, we're more likely to interpret neutral circumstances in a negative way. Positive attitude may lead towards focusing on the positive

aspect of reaching towards or manifesting their goal. Negatives would lead to focus on their failure in doing so.

4. **Upward spirals of positive emotion:** Positive emotions seems to be able to manifest what we set our mind on more easily. Why do we like being around optimistic people?

Manifesting in the context of the proposed idea:

Visualising: The poster visualises a positive behaviour that could help the viewer remember not to over stress the eye.

Extra mile:

Further details related to the idea of the blinking poster, that need to be figured out include:

- What happens when the person looks at the poster? How will it react?
- Is it possible to give more life to it, respond to interactions? (what happens when something comes too close to the blinking eye?)
- Can the blinking rate increase depending on the time spent by the person looking at the laptop?

- Can the eye get more red or grow veins progressively based on the time the person has been working at the desk?

Means to test and evaluate its impact:

How to understand if having this poster in the background makes a difference? What could be the ways to test the impact?

Challenges:

Making a poster with a moving element that does not make any sound, for repeating sounds may be distracting.

Concerns:

Possible negative impact of this poster:

- Will it make people feel like they are being watched?
- Will it intimidate them and take their focus away from work?

Cost of building:

- How much is it going to cost to buy this poster?
- Is it people who are going to buy this or is it the office? (is it a personalisation entity?) How much should it cost in both cases for it to be affordable?

Interventions with a similar idea:

There are tiny bot assistants with an animated face that are already used to set reminders and notify messages and other basic assistant tasks. These pet-like bots can blink and make expressions that make it feel like it has emotions and gives a certain personality to it, rather than being just a lifeless moving object.



https://hips.hearstapps.com/hmg-prod/images/vector-lifestyle-007-nologo-1540908859.jpg?resize=1200:*

Reference links:

- Official site: <https://www.digitaldreamlabs.com/pages/meet-vector>
- Demo: <https://www.youtube.com/watch?v=aBiNaro5pAU>

Even when marketed as a home robot which can do a number of basic assistant tasks, it can be adapted to the purpose of healthcare. It may be programmed such that when the user has spent too much time at a desk, the bot will activate and interact with them and demand their engagement with it. This is done as a way to motivate a person to take timely breaks when working for prolonged hours.

Cost:

- Rs. 41,380/-, Official price (<https://www.digitaldreamlabs.com/pages/meet-vector>)
- Rs. 20,000/-, Indiamart (<https://www.indiamart.com/proddetail/sales-for-anki-vector-home-robot-25504892862.html>)

2. Visualising how people would not want to be**Idea:**

To show people what would happen if you don't care for their well being at work places. If being able to visualise what people want to be and taking actions for it helps to manifest it, what happens when they are made to visualise how they wouldn't want to be?

Theory:

Visualising what you want to be helps getting closer and further achieving it. So what if people are shown what they would not want to be? What response will it create in the viewer?

Application of the idea in the context of this project:

Explore ways of showing people what would happen if health is not taken care of. There are cases where lack of good posture and body support led to conditions where the person is struggling to even take a step. What if there are visuals that warn that anyone would reach that condition if not taken care of?

Interventions with a similar idea:

1. Images on cigarette packaging



(<https://s3.ap-southeast-1.amazonaws.com/images.deccanchronicle.com/dc-Cover-au7mok02br0m258dgrfuggmvt0-20200530134838.Medi.jpeg>)

Relevant questions related to the intervention:

- What do these images on the cigarette packaging make people think? What is their response to it?
- Even after having warnings of the aftermath, why do people still buy and smoke cigarettes?

- If the intended purpose of these messages are not met, what are they communicating instead?
- If people are still smoking even after all these cautionary messages, what would be the reason?
- Is just visualising not enough? What about visualising and experience being in that position?
- How to make someone experience having a lung disorder?

Extra mile:

How to make people experience what could happen if they don't care for their well being? Will showing people as suffocating make the same impact as them actually suffocating? What can be done to create a better impact?

3. A planner that promotes desired desk work behaviour:

Providing people with a planner that has slots defined in the desired time periods with necessary breaks in between (20-20-20 as well as 120:15) which would help reduce the experience of burnout. This would complement the favourable work-break intervals suggested for physical and mental well being, by planning and setting goals accordingly for each day's work.

This planner would help to achieve the goal setting, action planning and repetition aspects of the proposed intervention

Medium:

Non-digital: Could be in the form of a journal, a whiteboard etc

Advantages:

1. Notebook is an element that is commonly found in almost any desk work space
2. Improving upon/tweaking an entity that is already available in the environment and in use by the users, in such a way that it promotes desirable behaviour

Considerations:

1. What do people look for in a planner?
2. How do people use a planner?
3. How to make it as inclusive as possible, meeting varied needs?
4. What are the sizes in which it should be made available?

Keywords:

Goal setting, action planning, feedback

4. Visual cues for reminding people to maintain good posture while sitting

Idea:

Visual cues in various forms that would remind people to be conscious about their posture and maintain a proper one while working at a desk

Thoughts:

- How often do you think about your posture while working?
- How can visuals at the work desk help to remind people of the same?

Medium:

Non-digital: Could be posters, pins or stickers

Considerations:

1. An understanding of where to put up such visual cues is essential for its effectiveness.
2. What happens after repeated exposure?
3. Design a set of visual cues from which users can select the one

they can relate to?

Keywords:

Psychological capability, memory, visual cue, setting reminder

3.3.2 Final deliverable

So, then what to go ahead with? Since each idea or outcome of the idea has a purpose to serve, the thought of combining these ideas to work collectively as a group to achieve the intended aim started to grow and led to exploring ways of bringing them together. The result was to design a kit with a set of items that helps towards reducing fatigue at desk work.

The kit

The kit contains a set of posters, planners, stickers and badges that contributes towards the intended aim in a certain way. Let's go through each of them in detail.

Planner:

Notebooks were one of the most common items that were seen in most office spaces studied. In the kit, the purpose of the planner is to build the habit of planning things ahead among the users. It nudges them to follow the 20-20-20 rule by its design.

Essentials of any planner:

1. Space to note down tasks (obviously)
2. There are various endless styles in which notes are taken down

Planner could be something that many people already use. Samples of notes were collected from people who use a planner regularly to plan their day's work to get an understanding of the various styles in which people take notes.

Essentials of this particular planner:

1. Since the planner is intended to develop certain habits by prompting users to follow a certain method. Following a new method requires instructions to make sense of it and slowly get used to it.
2. The method needs to be simple enough to encourage people to give it a try. A complex method to follow with even more complex instructions is a good enough reason for the planner ending up not being used at all.

The pages of the planner are designed to accommodate the various styles of note making (bullets, lists, checklists). A square grid is

Date: _____

20

20

20

20

20

20

Time for a break!

07

provided so that the notes can be put down neatly with proper indentations. The square grid also makes it easier to make checklists since the squares in itself can be used as check boxes rather than drawing them.

A single page of the planner is divided into slots based on time, each of 20 minutes. There are 12 slots in a page which adds up to 2 hours. This way of 20 minute slots adding up to 2 hours in a page is by design to nudge people to follow the 20-20-20 rule. Instructions on how to use the planner are provided in the beginning so that it becomes easier for the user to follow it.

Instructions include:

1. How the page is divided into slots
2. How to put down notes in the planner
3. How to plan the work based on the 20-20-20 rule
 - a. What needs to be done at the end of each 20 minute slot
 - b. What needs to be done at the end of a 2 hour work session

HOW TO USE THIS PLANNER

The pages are divided into slots of 20 minutes

After every 20 minutes, take a moment, look at something at about 20 feet for around 20 seconds and then resume work as planned for the next slot.

At the end of a page or a 120 minute work session, take a 15 minute break to get up from the desk, move around and then resume work, further planning the upcoming slots.

Time for a break!

Date:

TASKS

Main tasks can be noted down here.

- Grids can be used to further divide and organise sub-tasks
- Following the grid also helps to keep the notes clean and tidy

EXTRAS

Add work remaining in the respective slot to this space so that it can be adjusted to the day however you want.

ALL THE BEST!

For fresh beginnings!!

Begin from a fresh page :)

Time for a break!

05

20202020



Posters:

The posters serve as visual cues for the users that reminds them to take a break, not to sit continuously for too long or other related ideas based on the habit that needs to be picked up. The posters need to be installed within the workspace, close to where the person sits so that it is visible even when the person is working on the laptop. The placement of the posters should be such that it is always visible in the person's peripheral vision.

A5 posters seemed more suitable for the context since there may not be enough luxury of space in an office setup. The case is different for work desk setup at home where you have more space as well as control over this space, which means a larger poster may be used.

The above entities, the posters and the planner are bound to a table or a wall. The planner has comparatively much more mobility since it can be carried around by the user, if he/she wishes to sit at a different place to work. But these posters are always stuck to the wall and remain there until they are removed. This increased the demand for entities that serve the same purpose as the posters but with the added ability to be carried around. Thus it was decided to add a set of stickers and badges to the kit.



Stickers

Stickers are much similar to the posters but in a smaller size. They are small visuals that contain ideas conveyed visually in a catchy and appealing way, apt to serve as cues for favourable habits. These stickers could go on a laptop or even the planner that may be carried around when the user changes position from the usual desk to a different spot in the office or at home. It could also be put up at places they frequently visit so that they get to see it often. Stickers on the chair or table is also a good idea since they are in the immediate environment. What better place to put the message of not to sit for too long, than the chair itself!

The purpose of the stickers is to be reminders for the various practises that the person is trying to build as a habit. It could also help to spread the ideas and reach other people.

Badges

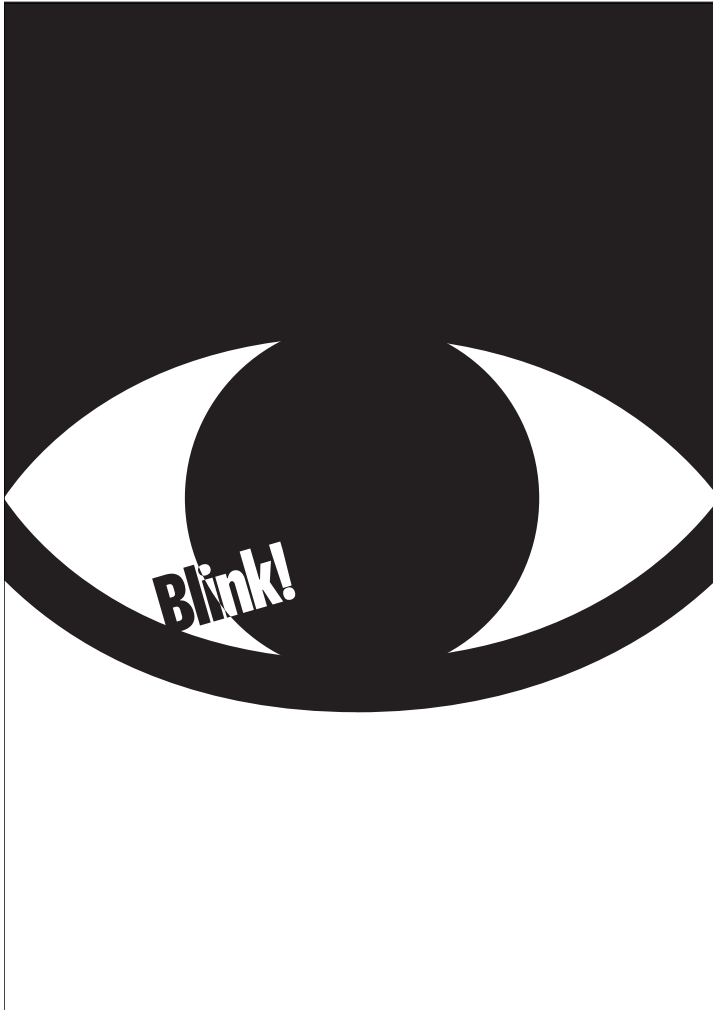
Badges are carriers of visuals or ideas that people attach to themselves or to their extensions like a backpack. Badges are used by people to carry around thoughts or ideas that they can relate to or believe in, or they are proud to be a part of. It helps to get these ideas to others by creating curiosity with interesting visuals.

