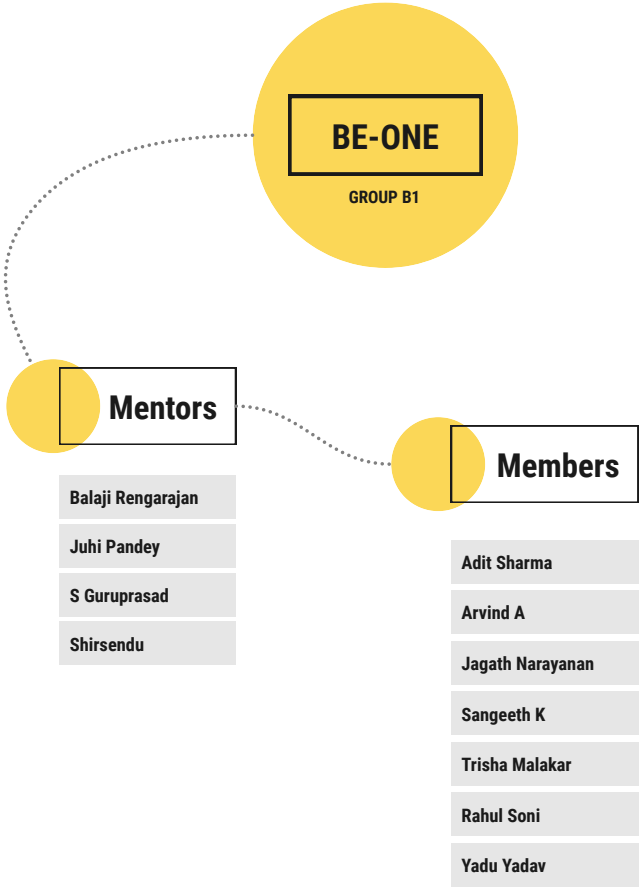
DESIGN PROCESS

Activity: Sharpening a pencil



CONTENT

INTRODUCTION

WHAT IS DESIGN PROCESS?

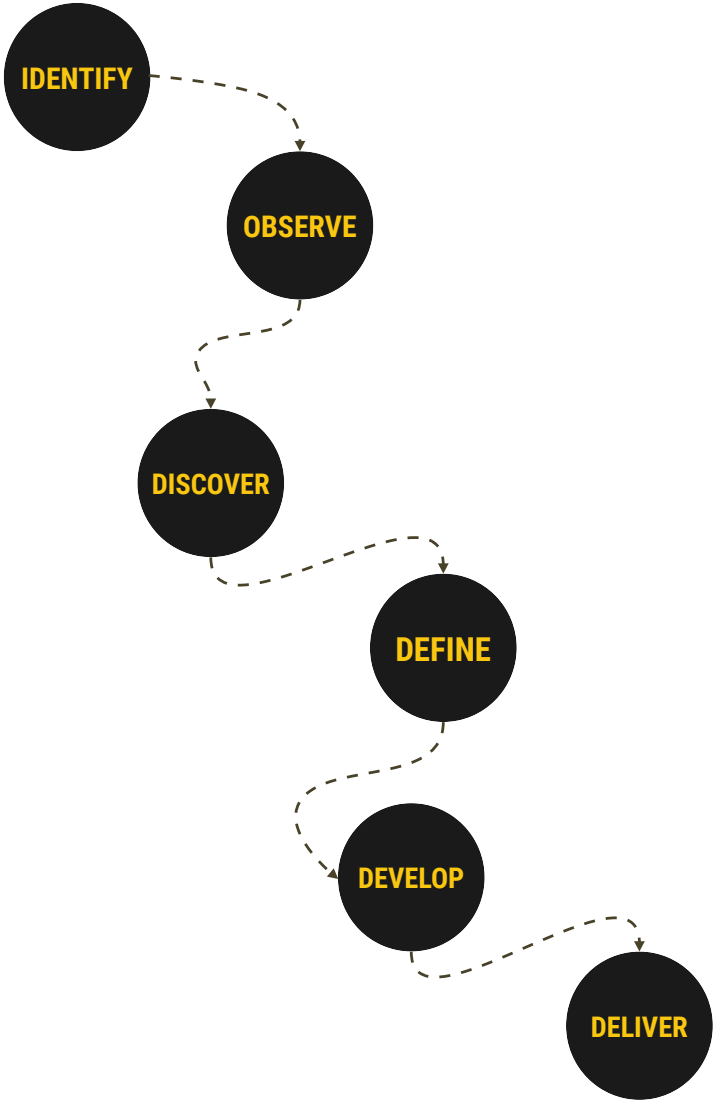
The Design Process is an approach for breaking down a large project into manageable chunks. The design process acts like a layout for an individual to follow to solve a problem. Architects, engineers, scientists, and other thinkers use the design process to solve a variety of problems in their respective fields. Having a process defined enables one to have a clear path towards design thinking. As quoted in the book "How do you design?" by Hugh Dubberly, a design process is the transformation between input and output.

WHY IS DESIGN PROCESS IMPORTANT?

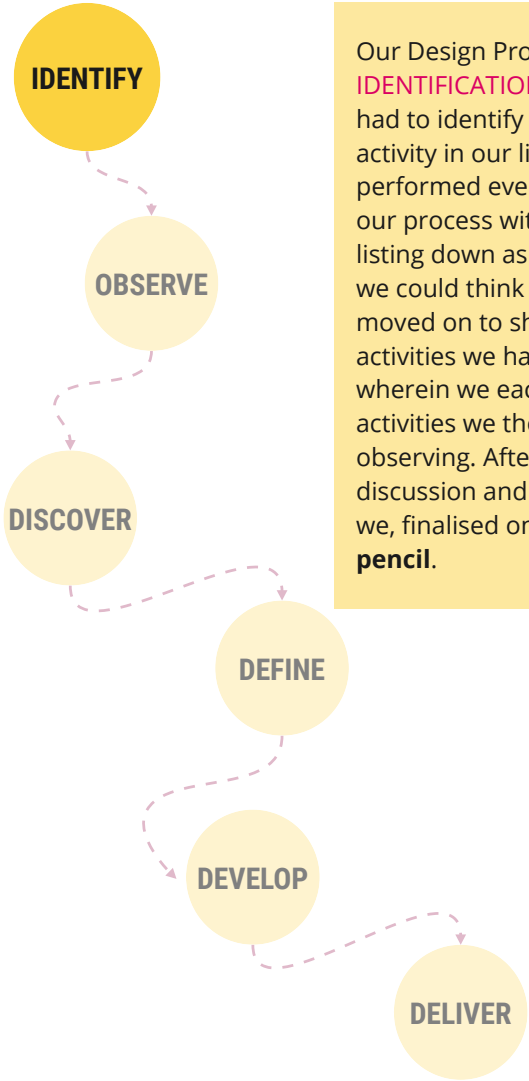
The strength of a design lies as much in the steps taken to create it as in the final result. The process is the totality of time, effort and attempt at solving the given design problem. It demonstrates the care a designer is willing to take and the depth to which they are willing to go to solve the particular problem. A thoroughly research design process will always yield good results. It's a systematic series of steps that helps you to define, plan and produce a good design concept. It allows you to be efficient.

In our case, it helped us understand so many nuances of an everyday mundane activity with so much depth. It helped us, not only learn about an everyday tool but also the human behavior around it. It helped us observe each and every aspect of a simple activity down to its last detail.

THE STEPS OF DESIGN PROCESS



THE STEPS OF DESIGN PROCESS



Our Design Process began with IDENTIFICATION. We, as a group had to identify one mundane activity in our lives which we performed everyday. We started our process with each of us listing down as many activities we could think of. We, then moved on to shortlisting the activities we had identified wherein we each picked two activities we thought were worth observing. After a brief discussion and voting procedure we, finalised on - **Sharpening a pencil**.

DAY 1

The Process

IDENTIFY
AN EVERYDAY/ MUNDANE ACTIVITY
eg. Brushing teeth

Discuss within the group and ensure you all can focus on/work on this further.

Write it down here (4 pm target); this is the starting point.

Move on to the next stage..

Brainstorming-I

Shortlisted ideas

Sharpening pencil/knife.

Switching ON/OFF electrical appliances

Organizing / storing old-unused things and finding them back when in need

Watering plants

Using liquid gums (fevicol) once the bottle is more than half empty

taking clothes to the washing machine

using belt for loose trousers

Drying clothes
-squeezing out water
-Spreading on wire
-Putting clips

using mobile while charging

hair oiling

Refilling from sachets (oil, handwash, milk)

Refined ideas

Cleaning laptop

Bed sheet-after the sleep

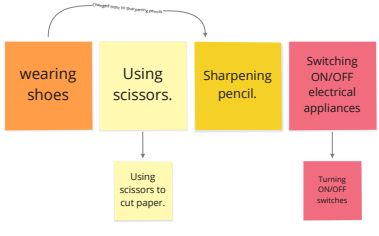
sorting groceries

wearing shoes

Selected initially.

Using scissors.

Discussion after feedback



Chosen topic

SHARPENING PENCILS

THE STEPS OF DESIGN PROCESS

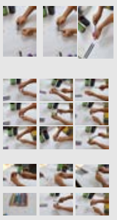
The next day we moved on to the second step of the design process - OBSERVATION. All seven of us had to perform the activity we chose, record the performance and then observe it. We studied ours's as well as each other's mannerisms and made notes about posture, type of tool, waste disposal, positioning of fingers etc. To get a deeper understanding we then proceeded to study more subject. So each of us observed our family members perform the activity while we made notes. After a day of closely studying the act of sharpening a pencil by many subjects, we sat down to deliberate and share our observations and concluded with listing all the critical observations we studied.

Recording Observations

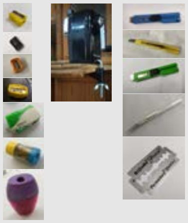
Observation videos :

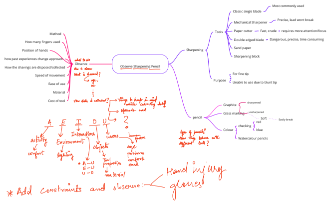
https://drive.google.com/drive/folders/1VA9ecJVHhthWBuA_8Gt5npHx7p53NWnM?usp=sharing

Process :

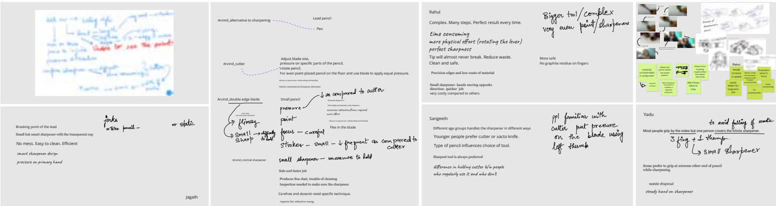


Used tools :

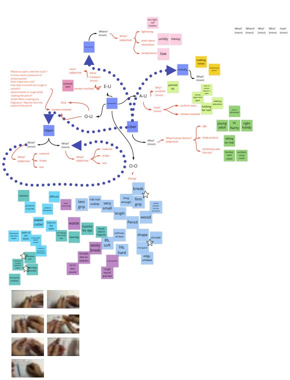


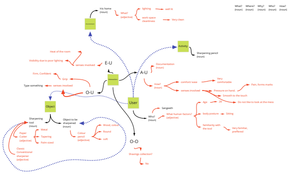


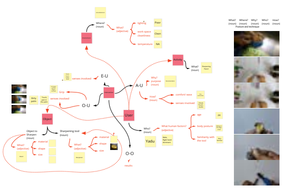
Group observations on each individual performing task:



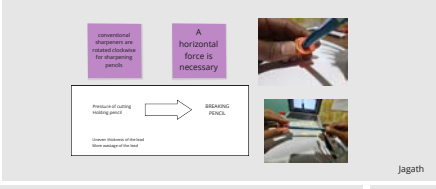
Mapping Observations



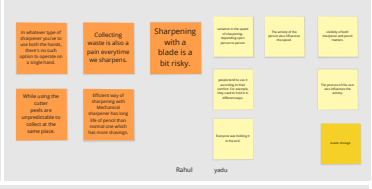




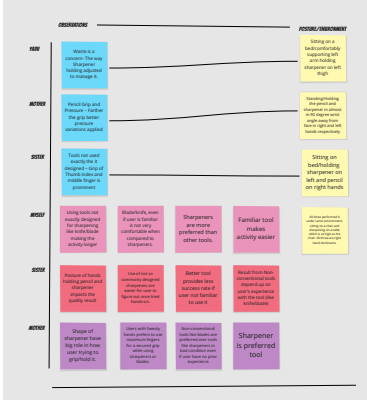
Segregation of Observations

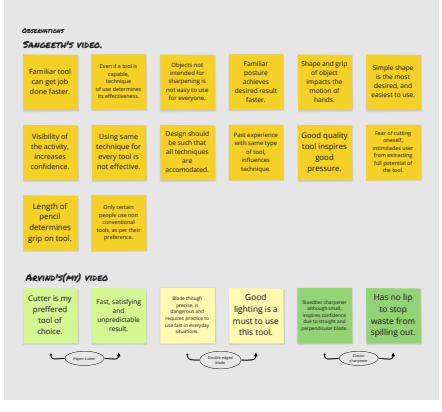


Jagath



Rahul yadu





Segregation of Observations

Activity

A horizontal force is necessary

Length of pencil determines grip on tool.

didn't know when to stop if design is not that way

durability and life of the tool matters

The posture of the user also influences the activity.