From the perspective of this project the purpose of the badge is to help spread the idea to others. The badges will be seen and interacted by other people more than the person. With striking visuals with compelling ideas, the badge will be able to help it reach people who come across it.

Why this kit with these specific items:

The advantage of this intervention is that it intervenes in that small space where users have control over, which is personalisation of their desk. If we look at an office space, our target user who is an employee may not have control over the type of furniture that is used or configure the lighting of the space or the location of their desk based on their need, depending on their power and ranking in the office. One thing that any person in an office have control over are the small things that they add to their space, to make it their own. And that is exactly where the kit and its items can be added and used to create a positive impact on the users life.

Visual exploration



The idea behind the poster is that whenever a person sees the poster they need to get conscious about their blinking. Studies have shown that while doing focused work involving a digital screen the rate of blinking comes down to 3-4 times per minute from the normal and ideal 20 times. Blinking cleans the surface of the eye by removing any impurities of tiny foreign particles from its surface and refreshes the eye with a fresh coat of tears.

The poster shows an eye with the word blink in that looks like a foreign object that had fallen in the eye. We know how much irritation it causes when something falls into our eye until it is taken out. We also start to blink more when we feel like something has fallen into the eye. The visual in this case is designed to irritate the viewer to get them more conscious about blinking.



This poster visualises the 20-20-20 rule and communicates what exactly is to be done. After every 20 minutes of working with a screen, the person should look at something far around or more than 20 feet for about 20 seconds. Looking at the screen which is at a closer distance to the eye for a very long time gets the muscles of the eye stiffened. It is important to get them relaxed in regular intervals to reduce strain to the eye.



This poster again is a nod to the 20-20-20 rule and acts as a reminder for it. The text 20 is kept prominent in the visuals so that it gets etched into the minds of the users through repeated exposure. It should be one of the things that they have in mind when working.



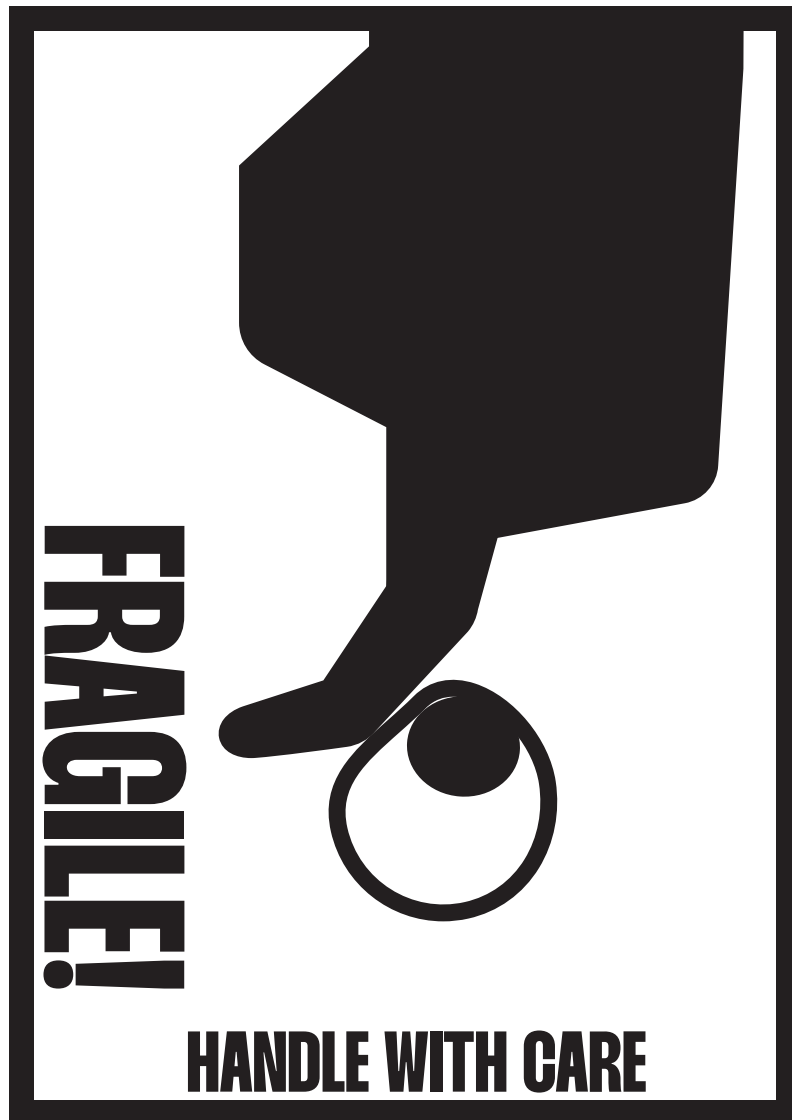
The poster suggests the viewer to look outside. Here look outside means to look outside a window or anything that you can see at a far distance. The motive again is to relax the eye. A wordplay is used to get a quirky appeal to the idea.

“Look out” is usually called out to grab a person’s attention to something, especially to dodge and save themselves from something sudden and unexpected. The phrase is used here for the purpose of grabbing attention. Once it is done and the viewer looks for what to look out for the poster says it meant it literally. The eye motifs that accompany the text correlates it with the idea of giving rest to the eye in between work.



**OMG!!!..LOOK
OUTSIDE!!**

Similar to the previous idea, this poster too appeals to the viewer to look outside, but in a different tone of voice. It uses a tone of excitement and joy to persuade the user that something interesting is happening outside that they need to check out. The visual shows light and shadows from a window that evokes a soothing feeling of standing beside a window to feel the fresh air brushing against your face and the refreshing views from the window. The view from an office window may or may not be refreshing. But again the idea is to remind and motivate people to get up from their chair, walk up to a window and just look outside at something quite far.



The visuals suggest a hand with the index finger scratching an eye. Anyone who works on a laptop or desktop for long periods of time would have experienced dry eyes after spending some good continuous amounts of time with the screen. When the eyes turn dry, they get itchy and people start scratching. Every time you scratch your eye, the eyeball gets squished against the walls of the eye socket, deforming its shape. Repeated scratching over a long period can permanently affect the shape of the eyeball and affect vision.

The poster suggests that the eyes are fragile things and it needs to be handled with care. The finger is composed to point at the title text such that people are drawn to it even more.

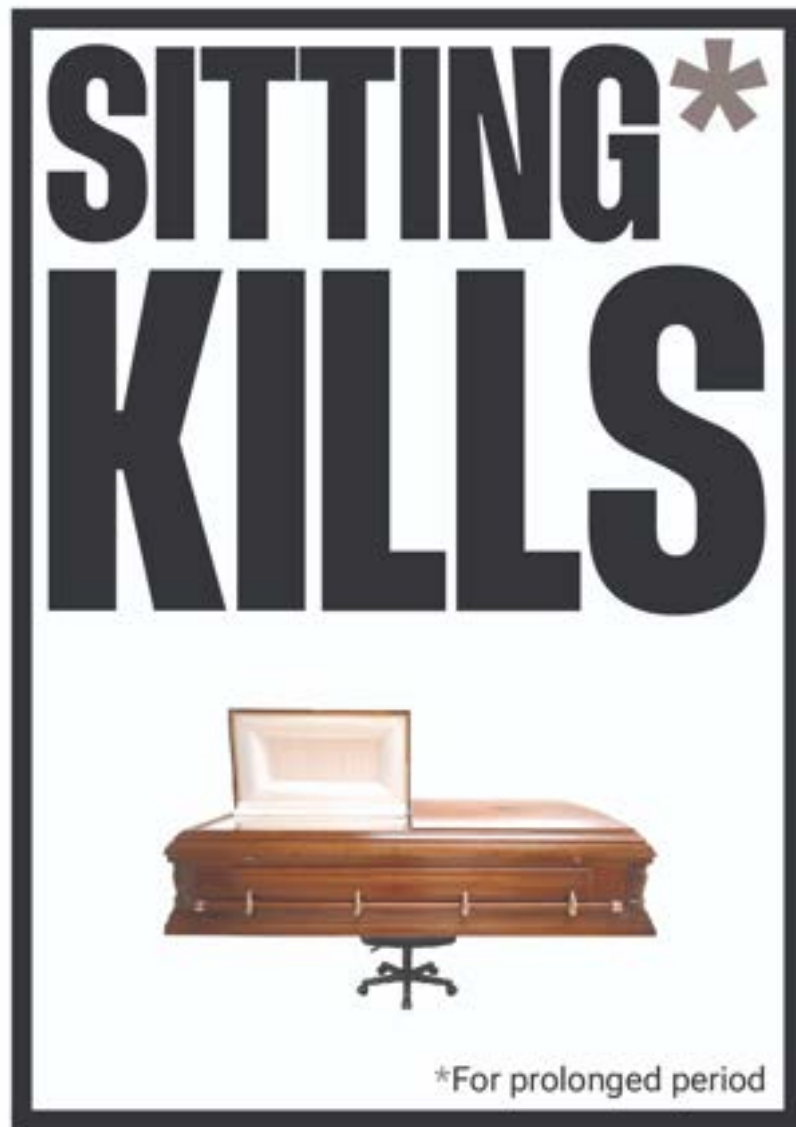
Taking feedback on the poster, the intended idea was not communicated well as people couldn't identify the form as eye. It can be improved with the help of adding a little more detail such as a highlight/reflection in the form so that it looks more like an eye.



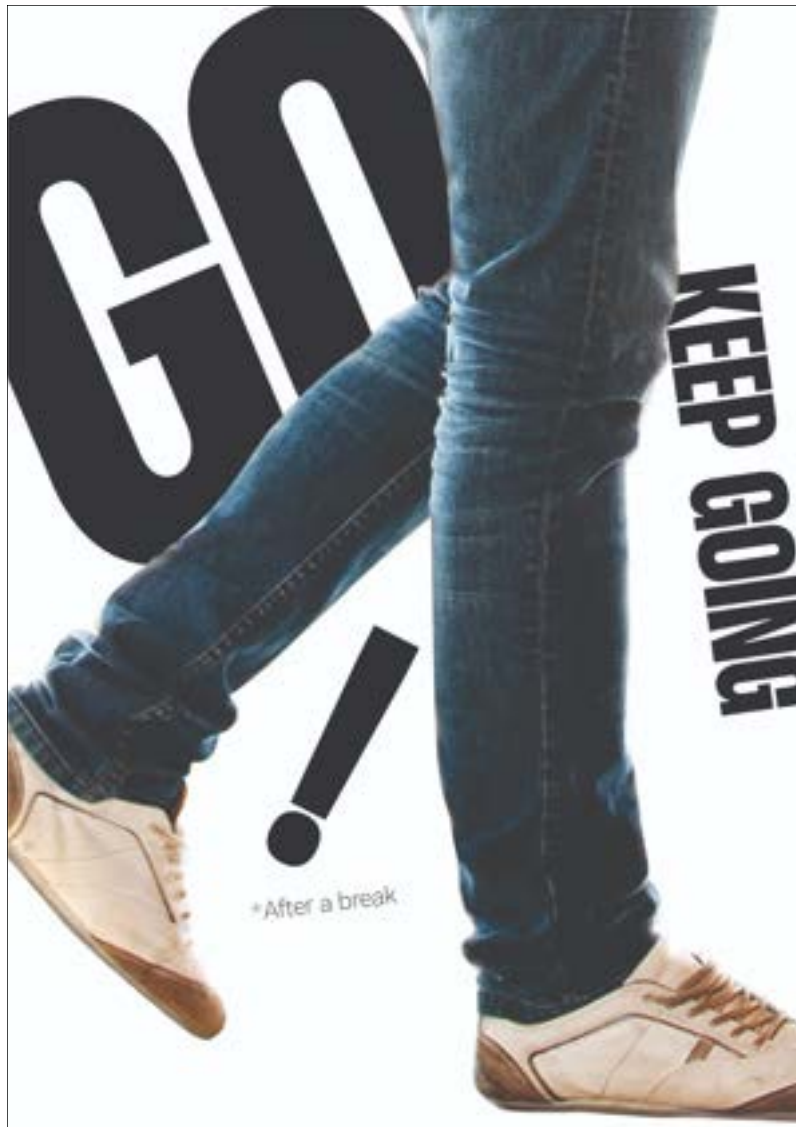
One of the most harmful things that you can do to your body while working is to remain sitting for long periods of time. It has adverse effects that can lead to severe health conditions.