1. Tools
2. Time/Speed
3. Efficiency
4. Waste Disposal
5. Safety

User

waste disposal.

evidently uncomfortable in using cutter

Good quality tool inspires good pressure.

Shape of tool have big role in how user trying to grip/hold it.

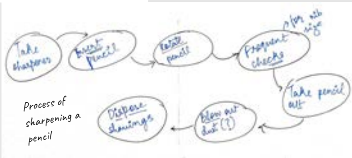
visibility of both sharpener and pencil matters.

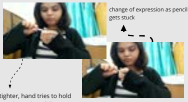
user's experience with tool is a factor

Past experience with same type of tool, influences technique.

While using the cutter peels are unpredictable to collect at the same place.

steady increase in speed

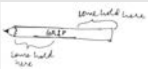




change of expression as pencil gets stuck

grip gets tighter, hand tries to hold the waste so that it does fall out

left hand uncomfortable jaw clench



works better for long term use

steady increase in speed

chance of frustration when in hurry

time consuming

for professionals

Mother: holds the sharpener ergonomically (maybe unconsciously)

evidently uncomfortable in using cutter

Newer the pencil, better the waste pattern.

hesitant, cautious

Both sharpener and pencil is rotated, in opposite directions.

didn't know when to stop

Slower turns resulting rough surface but clearer view of tip

Primary Activities

Sharpening pencil itself is a secondary activity

Quality experience

Notemaking

Sketching

Collecting waste

Colouring

diff. pencils need

diff. tool.

Mindset changes.

Pencil is such a unique tool

Artist cares a lot

quality

shavings

experiance

for art

Kids are generally carefree

DAY 2

Perform the activity

Let the other group members observe & record, change your role to experience it yourselves (performing-observing)

Document your observations; avoid assumptions.

List the key/critical observations

Observations

Posture

Hints for observation :

- *How far from body is it held*
- *How do they enjoy the process*
- *How do they choose which design to buy*
- *Sitting/standing. Does it make a difference*

- While using a paper cutter for sharpening, user kept the pencil and cutter away from face with slightly squeezed eyes.
- The user used a sharpener with comparatively relaxed posture and facial expression.
- Sitting - elbows are rested on a surface ; less tension
- Standing ~ more tension ; quicker movement
- Rotation of tool and pencil. Is both rotating. Kids keep rotating in all directions.

Age/Profession

Hints for observation :

- *How do children/adults use the tool differently*
- *Do they enjoy the process*
- *How do they choose which design to buy*

- Mother sharpened the pencil faster compared to children while using a paper cutter.
- Mother and children took similar time to sharpen with a sharpener
- Children enjoyed handling sharpeners and pencils.
- Children using dominant hand to hold pencil and other hand to hold sharpener
- Children rotating pencil in both direction to attempt sharpening

Quality of Result

Hints for observation :

- *How is the end result*
- *Consistency of outcome*
- *Success rate/Failure Rate*
- *Satisfaction of process.*

- Pencils right after sharpening when used to write, the absolute point of the tip broke.
- After sharpening user found the entire tip is broken .

- While using the sharpener, user kept rotating the pencil with frequent pauses to check the tip and with the cutter.
- user roughly cut the pencil initially and later carefully cut the end and refined the tip.

Waste Disposal

Hints for observation :

- *Collection of wooden/led waste*
- *Shavings are scattered dust or flower pattern.*
- *Size of dust depends on pencil or tool?*
- *Technique used adapts for it*

- Some user kept the shaving for cleaning later
- The shavings fell everywhere and finer dusts were difficult to clean as it left marks on surface and hand.
- Some sharpeners have waste collecting feature.
- While given choice, users were picking sharpeners with waste collecting container as the tool.

Environment

Hints for observation :

- *Situation, exam hall, leisure*
- *If workspace/bedroom brings difference ?*

- User appeared frustrated when tip keeps on breaking
- User was finding good lighting for sharpening with blade or knife
- The user sharpening sitting on his bed held the sharpener like this:-

- Users under set up environment performed task effortlessly.

Material and Design

Hints for observation :

- *Placement of blade*
- *Angle of blade*
- *Shape and texture*
- *Specific purpose: professional/casual use.*

- Pencils with glossy feel tend to slip more than the one in mat.
- When choosing a tool artist consider angle of blade and sturdiness of the material
- The texture at the side of the sharpener, used by kids , young people don't use it.
- User does not know when to stop sharpening, keep checking the progress

Technique

Hints for observation :

- *Specific purpose: professional/casual use.*
- *Past experiences influence technique used.*

- Some tools demand it to be held far away from the user.
- Size of the product influences the way the user uses it.
- Traditional sharpeners are most preferred tool over blades and knives
- Steady increase in speed

Key Observations

1.Posture

While using a paper cutter for sharpening, user kept the pencil and cutter away from face with slightly squeezed eyes but the same user used a sharpener with comparatively relaxed posture and facial expression.

2.Age / Profession

Children when sharpening, held pencil in their dominant hand and tried rotating it in both clockwise and anticlockwise directions.

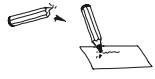
Mother sharpened the pencil faster compared to children when used a paper cutter.

3.Quality of Result

While using the sharpener, user kept rotating the pencil with frequent pauses to check the tip and with the cutter, user roughly cut the wood and later carefully refined the tip.

In some cases the entire tip broke while sharpening.

When freshly sharpened pencil is used to write, the absolute point of the tip broke.



4.Waste Disposal

While using the paper cutter, the shavings fell everywhere and finer dusts were difficult to clean as it left marks on surface and hand.

Given a choice users picked sharpeners with waste collecting feature.

5.Environment

The user sharpening sitting on his bed held the sharpener like this:-

Users ensured there is enough light while using a cutter.

6.Material and Design

Some people enjoyed handling sharpeners and pencils.

The waste collection caps on sharpeners were mostly transparent.

Some sharpeners made a short tip, while other sharpeners made a longer tip.

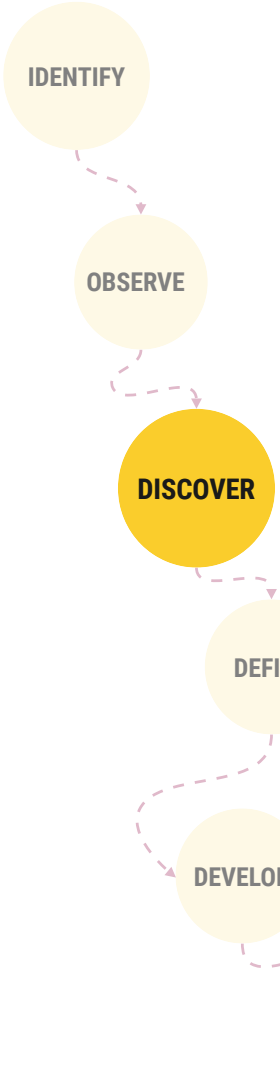
7.Technique

Mother held the cutter like knife, while young adult held the tools differently.