The poster features a chair featured in Yanko Design which is inspired from a coffin. The intention of the chair's design is to break away from the usual uninteresting chairs in office spaces and bring out an element of humour to it. The coffin chair is used in the poster to show how a person will be slowly killing themselves by remaining sitting for way too long.

The title text is designed to grab attention by making people think about how sitting could possibly kill. The asterisk set along with the work sitting suggests that there is more to it. Following the asterisks will give you that additional piece of information which is the catch in the idea being communicated. It is not simply sitting, but prolonged sitting that kills.

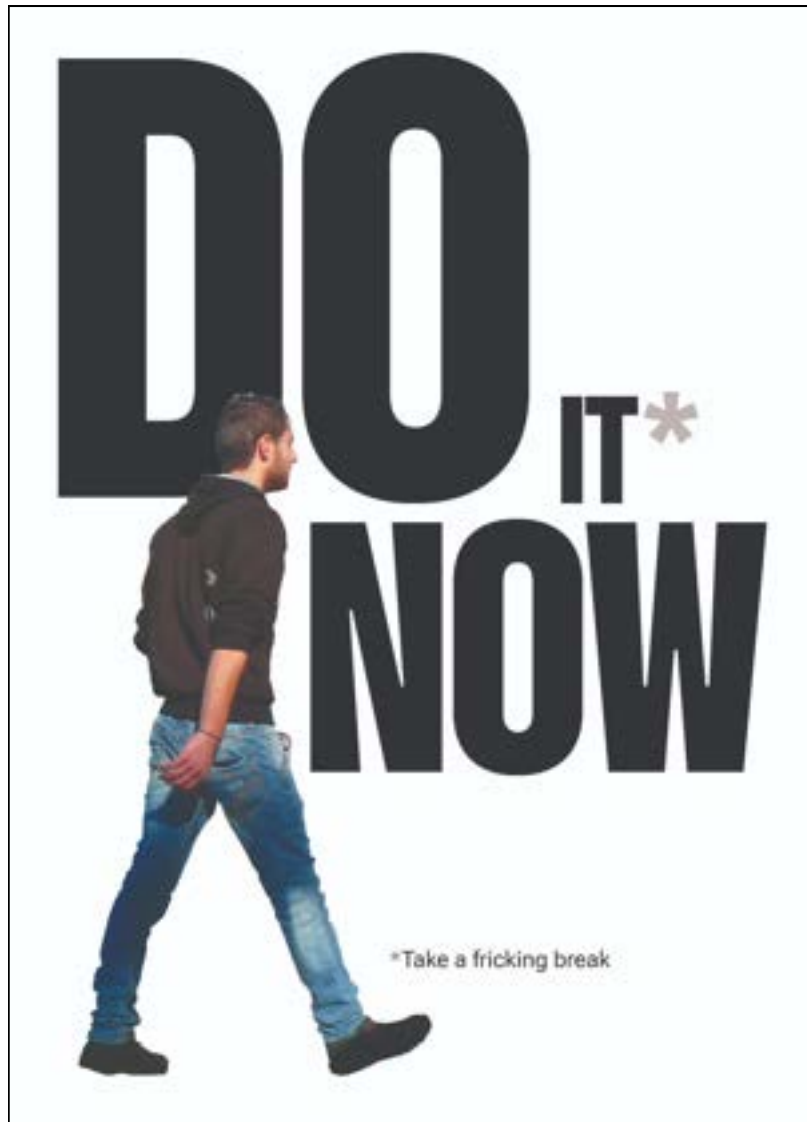


A variation to the previous idea, this version shows a coffin placed on a chair to indicate what awaits you if you keep sitting for too long without caring for your well being. If you die of sitting, may your coffin also be placed on a chair.

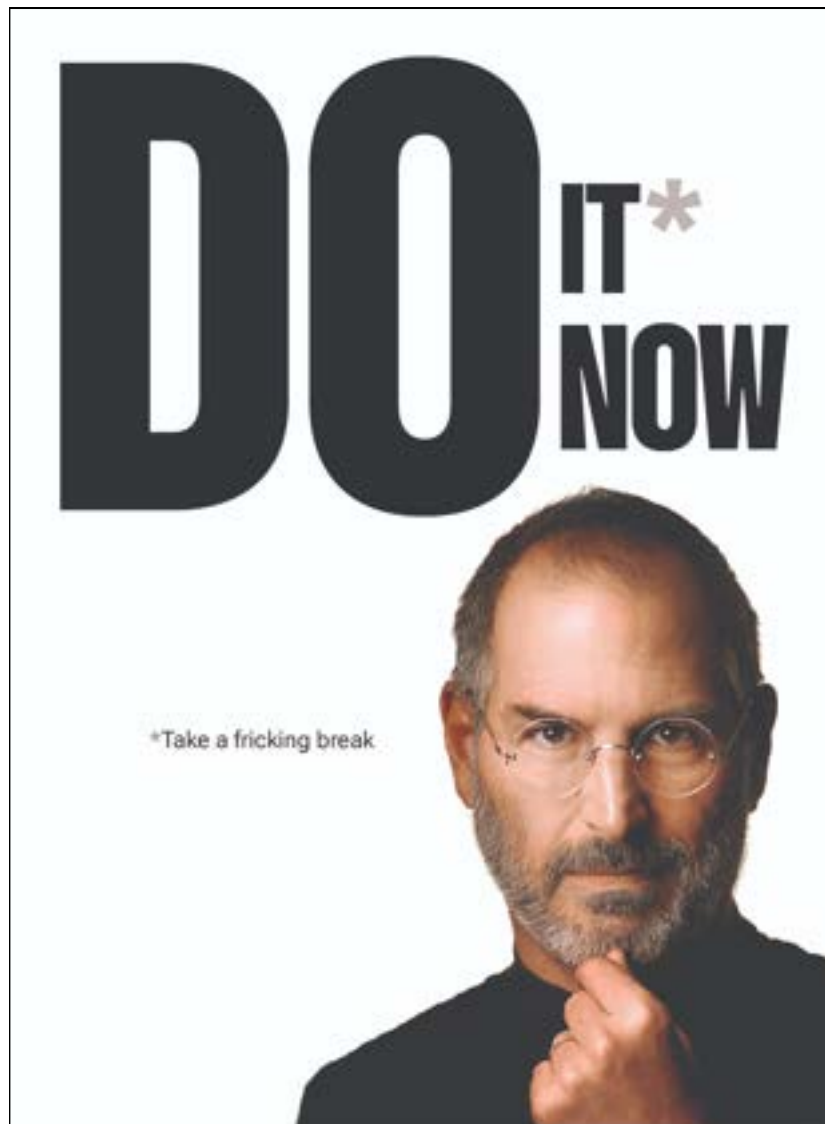


The idea behind this poster is to induce a sense of motion or a feeling to move with the help of visuals that are dynamic. The legs shown in walking action are supposed to remind people to get up from the chair and take some time to walk about, stretch and relax before getting back to work.

The poster says to keep going and push harder, but all that after a break. Even when the interventions stresses on the idea of taking breaks, it isn't supporting the idea of not working at all or reduced productivity. The breaks are intended to refresh the mind and the body so that people can return to work fresh and get going. The interventions are supposed to increase productivity, not nurture procrastination.

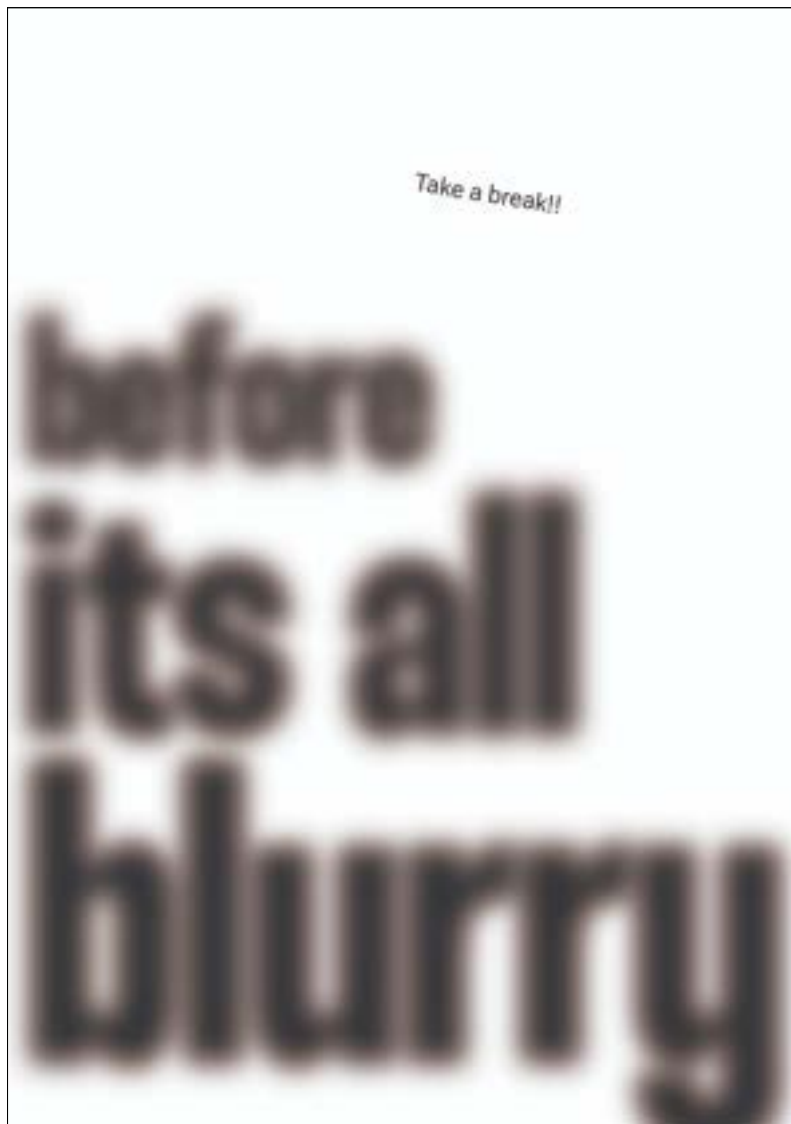


With a motivational tone of voice, this poster with the title do it now might seem like it's motivating you to push harder at work, especially since it is placed in an office space context, right beside the place where you sit to work. On the contrary, the poster is asking people to take a break. The image is used to suggest the viewer to go take a walk.



Pushing the tone of motivation to a level higher, this poster with the similar idea as the previous one appeals to the viewer to take a break. The poster uses the portrait of Steve Jobs to appear as if it is a quote from him. We know for a fact about the evident disconnect between the quote and Steve Jobs since it is the last thing one would expect him to say. This contradiction adds a humour tone to the visual that makes the poster interesting.

The line telling to take a break is aligned at the eye level of the portrait since it is the eyes that have the quality of grabbing attention.



It's already been mentioned quite a lot of times on how overexertion at work affects one's health. One of the prime affected parts are the eyes that slowly lose perfect vision.

Desk work also includes those which rely and demand a lot from vision, how things are seen and perceived. Having started focussing on visual design from the last 4 years, I have started wearing glasses permanently for the slight variation in power that has happened. Dry eyes and strain is almost a common thing. As a visual designer I cannot think of anything affecting my vision and need to take utmost care that it is not adversely affected.