When the grip was loose, the user adjusted the angle of hand and number of fingers holding the tools.

User rotated pencil and sharpener in clockwise and anticlockwise directions simultaneously

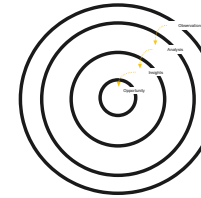
THE STEPS OF DESIGN PROCESS



Our design process moved forward to the DISCOVER stage. We began asking questions about the observations we had made. We thoroughly discussed each and every observation we had studied individually, as well as a group. We categorized our observations and insights. We then launched into mapping our opportunity areas.

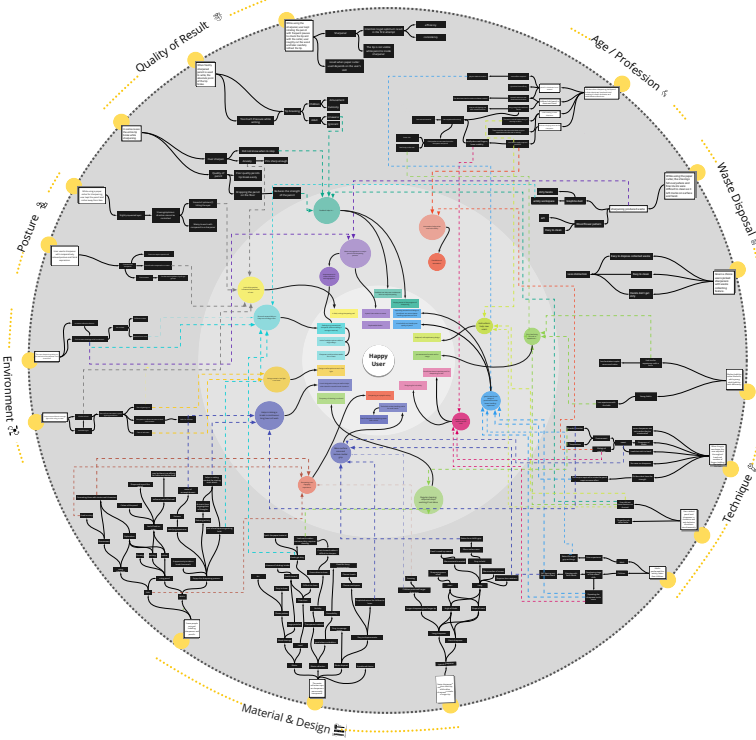
DAY 3

Analysis and Synthesis



Research further on the key observations; collect as much insight as possible, analyse and record your work here; like a detective/forensic expert investigating a case.

Map out the opportunity areas



THE STEPS OF DESIGN PROCESS

Once we mapped out our opportunity areas from our insights, it was time for us to start working on DEFINING a need. To begin developing solutions, we had to identify pain points that need to be addressed. We came up with numerous problem statements together, also clubbing a few in order to create a broader problem area to work on.

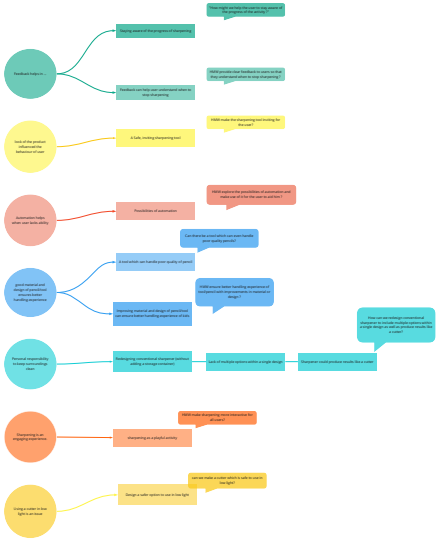
DAY 4

Listing Opportunity Areas

Now that, you have so much of data/analysis/opportunity areas, try and converge to pick the most relevant/appropriate ares that you would want to focus on.

List out the opportunity areas, clearly

Insights - Opportunity Area



Insights Opportunity Area

DAY 5

Defining Problem

Define problem/need statements (as many as possible, as a group)

THE STEPS OF DESIGN PROCESS

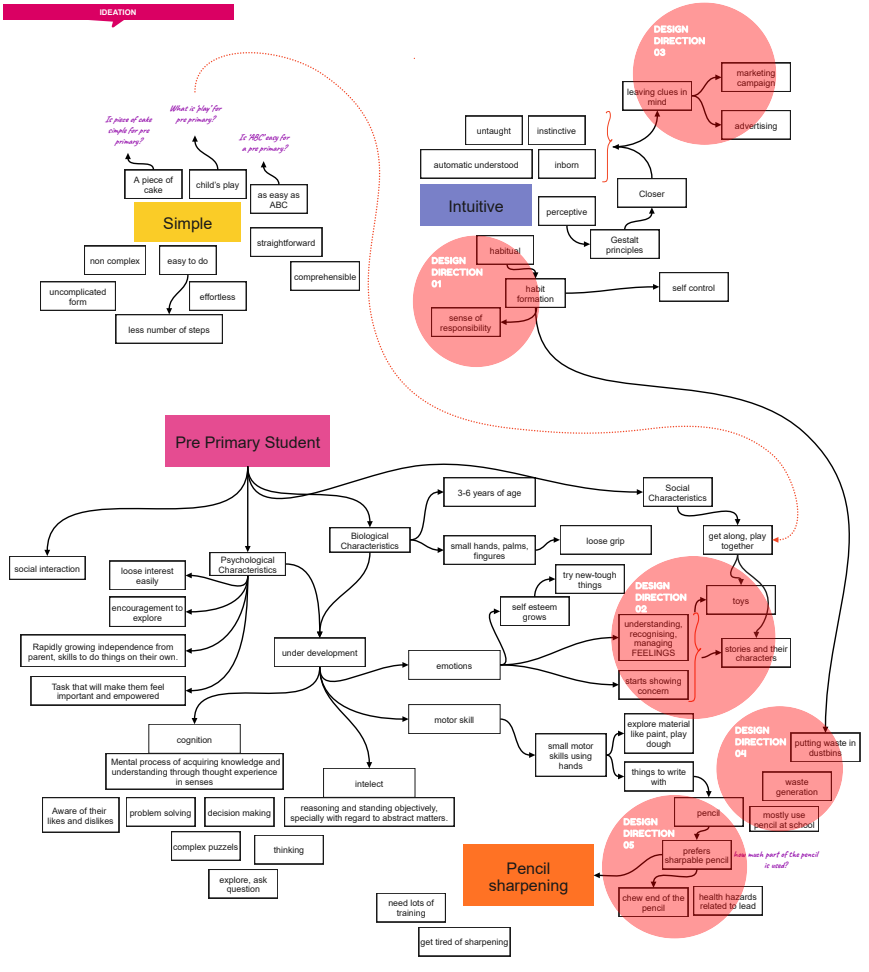
After more than a week of discussions, debates and deliberations, we picked the problem statements we wanted to DEVELOP ideas for. Each of us dug deep into research and ideated on various concepts to solve the need at hand.