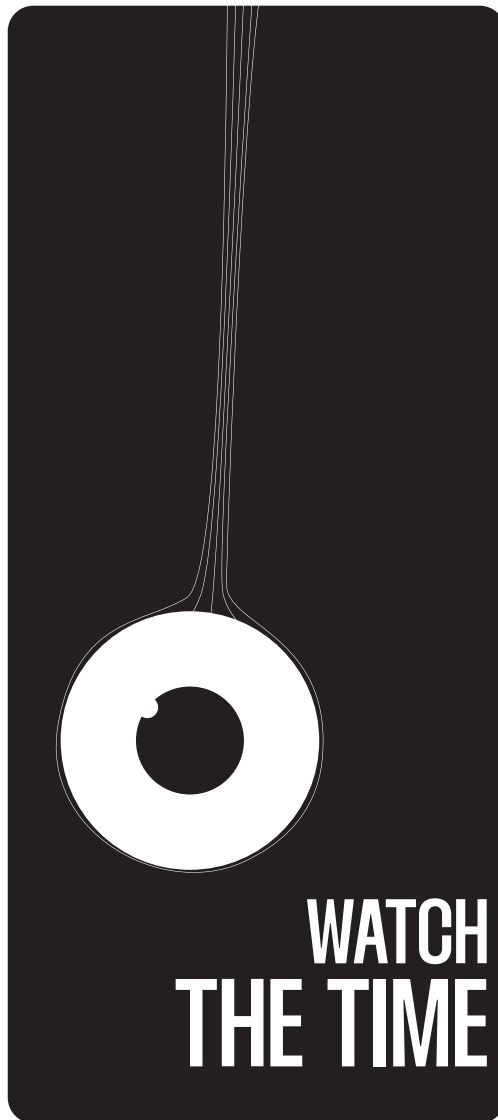


This poster does not require much explanation. One of the most generic forms of visual expression for cautionary messages is once again brought to a different context to communicate what should be avoided.



Designed as a sticker that could be applied on to the desk, arm of the chair or on items that are carried when the user moves from their desk to a different spot in the office. The image used is that of a backbone with shimmer icons that are related to the action of refreshing. Back pain is one of the most common indications of desk work fatigue. The idea of the image should communicate it to be kind and give rest to refresh your backbone in regular intervals.

The intent of the sticker is to remind the viewer to be mindful about their posture while sitting, as well as not to remain sitting for too long.



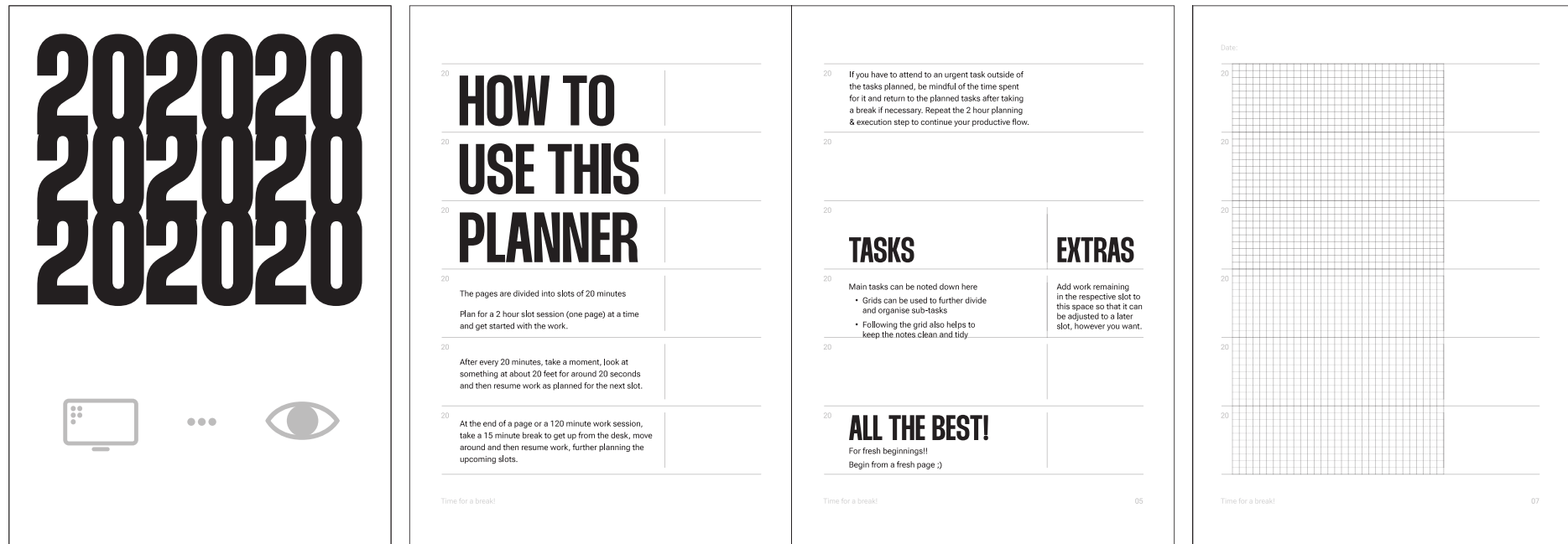
Time is an important factor in the intervention. Users need to be aware of the passage of time, so that they are mindful about taking breaks as planned. Connecting the ideas of time, eye and watching time, this visual shows a swinging pendulum with an eye, with the text “Watch the Time” which is intended to remind the viewer about being conscious of the passage of time.



By taking care of the eyes through proper breaks to relax the muscles and washing it with cold water can reduce the strain. The visual here represents an eyes as if held under the tap, in cold water. The eye is positioned as if looking at the starting of the text to bring more attention to it. It also helps to suggest the viewer on where to start reading.

Final designs

Planner

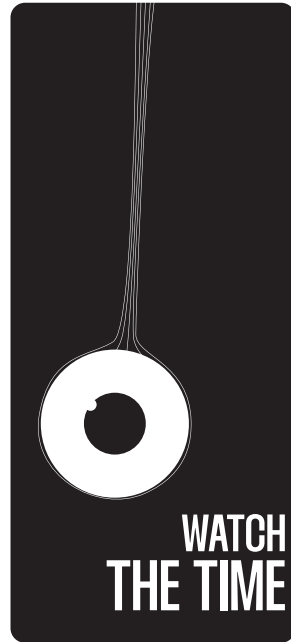


Posters



The final posters are so chosen that each represents a particular idea that is to be reminded to the user.

Stickers



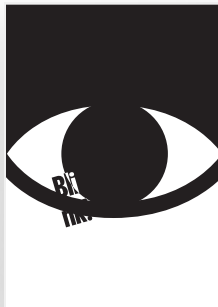
Few idea initially visualised in poster format were tweaked into sticker sizes with refinements based on the feedbacks received on them.

Badges



3.4 Evaluation

Testing the designs generated among the intended users is important to understand their impact and effectiveness. It is necessary since the outcome of the designs are not definite, even when their purposes are defined and need to be studied to understand if they serve their intended purpose. If the results show otherwise, their reasons to fail need to be identified and further refined to improve the intervention. The designs are evaluated to understand what works and why as well as what failed and their reasons.



3.4.1 User testing

As ideation for the assets planned for the kit were progressing, the need for testing their impact became crucial for understanding their effectiveness. These assets had to be used by the intended users for feedback and further refinement. The designs were printed in good quality in their actual sizes and distributed among people who belonged to the target user group.

Sampling

Target user group here is defined as people whose work involves sitting at a desk and working on a computer for long durations.

The participants were selected from different categories as follows:

1. People working remotely from home (work from home mode)
2. People working in an office space
3. People who work in both office space and home (hybrid mode)

The materials were distributed among 4 participants who were willing

to take part in the testing.

Instructions provided

The participants were briefly explained about the project and asked to try out and see the various materials provided to them. Being an initial stage of testing, instructions were personally communicated to the users apart from the ones that were mentioned in the planner.

Instructions on where to install the poster were specifically mentioned so that it will be put into use in the intended way. The participants were encouraged to contact for any clarifications or doubts regarding the instructions at any point of time during the period for which they will be using the items provided.

The testing was planned for a period of 2-3 weeks with the planner having a rough estimate of pages for nearly 20 days (could differ depending upon usage style and pattern). Feedback had to be taken before completing the entire period due to lack of time.

Feedback

Feedback from the user testing was collected in 2 stages. The first stage was conducted around 5 days after the testing had begun and the second at around 10 days. The testing had provided with good amount of feedback in both the stages. Verbal feedbacks collected were noted down and documented properly for analysis and gathering insights.

Stage 1 feedback gave insights on the lack of clarity in the intention by design in the planner. There were accounts of multiple scenarios where the user had to figure out a way to use the planner, adapting it to those specific situations and thus making it hard to use. The planner served as a log to the tasks done in a day rather than an entity that helps in goal setting.

Stage 2 feedback mostly gave a better idea of the participants motivation to use the planner. There were more reasons to not use the planner than to continue using it. The main issue identified was that the intervention provided no means to keep track of time. The participants had to find ways to keep track of time on their own, which increased the work and mental load on this part.

Not being able to follow the planner due to properly was in a way demotivating, which makes them skip the planning of tasks for the day and start fresh with the planner from the next day.

Based on the feedbacks collected, the purposes of the materials provided had to be revoked and well defined. The design of the planner had to be refined to address the issues of updation and adaptation to scenarios that may occur when working.

Detailed key feedbacks and respective insights from user testing for both the stages are as follows:

Planner

1. **Flexibility:** Many at times it happens that an unforeseen task comes up which needs to be attended urgently. It may not be known how long it would take to complete it. In such cases, how to adapt it to the planner accordingly? How can this new task be accommodated to their list of planned tasks?

Insight: Certain lack of clarity at this stage was intentional to see how the participants would adapt themselves to the situations

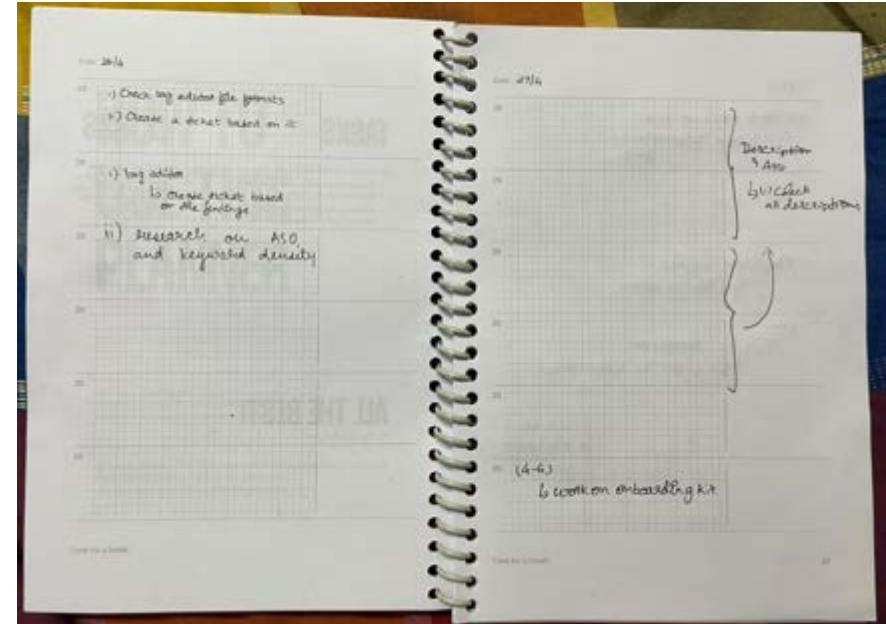
they come across. But it was observed that the more they have to think for themselves and decide how to act in a situation, the more demotivating the exercise gets.

2. **Updation:** How to update/replan/use the planner while coming back to it after an interruption from an unforeseen urgent task is not defined. How to get back to the tasks previously planned? What needs to be done?

Insight: Again, lack of clarity on how to act in this particular situation is increasing the load on the participant by forcing them to figure out a way by themselves, which demotivates them and leads to losing interest to continue using the planner.

3. **Confusion:** Even when the tasks are planned based on the 20 minute model, sometimes it is completed before that time frame or sometimes the task exceeds it. This creates a confusion among the participants what is to be done then. Another scenario was that, when the initial task planned for the day had to be put on halt due to unforeseen tasks, how to continue with those early list of tasks again? Continue from a new page, rewriting/replanning the tasks? Or what should be done?

Insight: Lack of clarity leads to demotivation.



4. **Lack of motivation:** It is rigorous to plan tasks to this detail ahead, for the entire day. It takes so much effort and requires some sort of motivation to do so.

Insight: The more complex the task gets, the less motivated are the participants to continue with the exercise.



5. **Demotivation:** When a good amount of time and effort is put on planning for the coming hours and when things don't happen as planned due to another urgent task that needs to be attended to immediately, it takes away the purpose of planning ahead. When the tasks aren't completed as planned, they don't want to go back to the planner. Their response is to start fresh from the next day. There are more reasons to stop using it than continuing. There is too much pressure to follow as planned in the journal.

Insight: Some sort of motivation is required to perform the exercise, especially when they are not able to complete the tasks as planned.

6. **Awareness of time:** There needs to be a way for the user to be aware of the passage of time, so that they can keep track of it and know how long it has been since they started working on a task. This was a big drawback that the intervention faced. When the whole idea is based on making people aware of the passage of time, the intervention did not provide any means of doing so and expected the users to do that part on their own. It was too much effort to ask from the users to keep track of time continuously. One way of keeping track of time will be to check the time on their phone, and that could be an easy point of distraction from the task. Since the participants had to find ways on their own to keep track of time, it was now yet another thing they have to keep in mind and keep checking every now and then.

Insight: Figuring out ways to keep track of time on their own adds load to the participants.

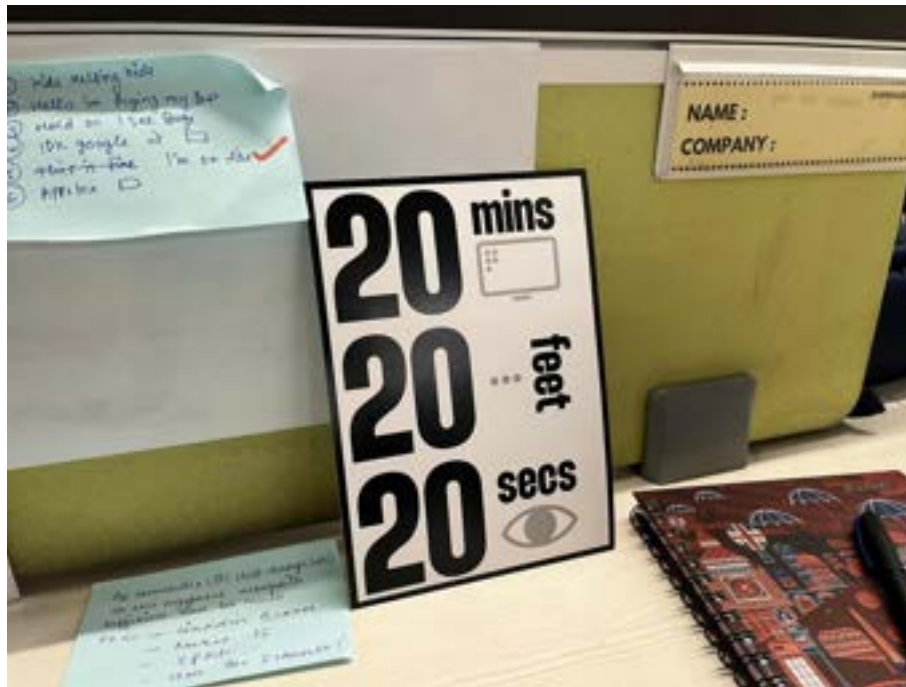
7. Planning = rigidity and less of fluidity: Too much planning means you are putting up a structure for yourself to follow. There are different ways in which people plan their day and not everyone follows a rigid way of planning. Some of them will have an idea about what needs to be done and they go about depending on what they feel like at that moment. They have a list of items to be done for the day and that's it. If they feel like they are not making much progress with the work they are doing, they switch to a different work they had thought of for the day. Once a task is done, they check them off from the list. Their aim is to check off all the tasks. This allows them to work on what they want to, allowing for a certain level of fluidity such that you don't force yourself to work on a particular task. The reason behind going for a fluid structure is that when a list of tasks is created in an order and tries to follow it strictly and does not happen to be as productive as expected, it brings down the motivation to follow the planned list.

Insight: Adding certain flexibility to the order in which the planned tasks will be executed makes the planner more friendly for the users. The possibility of rearranging the tasks depending on what the user feels like working on, at a particular point in time could be considered in further refinement.

Posters

In the office space the posters were put up on the soft board area right in front of the work desk somewhat beside the laptop so that it can be seen even when the laptop is open. Similarly, in home work station, the poster was kept near to the screen so that it is in sight all the time while working at the desk.





Feedback on the posters confirmed them serving their purpose. Participants responded that whenever they see the posters, it reminds them to take a moment to look away, relax their eyes for a bit. That is, the posters work when they see them. One problem is that it is placed and limited to the desk. It happens that they might be sitting elsewhere sometimes. Then they are not seeing the poster and not reminded of the same. This problem will be addressed with the help of stickers and

badges that are included in the kit for the very same purpose.

Further insights

There needs to be more clarity on how the planner should be used so that the users are not confused on what is to be done. This lack of clarity is demotivating to use the planner. Understanding various such use cases will help figure out what all need to be defined and instructed to the user and what all they have to decide for themselves.

Use cases that could arise in an office that need to be addressed:

1. Even when you plan for the entire day, it could happen that you need to attend to an unforeseen urgent task. So, how can that be accommodated to the planner and the list of tasks planned.
2. Sometimes tasks take longer than what you may think it can be completed within. So, what can be done when the tasks that were planned for 20 minutes end up taking much more than that.
3. It takes effort for the users to keep checking time to know for how long they have been working. What can be done for them to be aware of the time will take less effort.

4. There are situations when the user does not feel like taking a break and wants to keep working with the same level of focus for more than 20 mins.

Other insights include the importance having a clear definition for what the users need to do and how can they be motivated to do so.

The planner and the poster could also work in even more coordination by redesigning the poster to provide space and provision to write down the current task on it . How it helps is that it prompts the users to take their eyes off from the screen for a brief moment, providing enough buffer from work to take a break and relax their eyes by looking at something far for about 20 seconds.

3.4.2 Refinements

Planner

A new instruction was added to the planner to resolve the issue of unforeseen tasks disrupting the planned list of tasks. The users are now asked to plan for a 2 hour session at a time. This helps reduce the load of the user compared to planning for the entire day at once. It also makes it easier to update the planner, when they have to attend an urgent task and return to the planned tasks.

Further instructions are added to the user on how to update the tasks planned when they had to attend to an unforeseen urgent task that disrupted the planned tasks. This helps to reduce confusion created when the users have to think for themselves on how to go about that situation. This again reduces the load on the user.

It is mentioned in the instructions that it takes some time to optimise their work-time ratio and that they need not be disappointed even if the tasks planned were not completed in the decided time frames in the beginning. They will be encouraged to keep trying so that they can

understand for themselves what works for them.

Information on why they should take the effort to use the planner will also be included in the beginning so that the users are aware of the benefits which could motivate them.

Further ideation was done to resolve the problems that were identified with the previous set of designs:

Problem 1: There was a lack of clarity in the way the planner needs to be used. There were a set scenarios where the users had to decide for themselves on how to go about it, increasing their load.

Solution 1: The planner was updated with more detailed instructions on the above mentioned scenarios and how to go about when they find themselves to be in one of them. Further instructions were added on how it can be adapted to the unpredictable situations and demands that can arise while working.

Additions to the Planner:

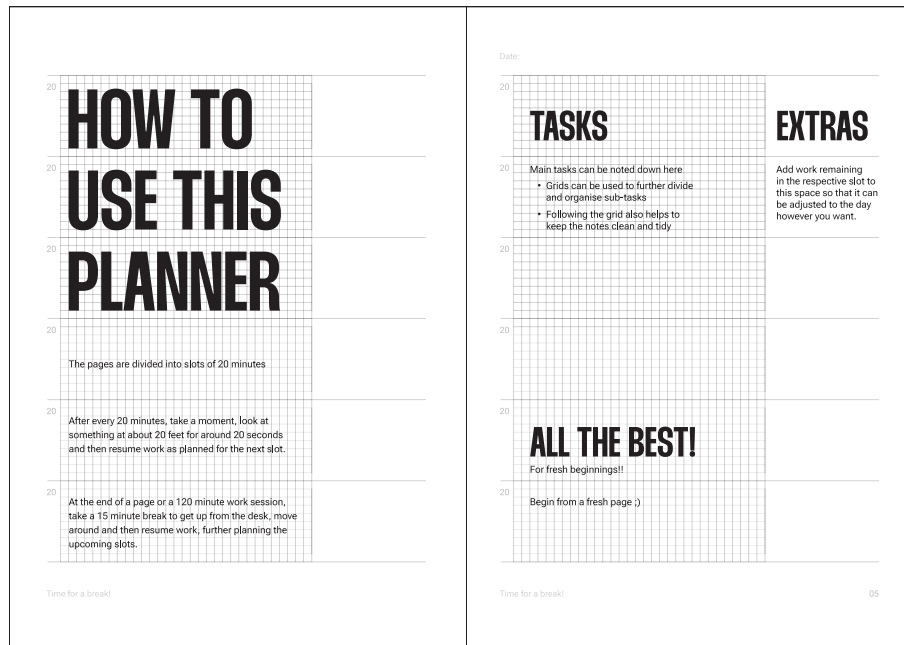
1. It should be instructed to the users to plan only for the next two hour slot. After two hours, they are advised to take a two hour break and get back to work. While resuming work, the need to plan for the next two hour slot.

How it helps:

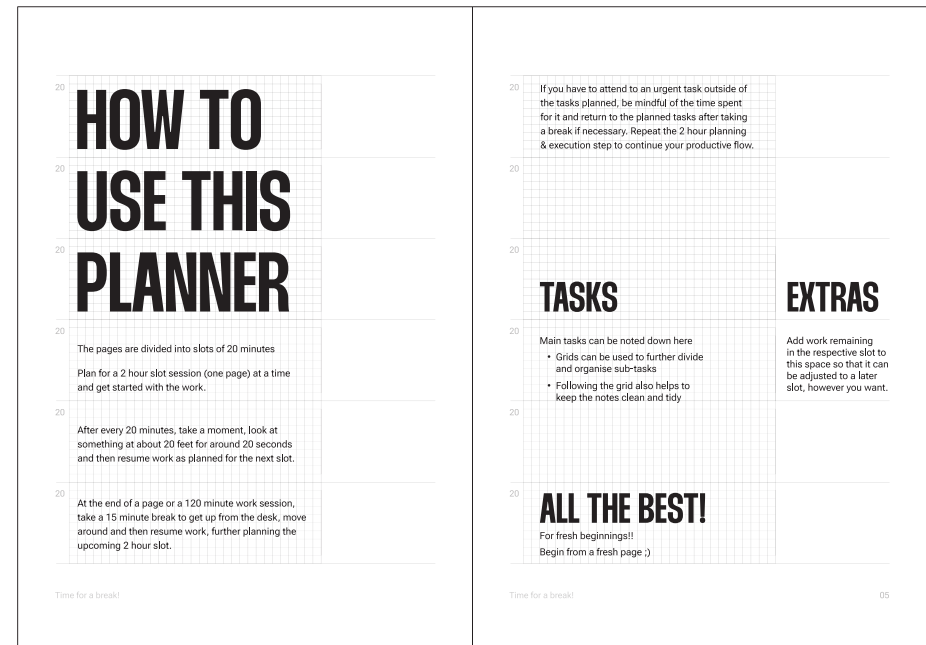
1. Planning for the next two hours will have less load on the user compared to planning for the entire day at once. Reduce the load on the users to think through all that needs to be done the entire day all at once.
 2. Makes adapting unforeseen tasks into the schedule easier since there are lesser tasks to be shifted to later time slots.
-
2. It should be instructed that whenever the user needs to break off from the planned tasks and attend to another urgent task, be mindful about the time spent on it and accordingly plan for the later slots.
 1. If they had to work for a long time on the new task, take a break and start fresh by planning for the next 2hr slots.
 2. If the task was small enough to be completed in around 20 mins,

continue with the planned tasks for the time remaining.