PROBLEM STATEMENT

ADITI SHARMA
(TGD)

To create simple and intiutive sharpening of pencil for pre primary student.

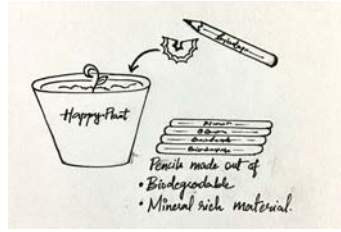
IDEATION



DESIGN DIRECTION 01

Using Sharpening of pencil as an opportunity to develop HABIT of concern and responsibility.

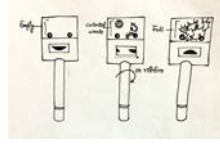
CONCEPT 01
Collect the waste from a biodegradable pencil and put in the plant to nurture it.

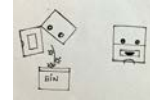


DESIGN DIRECTION 02

Kids of 3-6 Years of age develop emotional connection with their toys and characters in stories and consider them real.

CONCEPT 01
Sharpener depicting its state of being. Sad when full with dirt and happy when empty.

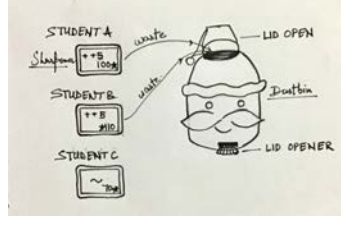




DESIGN DIRECTION 04

Kids use pencil and sharpener mostly in classroom, there a positive habit of throwing waste in dustbin can be inculcated.

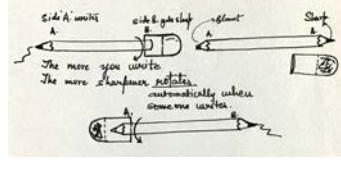
CONCEPT 01
A sensor based dustbin and sharpeners setup can be created within a classroom where points are added to the sharpeners from whom waste has been disposed in the dustbin. Each sharpener will be assigned an ID individual for each student. Entire theme can be set around Santa or any other character.



DESIGN DIRECTION 05

Ensuring that the body of a pencil is used to the maximum.

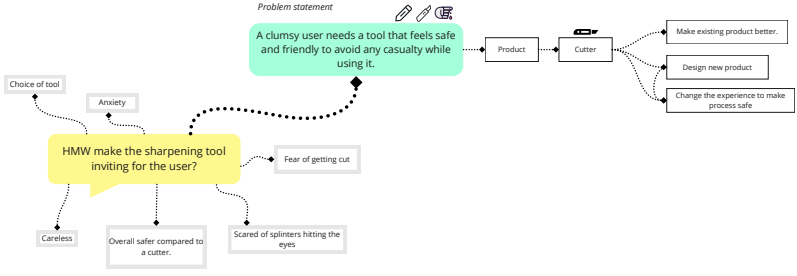
CONCEPT 01
A sharpener that keeps on rotating and sharpening a pencil on a very slow speed.
OR
A sharpener that starts sharpening other side of pencil when written down by the pencil.
if want to sharp pencil before the other side is sufficiently sharped then can use the same sharpener as a regular one.



CONCEPT 02
A set of pencils and attaching sharpener sold together.
Pencils are of half the standard size. The cylindrical detachable sharpener with waste collection can attached to it. The entire setup becomes of equal weight as that of a standard pencil to ensure a firm grip.

Arvind Anantanarayanan S (TAD)

Design Process - Individual



Existing products with safety features.

Key problem areas.

Protection
Increase grip
Waste Collection

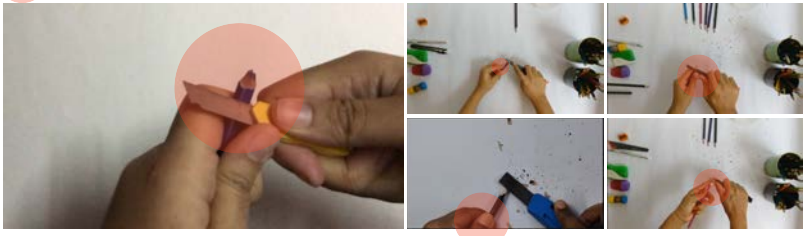
Paper cutter is most commonly used tool to sharpen pencils. The cutter is a popular choice due to the control and versatility of the tool.
While purpose built pencil sharpeners exists, users want a multi purpose tool that can perform a variety of tasks.

There are many tools to sharpen pencils. But the paper cutter with retractable blade is widely used to create a unique experience of sharpening a pencil. For some people its almost like therapy, slowly chipping away at the wood till a long point can be made. For artists, this helps them get a long point that can enable them to hold the pencil parallel to the paper and achieve good shading. A conventional sharpener can never give a user this experience. Each time a pencil is sharpened by blade, it forms unique shapes and patterns. The blade also helps to reduce wastage of graphite, if the user needs a longer tip instead of a fine point.

Although the paper cutter is an excellent tool, it bring with it safety issues. It needs to be handled with utmost attention, and concentration. So if a person is in a situation, or by nature is careless, clumsy and not paying attention, but still want to use the cutter to sharpen their pencil, they have very few options other than to settle to use the conventional box sharpener.

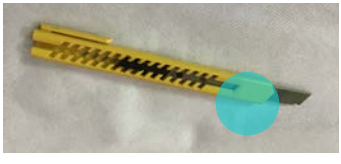
There are existing products that are made from the safety standpoint, with hidden blades and automatically retracting blades.

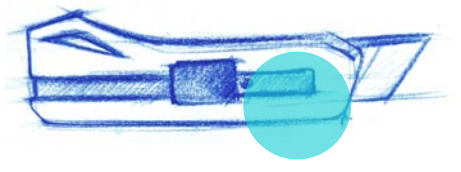
Area where user can cut themselves easily, if not very careful

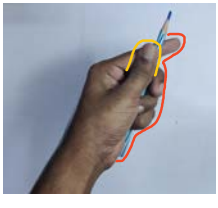


Each user holds the cutter at a different angle thereby, have varying levels of risk of cutting themselves.Some users hold the blade far away, but others closer. Some users like to rest the pencil on the ground and detail the lead.Some users use left thumb to push the blade, others use the plastic body to push the blade. So the solution should be such that it accommodates all techniques and preferences.