Defining an onboarding experience for the kit that would explain all the instructions to the users in an appealing way is essential since it increases the usability of the kit.



Initial design sent for testing.

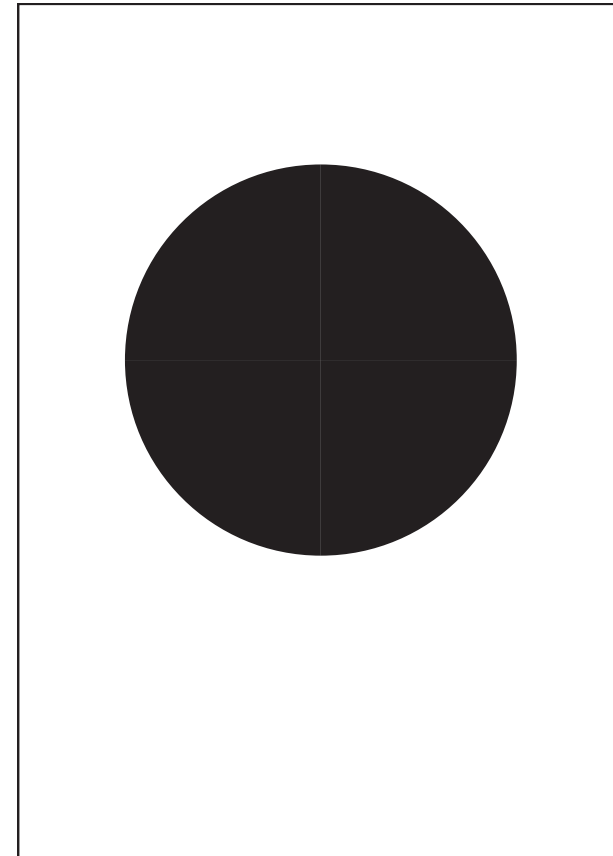


Refined design with additional instructions added to the previous ones.

Problem 2: There was no way to keep track of the 20 min time intervals other than the user keep checking the phone or setting reminders by themselves which takes a lot of effort and motivation.

Solution 2.1: A dynamic poster that suggests passage of time. This idea is an adaptation from one of the early ideas during the initial stage of ideation. The poster with certain movable parts that gives an idea to the user about how much time it has been and how much time is left before the 20 minute interval is complete.

One idea to go about it was to have a neutral background poster with a bright warm saturated colour element, say a circle, that catches enough attention even without looking directly at it. The circle will be divided into 4 fragments that can rotate on individual axes. It will be possible to set the poster to a default state at the beginning of the set time interval. When the fragments start to rotate, the circle breaks. At the completion of 20 minutes, the fragments come back to their default state of circle, completing a cycle. In each 20 minutes, the fragments complete one cycle of rotation breaking away and returning to the default state.

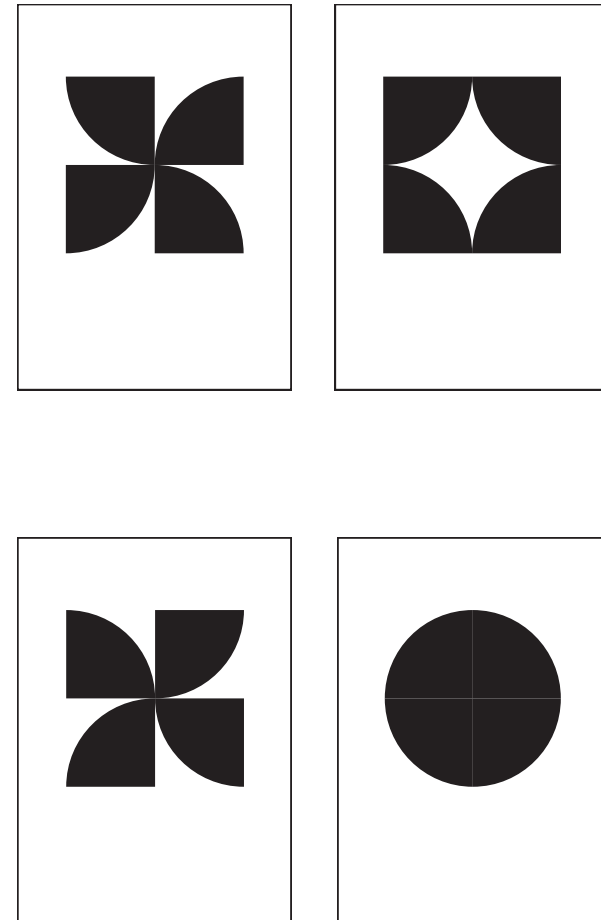


While looking at the poster if the fragments seem more scattered, it would mean there is still time left to complete the 20 minute cycle. If it is closer towards completing the cycle, it suggests the near completion of 20 minutes.

The Poster will require to have **turn on/off**, **pause**, **resume** and **reset** functions to adapt to the uncertainties that can happen in the office, giving the users more control.

With further refinement, if the poster could have a distinct identifiable intermediate state to indicate half time, i.e. 10 minutes, it could make the poster more effective. If the users know how it looks at the start of 20 minutes, at the half time of 10 minutes and at the end of 20 minutes, it communicates the passage of time in a more effective way.

There are software interventions such as a pop up that appears when the user has been actively using the laptop for a certain amount of time. While interacting with users it was mentioned that the pop up message was not really cared for. What they would do is ignore and close it and continue with the work. So how is this poster, which is essentially serving the same purpose going to be helpful and used as



intended by them, is a relevant question that needs to be answered.

What could make the poster more effective is the whole idea and message that the kit communicates with the user. It has an onboarding message that tells people the importance of the habits that the items in the kit helps to build and the impact it can make to their well being. Interventions with a properly communicated message of intention can appeal to people in a much better way.

Pros:

Non-digital means to communicate time.

Cons:

It takes practice to get used to working with the poster. The movements of the fragments are going to be too slow. Therefore at a particular moment in time, it might not be possible for the user to know if they are coming together or going further apart. This can create confusion. The users would have to think for themselves about how time it would have been and if the fragments are likely to go apart or come together by that much amount of time. This is again taxing for the users.

Essentials:

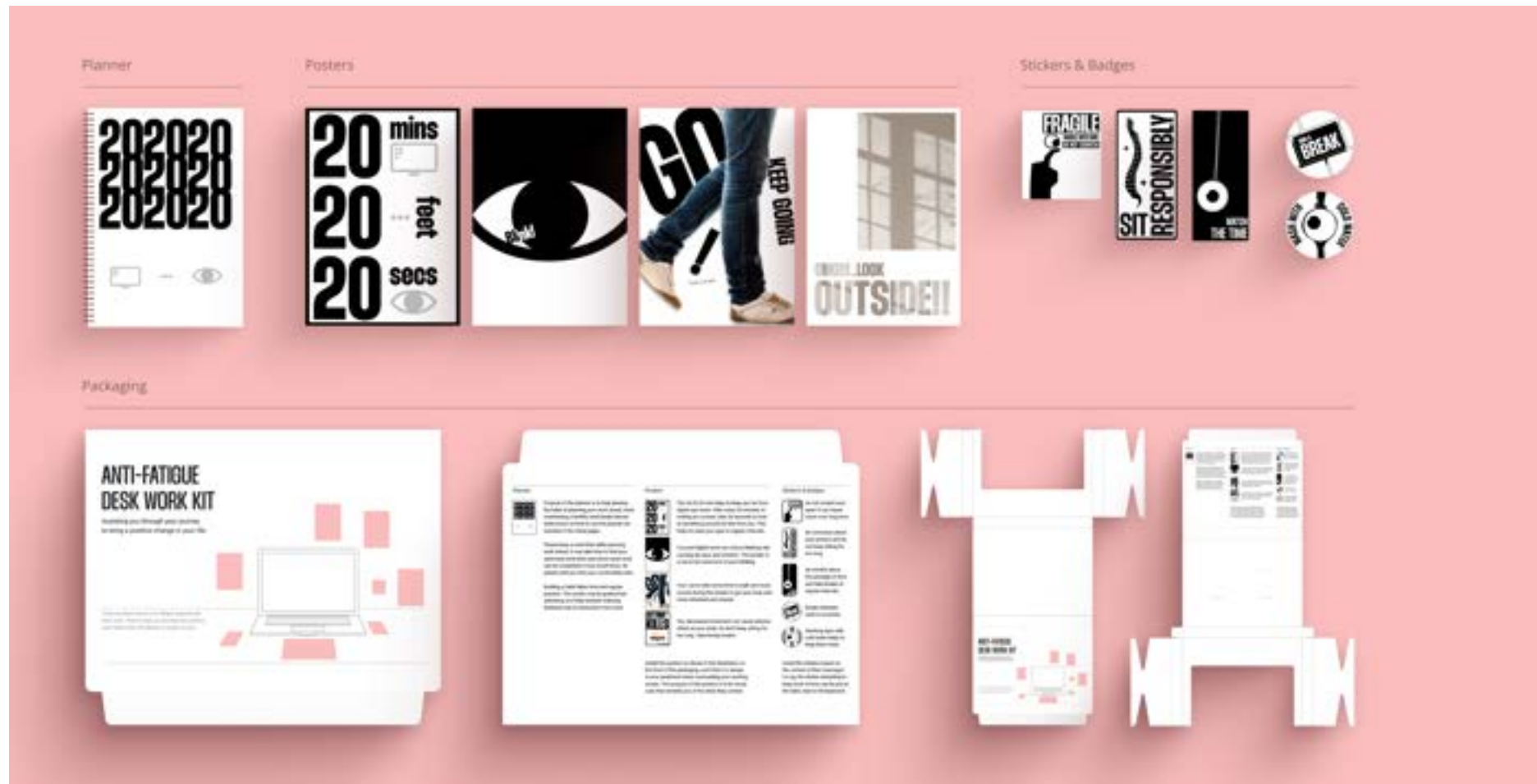
Having a visual that is more suggestive of if the fragments are going apart or coming together will be essential for this poster to work.

Further:

The packaging will have to be completely redesigned to accommodate this new entity. Depending on its dimensions and weight, the packaging will have to be changed to protect the poster well, especially since it has delicate moving parts and electrical connections.

Solution 2.2: A 20 minute clock that visualises the 20 minute time interval cycles. This clock would help to achieve a direct and precise communication of time rather than one that is suggestive. It tells the user exactly how much time has passed and how much is left in the 20 minute cycle.

4. Final outcome



HOW TO USE THIS PLANNER

The pages are divided into slots of 20 minutes

Plan for a 2 hour slot session (one page) at a time and get started with the work.

After every 20 minutes, take a moment, look at something at about 20 feet for around 20 seconds and then resume work as planned for the next slot.

At the end of a page or a 120 minute work session, take a 15 minute break to get up from the desk, move around and then resume work, further planning the upcoming 2 hour slot.

Plan for a 2 hour slot session (one page) at a time and get started with the work.

At the end of a page or a 120 minute work session, take a 15 minute break to get up from the desk, move around and then resume work, further planning the upcoming 2 hour slot.

The image shows a large grid with a header section at the top and three main content areas below it. The header section is a single row with a light blue background and contains the text: "If you have to attend to an urgent task outside of the tasks planned, be mindful of the time spent for it and return to the planned tasks after taking a break if necessary. Repeat the 2 hour planning & execution step to continue your productive flow." Below the header, the grid is divided into three columns. The left column is labeled "TASKS" in large, bold, black letters. It contains a sub-header "Main tasks can be noted down here" and a list of two bullet points: "• Grids can be used to further divide and organise sub-tasks" and "• Following the grid also helps to keep the notes clean and tidy". The middle column is labeled "EXTRAS" in large, bold, black letters. It contains a sub-header "Add work remaining in the respective slot to this space so that it can be adjusted to a later slot, however you want." The right column is labeled "ALL THE BEST!" in large, bold, black letters. It contains a sub-header "For fresh beginnings!" and a note "Begin from a fresh page :)"

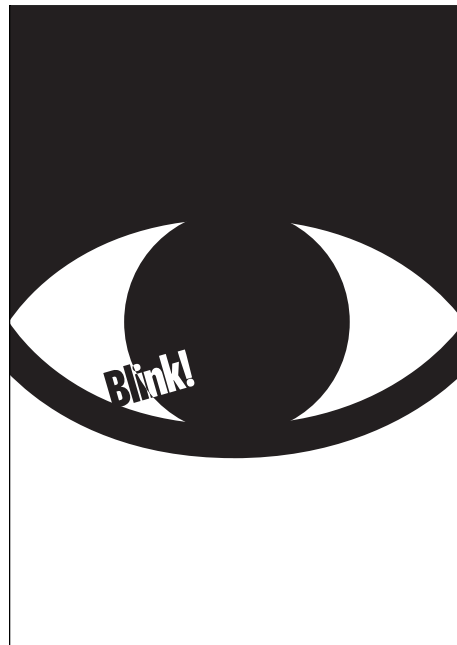
If you have to attend to an urgent task outside of the tasks planned, be mindful of the time spent for it and return to the planned tasks after taking a break if necessary. Repeat the 2 hour planning & execution step to continue your productive flow.		
TASKS Main tasks can be noted down here • Grids can be used to further divide and organise sub-tasks • Following the grid also helps to keep the notes clean and tidy	EXTRAS Add work remaining in the respective slot to this space so that it can be adjusted to a later slot, however you want.	ALL THE BEST! For fresh beginnings! Begin from a fresh page :)

Add work remaining in the respective slot to this space so that it can be adjusted to a later slot, however you want.

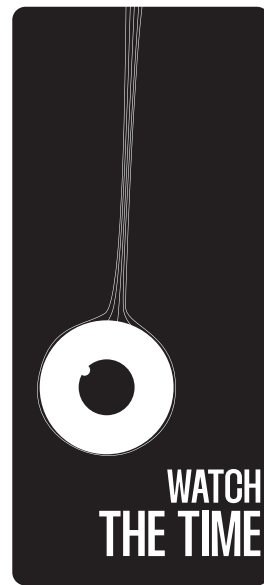
For fresh beginnings!!
Begin from a fresh page ;)

[illegible]





Posters



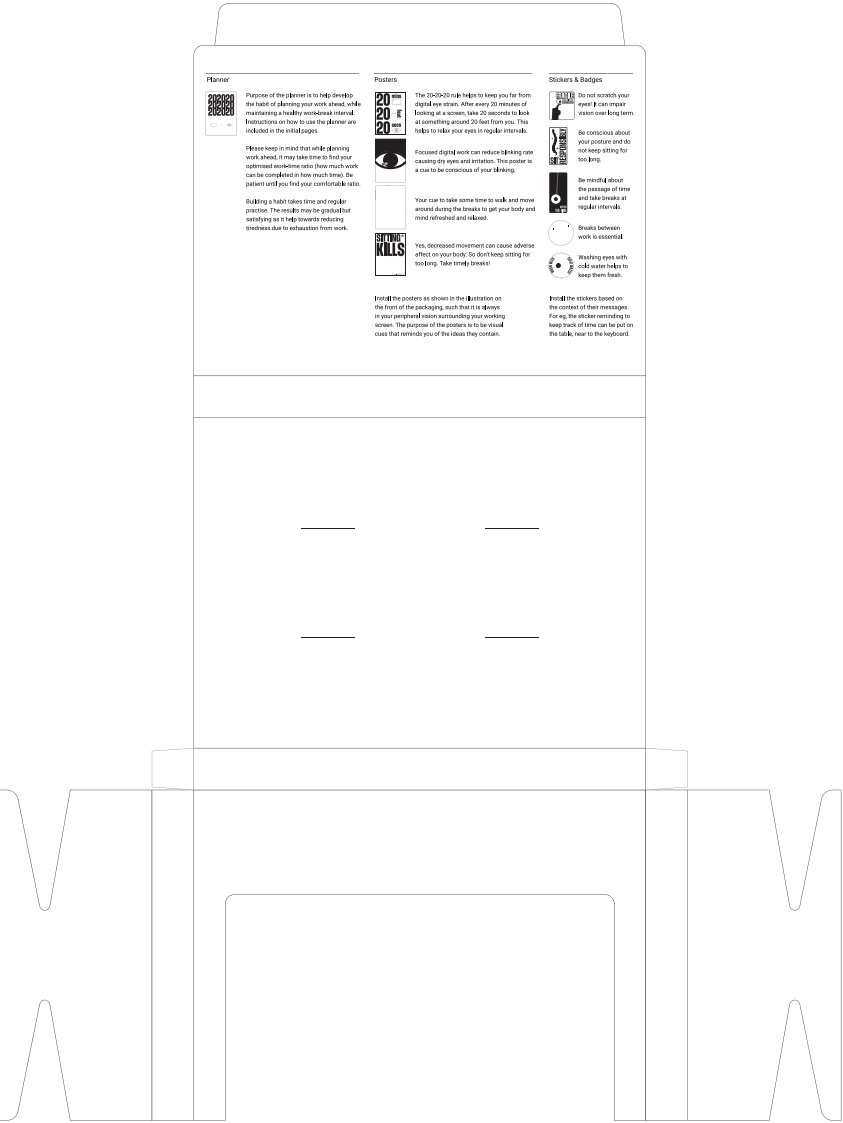
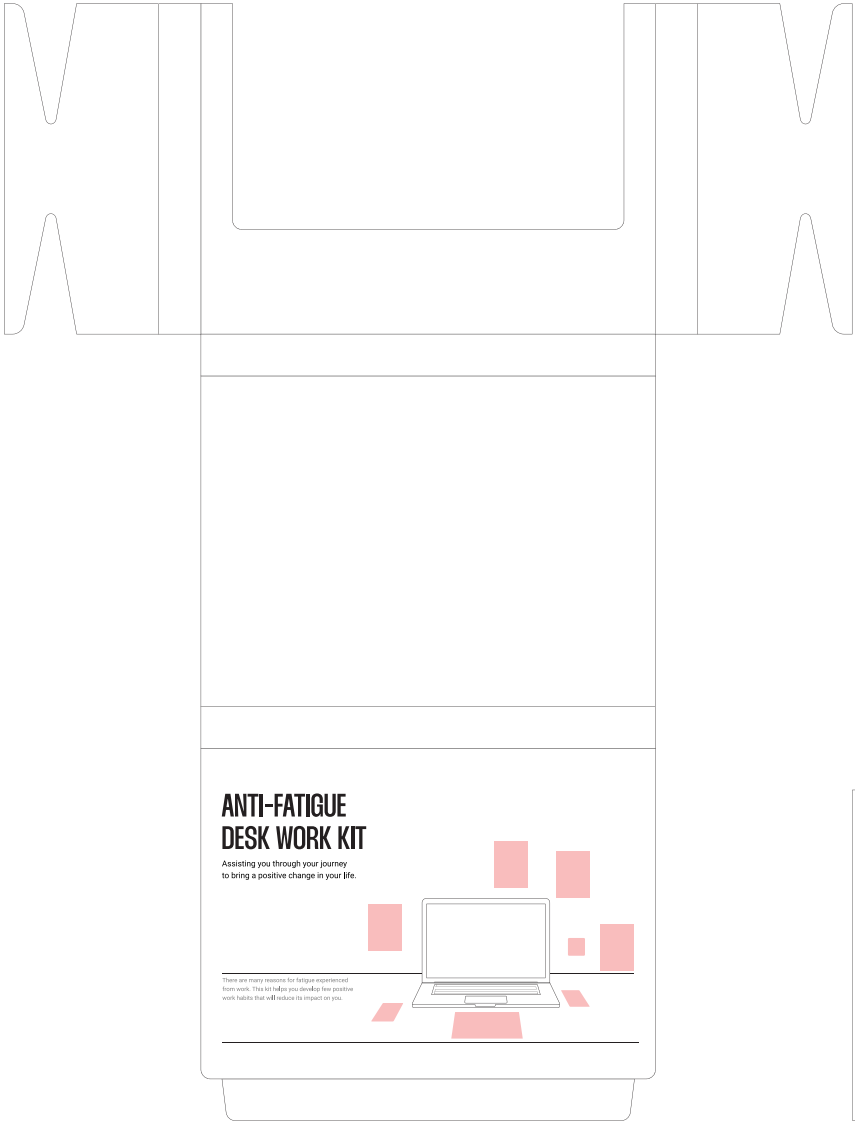
Stickers and badges

Packaging

The intervention being a set of items, a packaging that encloses all of them together was essential. Ideation was done on how all the items can be contained along with the necessary introductory information about it. A rough prototype of the final design was created with paper and tape to understand its folds and overall structure. With the layout finalised, the design was digitised to be printed and cut in actual size.