User controls the tool using thumb finger by applying pressure in this area.

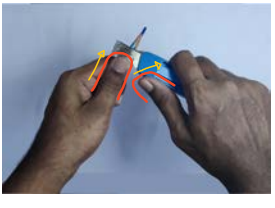






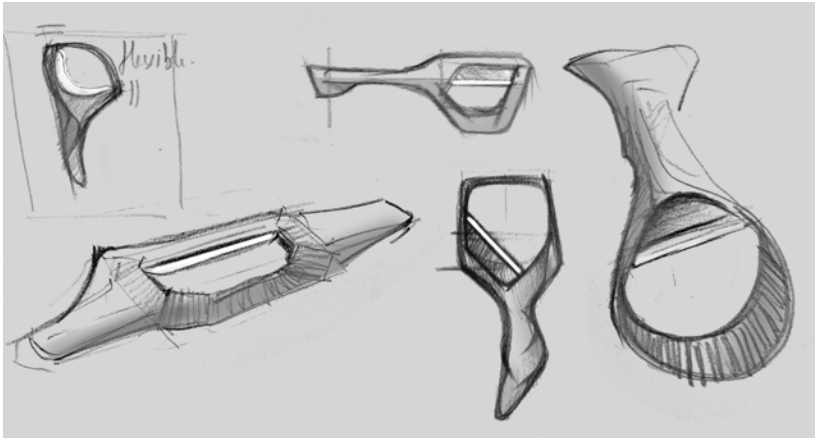
All fingers except the thumb grip the pencil firmly and keep rotating the pencil for even result.

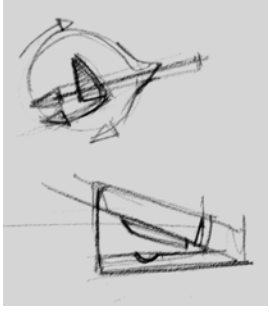
The right hand grips the cutter upside down, sharp edge away from the user.



Both hands work simultaneously, the left thumb pushes the blade and controls the direction, while rest of the fingers on the left hand grip and rotate the pencil constantly. The right hand moves in arcs in rotating motion away from the user.

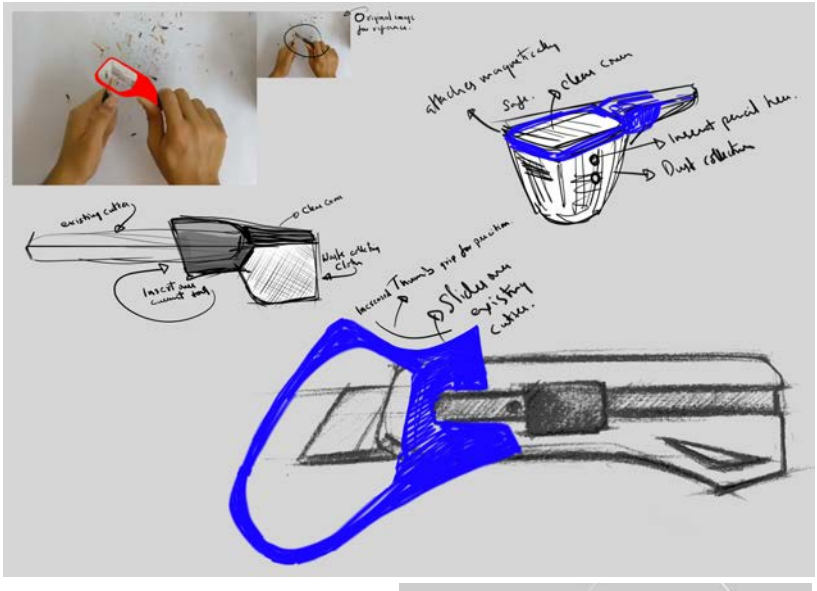
New product satisfying the need

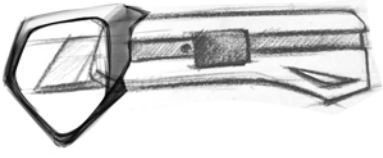


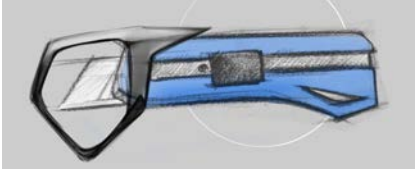


Here, the main things kept in mind were, safety, ease of use and providing grip to push in the desired directions. On some iterations I have set the blade at an angle that the thumb makes when the user holds the cutter. For others, I used kitchen tools like a peeler and carpentry tools like chisel for form.

Modifying existing product to satisfy need







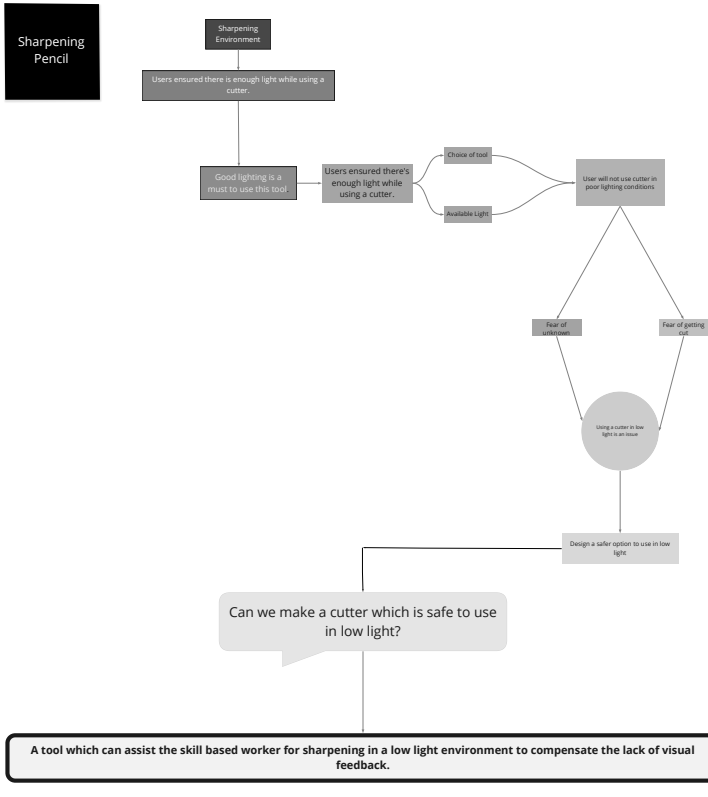
Here, the idea is to add a simple element that can change the way the cutter is used, increasing safety, and adding a waste collection feature. A rubber bumper is added to the cutter to protect fingers and have and increase grip for efficient use. The cover will also have a shaving collection feature that attaches with magnets as shown in the doodles above.