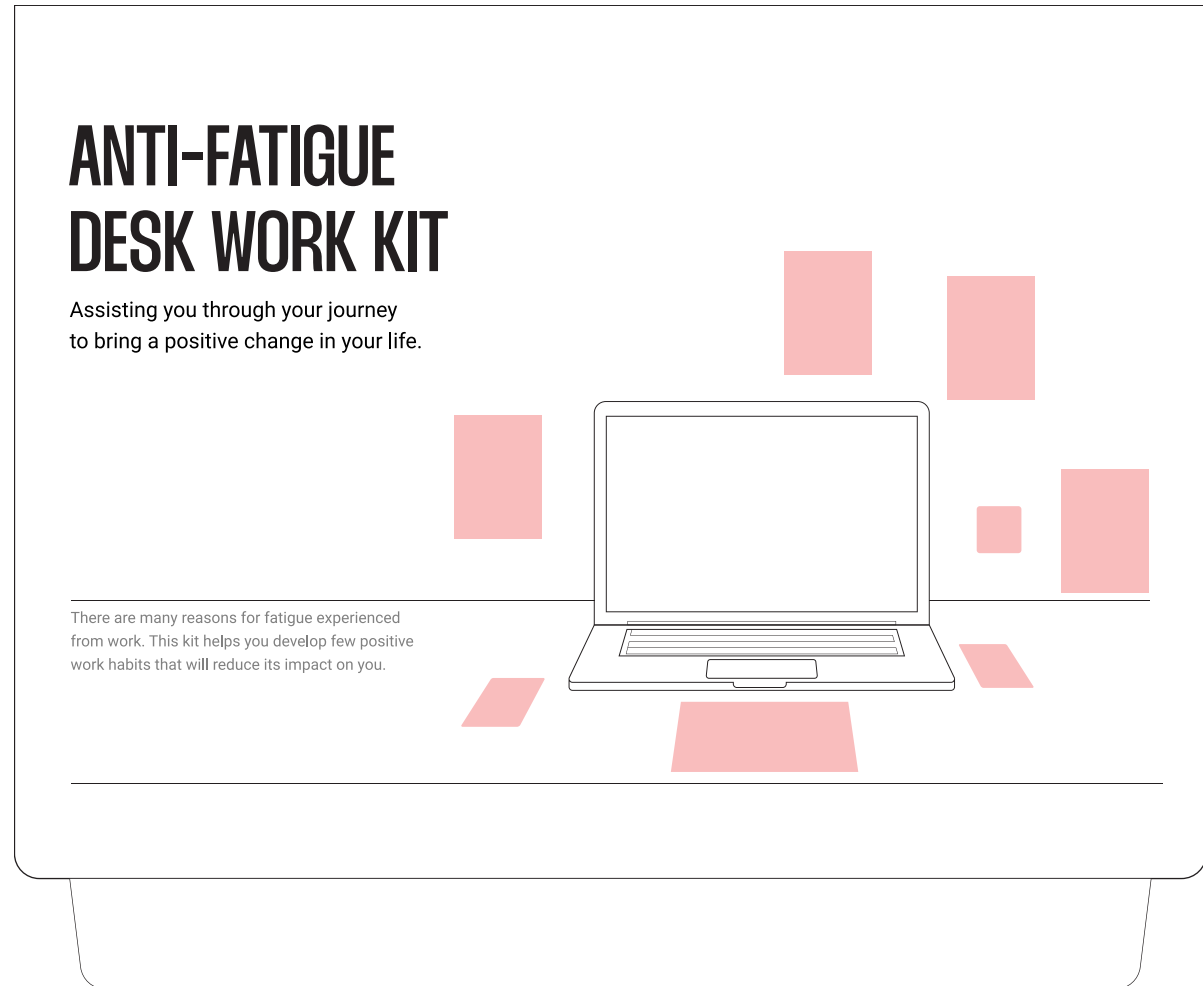


Final design



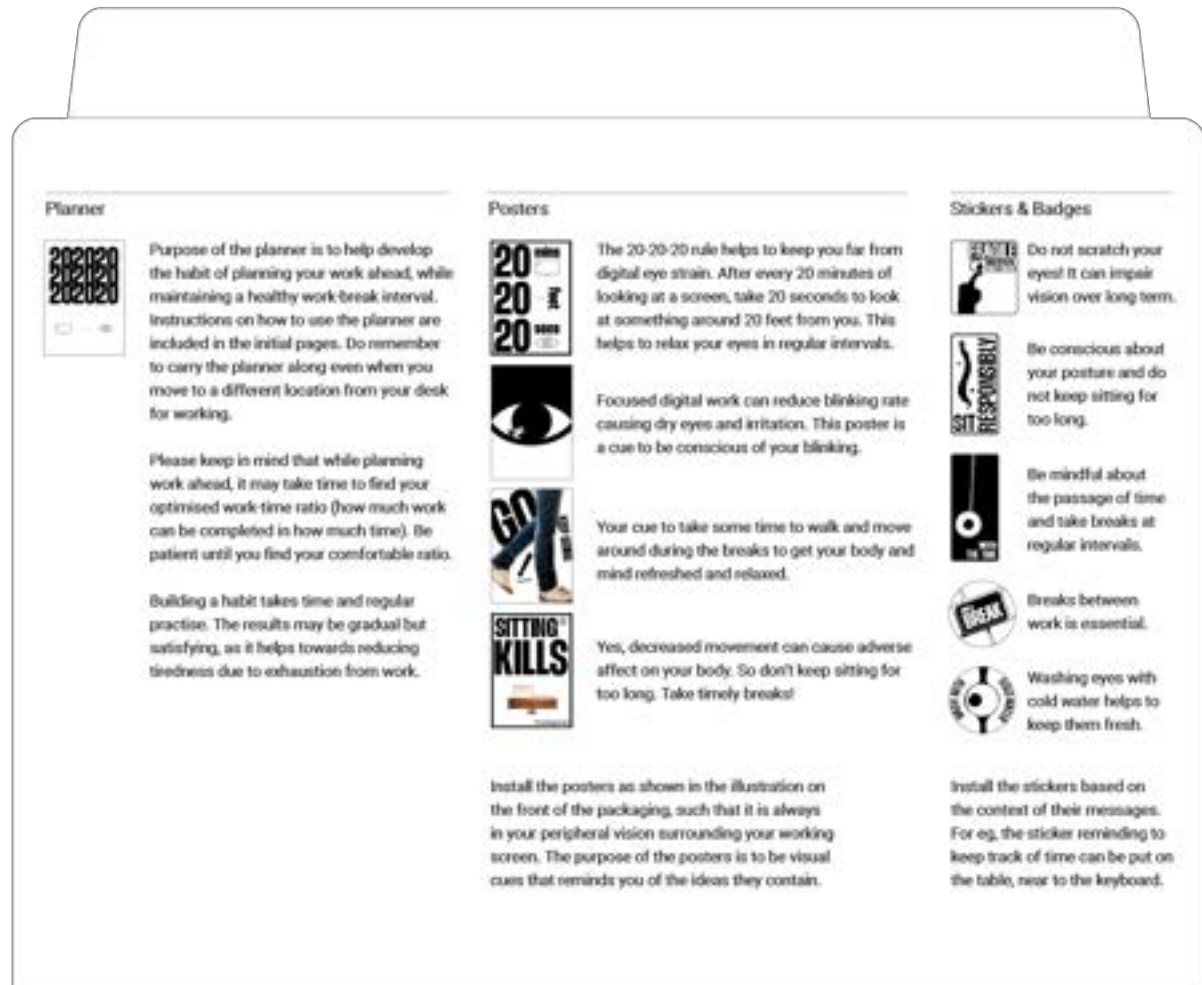
Packaging graphics

The visuals on the kit gives a hint of the content inside as well as how to install them. The tone of voice used is such that it encourages people to give it a try.



Information for users

Instructions about the kit, its content and each of its purpose and how to install them are added on the inner leaf of the packaging.



5. Challenges

5.1 Evaluating the outcome

The effect of positive habits may not be something that can be felt immediately. One will feel the effects of good posture and work-break intervals over time. So how can the effectiveness of the outcome of the project be tested and validated? What could be some signs of positive changes that may be experienced sooner?

One way to evaluate the effectiveness of the kit was by defining properly what each and every element was purposed for. The feedback from the participants of user testing was analysed to understand if these elements served their purpose. If not, it was studied to figure out the reasons for them not contributing to the solution as intended and find ways to solve these problems for them to work properly.

The overall impact of the intervention on how it really helps to reduce stress from desk work can only be understood after some considerable time of using the intervention in its intended manner and evaluating if these practises has helped to reduce the signs of fatigue such as body

pain, eye strain, dry eyes, tiredness etc, as well as increase productivity by being able to plan and execute the work, which would help reduce mental strain by being able to properly organising and completing work as planned.

5.2 The difference between taking timely breaks and procrastinating

As much as the intervention stresses on the importance of taking timely breaks, it is no way promoting procrastination by giving the idea of postponing the work for later. The intention is to increase productivity with the help of taking timely breaks that help to refresh the mind and body. Any chances of giving any unintended idea need to be identified and worked upon to make the intentions clear.

6. Conclusion

6.1 The journey

Since the time from proposing this topic for this project there was an uncertainty on what its outcome will be. This uncertainty had followed and taunted me through the various stages of the project. With disrupted timelines and without tangible outcomes, one day it was decided to start ideating and making things based on the current level of understanding of the subject matter from the studies done so far. Even though it was a positive step towards finding a solution, the uncertainties still continued. At every point, the meaning of the things created were questioned on how exactly it is going to achieve the aim.

Weeks passed creating visuals that could possibly contribute and lead to a solution while looking further deeper into the details of habit forming and human behaviour. By then all the uncertainties had grown into self-doubt and it seemed like the project was not reaching anywhere, until that one fine day when I came across the one thing that the project needed all along: a defined model of process to go about for a behavioural change design project. That flipped the switch.

All of a sudden everything started to make sense. All the studies done so far, the insights, the ideations, everything fell in place and fit so perfectly into that process as if it was meant to be. All the random scattered dots were now connected leaving something meaningful out of all the works that was done so far.

Further journey involved shaping thoughts and ideas into visuals, designing the various elements of the intervention, test printing, user testing and a lot of redesigning to refine the outcome as much as possible in the given time frame.

6.2 Shortcomings

One of the major shortcomings was realised from user feedback.

The posters and other accompanying visual cues did help in reminding the users that they need to take a break to look away from the screens, stretch or even take a walk before continuing with the work. The purpose of the planner was to develop a habit of planning the work in a way that does not stress the users out towards the end of the day as well as a reminder for taking timely breaks, similar to the posters. The second was achieved with the help of the planner as it did bring into their consciousness and be mindful about work-break intervals. The planner did help to remind them about the 20 minute rule but there was no mention about how to keep track of time, to be aware that 20 minutes had passed.

The intervention did not cater towards making the users aware of the passage of time, which is crucial for the nature of the intervention, since it includes the aspect of planning work ahead into time intervals of 20 minutes. The intervention demands the user to keep checking the time so that they know how long it has been since they are working. This adds load to the user since it takes so much effort from the user's

side to keep a track of time by themselves which brings down their motivation to do the same. Few users used reminders set in the phone to keep track of time, but mentioned it as a tedious task to be done.

This aspect of keeping track of time needs to be attended to and resolved for the intervention to be more effective. If the users have a way to know that the set amount of time has passed it would better help towards them not missing out to take breaks.

Several ways to resolve this issue were considered, including having auditory stimuli or visual stimuli. Use of auditory means to indicate time was not suitable for the context where the intervention is used in a shared office space. It could cause distraction depending upon the office setup. In the scenario of multiple people using the intervention, who start their work at different times will have alarms going off at different times creating chaos. Non digital visual means were also also explored in the form of dynamic posters which gives a visual indication of time or when the set amount of time has passed. Here the stimuli being visual, the user has to see the poster to know it's time to take a break. If they are working on the laptop, they will not be actively looking at the poster. Therefore making it prominent enough to be seen

even if it is in their peripheral vision is crucial for this poster to be more effective.

The ideas generated to resolve the issues found through user feedback need to be built and tested again to understand if the refinement actually helps to solve the current problems.

6.3 Learnings

Space plays a key role in shaping a behaviour. There are certain qualities of a space that makes us behave in a particular way. Since the project initially explored the direction of designing for space, developing sensitivity towards space was essential. The subject of Space psychology was briefly studied and looked into to understand the ways in which they contribute towards the way we think, feel and behave.

Ideas need to be tested out to understand if they really meet the intended purpose. When an idea is developed thinking of various ways it could help achieve an intended purpose, it is always essential to test

them out in its actual context of use with the intended users to understand if they meet their intended purpose, the impact they create and how effective they are. It might happen that the ideas when put into use do not work as intended or even backfire. In those cases understanding what did not work helps to improve upon the idea and refine it to make it work and serve the purpose. If the interventions seem to serve their intended purpose it is a validation that the idea works and helps to achieve the impact that it was designed to create.

The initial version proposed intervention had aspects that worked as expected as well as those that did not. Without user testing it wouldn't have been possible to identify them and further refine the designs to achieve the intended purpose.

Another valuable lesson from the project is that it does not really matter how good your intentions are to help improve an aspect of the users life, there needs to be some level of motivation from their side for them to continue using or following it. This motivation could be from the design itself or come from within the person. The second is difficult to achieve unless the problems that are being addressed affect the person's life in an almost disruptive manner. The more affected the

person is, the more motivated the person will be. At the same time, the intervention needs to be simple and effective. It should not add to the struggles the person is already having. If the interventions require too much effort to be put from the side of the user, their motivation to use it reduces to a level that they discontinue using it.

Thus, it is highly important for the reasons to use the interventions to be communicated well in an appealing way to the users so that they are motivated to bring a positive change to their life.

Even when a person is motivated, it takes a lot of willpower to keep doing something, especially when the results aren't quick. It will take some time to understand the impact that timely breaks between work can create to your physical and mental well being. Being disciplined isn't a quality that is developed in a day or by easy means.

And lastly, one of the most important among all the learnings is the realisation how much i have matured as a designer in terms of taking inputs from the intended users, developing them into designs, testing them out, take feedback and further refine them to come up with a more polished version of the solution. Even if it may not turn out to be the best solution, the analytical thinking that has gone behind

the decisions considering the context for which the solution is designed for is something I am quite proud to have pulled off.

6.4 Further ahead

The ideas generated for refinement of the initial design will again have to be tested for the very same purpose of understanding if they help to solve the shortcomings of the previous design.

More ways of motivating people to use as well as continue using the intervention needs to be explored. What appeals and motivates people can differ person to person. Therefore identifying ways that could motivate and exploring how it can be included in the intervention can further improve it.

Another aspect to look into is that if the visuals are apt for workspaces, everyone has their own styles or visual appeal they prefer for their workspace. So how can the design be such that it fits into any style of visual appeal. The tone of voice for the visuals also needs to be such that it brings a positive feeling to the user.

Bring a project with a functional outcome, it requires further detailed testing to understand its impact on the users, especially since the results are of long term nature. The kit will be tested among user groups for longer periods to identify pain points and refine the intervention.



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