This is a viable solution as its modular and can be used as per the preference of the user. The bumper will protect careless users from having contact with the blade by mistake. The clear plastic top will give users excellent visual feedback while protecting eyes from flying pieces of lead. The pencil can be inserted into the waste collection bag and an instant seal is formed ensuring graphite dust and wood shavings stay within the bag, avoiding a mess.

Jagath Narayanan (PHD)

The Process

After brainstorming among group members, lot of ideas came into the discussion.And finally we decided to choose find a solution to 'Sharpening Pencils'.
Here it goes...



- We then performed the activity, ie, Sharpening Pencil among all the members with the available sharpening tool at home



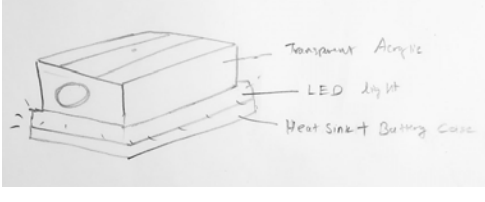

- Then we recorded the activity as videos and photographs and shared it among ourselves as well as family members of various age groups for critical analysis.



- The observations were then classified int o 7 categories for further analysis.
  Posture, Age/Profession, Quality of the result, Waste disposal, Environment, Material and Design, Technique
- After analysis and synthesis of the data insights, the Opportunity areas of further design interventions were identified.å
- The need/problem statements were derived after that
- Out of all the problem statements, designing a sharpener which can be used under low light condition seems to be interesting and i chose it for further processing.

Ideation

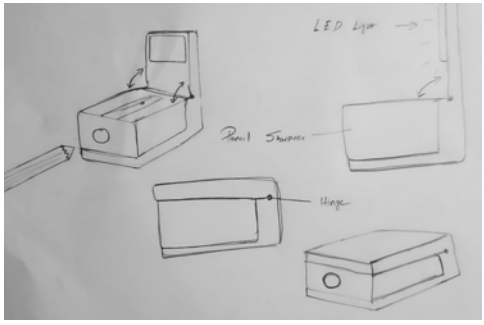
The ideation part of the Design Process was challenging as well as interesting for me. Allowing myself to think freely and discovering innovative ideas was a wonderful experience. Also working close to the deadline felt even more challenging. And finally, I was able to deliver a satisfactory design solution for my selected problem statement through evolution.

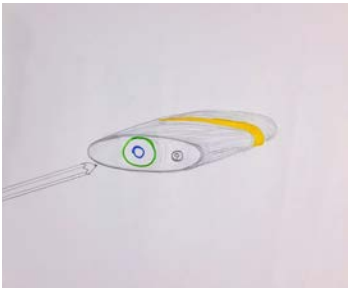


I started the process by redesigning the basic conventional pencil sharpener. The idea was simple with a transparent pencil sharpener illuminated with a LED light

This design of illuminating the sharpener with retractable light stand is an improvised version of my previous design. It is a design by compensating the flaws of my previous design in which the illumination was not sufficient for operating the pencil sharpener.

The hinge mechanism was concept was inspired from laptop design, where I use the light from the laptop screen to see the keyboard (which doesn't have button illumination)
Also ratchet mechanism was used to minimise the motor skills





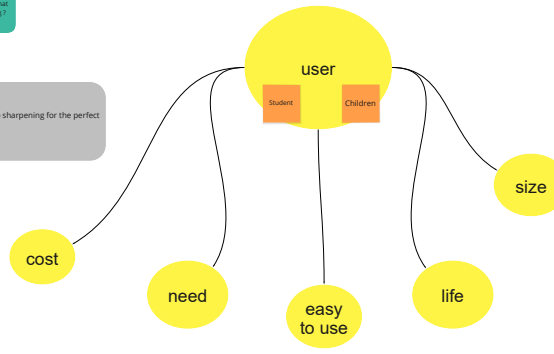
This design is a much more advanced design. Here i have incorporated automated pencil sharpening with a motorised mechanism. It also has a pencil shaving collector container for easy waste management.

It has illumination around the sharpener hole to easily identify it under low light conditions. Also it has a feedback indicator to identify when to stop sharpening. The light will show Red when the sharpening starts and will turn Green when the lead is pointed.

A fluorescent sticker tape is also provided to easily spot the sharpener in low light environments. Also the elliptical design of the sharpener is inspired from the shape of a pebble which has a great grip inside the hands. Also it makes a compact design.

HMW provide clear feedback to users so that they understand when to stop sharpening ?

User need an indication to know when to stop sharpening for the perfect tip.



concept 1

When the sharpened point touches the push switch a little, the red led indicator blinks.

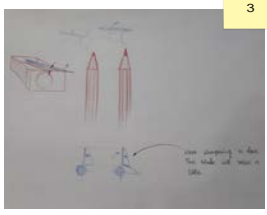
The basic idea is to design a cost effective sharpener for all kind of user. User always take pauses to see the point of pencil while sharpening. This smart switch allows the user to sharpened the pencil without taking pauses. The Red led blinks when the sharpening is done.

concept 2

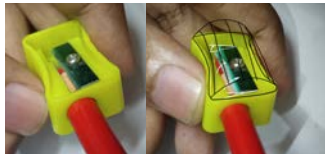
Here the sharpener design is cylindrical with having a container which lights up when the sharpening is done.

This concept is made for the premium experience of using sharpener. It has a transparent container attached with it. Which illuminates light when sharpening is done. So the sharpening process in cylindrical sharpener which was not that continuous because of the user is conscious about the point of the pencil, now it is become more advance one with light indicator container.

concept 3



In this concept, the blade of the sharpener moves upward very slightly. So the pencil can rotate freely and the user gets an idea that the tip is perfectly sharpened.



This concept has a very unique approach to let the user know that the pencil is sharpened. The sharpener has a transparent container to collect the pencil shavings. The expensive mechanical sharpener comes with the crank mechanism that becomes free when sharpening is done. That concept is applied here with different approach. when the sharpening is done, the blade moves slightly upwards and lose the contact with pencil. So the pencil becomes free to rotate and gives an indication to the user that the point is sharpened.

Problem Statement

> *"A busy professional needs a sharpening tool that requires less frequent cleaning (of produced shavings waste) to ensure a smoother work flow."*

"Hey I need a better sharpening tool "

"I'm tired of frequent cleaning of shaving "

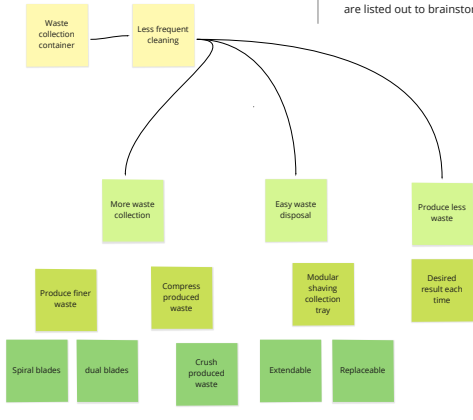
"Help me to ensure a smoother work flow "

A busy professional and the importance of his/her time is well justified with the thought of a sharpener that only requires cleaning/disposal of waste in less frequent intervals.

Studying the possible ways to enable such a need, there were few areas which the currently available sharpeners did not meet. Hence finding solution of this design problem can also be finding solution to a less noticed problem by the manufactures.

Understanding user/ Empathize

Empathizing on the needs of user being essential to any design, the key needs and the elements to achieve the same are listed out to brainstorm on the same.



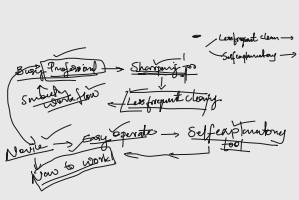
Brainstorming For Concepts

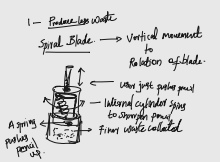
Expanding thoughts in the key points derived from the problem, there were mainly some elements identified which can immediately help to solve the problem of frequent cleaning of shaving dust.

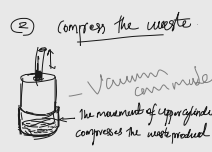
The initial understanding a shaving collection container is essential component to help the user stay trouble free from spreading the shavings across workspace/desk.

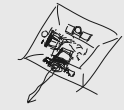
The later ideas were around making the container most efficient and with max capacity to do its job well and beyond.

The shaving box, even though many sharpeners has it, the size is compromised to make sure the sharpener is easily portable. There is a possibility of a modular/extendable box which can increase the capacity only when its required. Apart from this addition, generally they are observed in transparent color to give clear visibility to user to identify when it is full and to be cleaned.









– The mechanism of rotating blade to be engineered.

Working out few ideas on paper

Helical Blade and Shavings vs Flat blade and shavings

There was some quick research conducted on the kind of waste produced when used normal sharpener blades vs the helical blades used normally in mechanical sharpeners. It clearly showed the difference in the way of shaving produced, the helical blade can produce finer shavings compared to flatter, flower-like one from the basic sharpener.

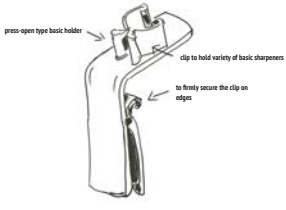
Another method would be to find a way to compress the shavings or separate the shavings produced from the blades, so that it does not affect the visibility of the pencil and also not interferes with the process by accumulating within the sharpening cone.

The problem being a professional user focused, the possibility of automated electronic sharpener is a good possibility. A sharpener which can determine the desired result can help the professional from wasting a lot time avoiding re-sharpening. When such an automatic tool could be on a less affordable side, there are scope for very simple tool, like one helping the sharpener to be held on top of the opening of a container and the shavings are collected in the container of user's choice.

Concept Breakthroughs

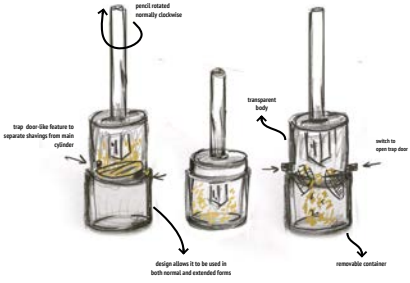
	The Sharpener clip	The Hi-Cap sharpener	The Hi-Cap Smart Sharpener
What's the key focus?	Will be a simple tool, much affordable and can convert any basic sharpener to cleaning friendly.	Will be a sharpener with optional higher capacity to hold more shavings if required.	Will be a smart electronic sharpener which can control the sharpening to make sure the optimum result and also vacuum the wastes for less hustle.

Concepts Ideated



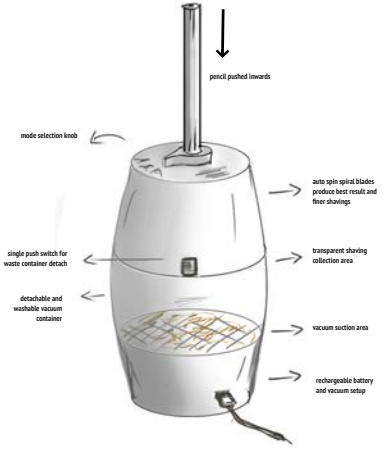
Concept 1 - Sharpener Clip

- A straight forward solution that can help to transform the basic sharpeners to cleaning friendly
- L shaped clip is the main component which can hold variety of basic sharpeners on one end and a firm clip on the other and enables securing the it on any existing container of users choice.
- The clip places the sharpener in such a way the waste could be easily collected in the container and thus makes it easy to clean and no frequent cleaning is required.
- The user can still use their favorite basic sharpener
- If made out of metal/sold material, can last a lifetime!
- Easily portable, designed for desk/work station use.



Concept 2 - Extra Capacity Sharpener

- A sharpener with extended capacity to hold shavings
- The standard sharpener with added feature to store more waste for the user
- Cylindrical design for agnomical stands and modular nature
- Transparent body for netter visibility of sharpening process and shavings in the container
- Sharpener extends to double the shaving storage
- It has a trap door with dedicated opening switches to keep the shavings in the bottom container once extended hence making sure smooth sharpening with better visibility
- Portable design
- Removable shaving collection container



Concept 3 - Smart Sharpener

- An electronic sharpener with much more capacity to hold shavings
- User can select the sharpening modes and insert pencil and gently push
- The sharpener detects the pencil and sharpens it to the optimum result
- The helical blades used helps to sharpen the pencil better and also produces finer shavings
- The vacuum pump also works simultaneously with the sharpener and helps to collect the shavings effectively during the sharpening process itself
- The vacuum pump also works simultaneously with the sharpener and helps to collect the shavings effectively during the sharpening process itself
- The container will be easily removable and could be cleaned once it is full
- More suited for a work desk / office environment
- Portability is an option with the use of batteries

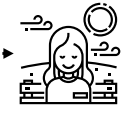
Trisha Malakar | SDM

Design an experience of sharpening a pencil to relax a stressed user

Stress is a feeling of emotional or physical tension. It can come from any event or thought that makes you feel frustrated, angry, or nervous. Stress is your body's reaction to a challenge or demand. In short bursts, stress can be positive, such as when it helps you avoid danger or meet a deadline. But what happens when the stress become too much to handle? When it overwhelms you and sends you down a spiral of anxiousness?

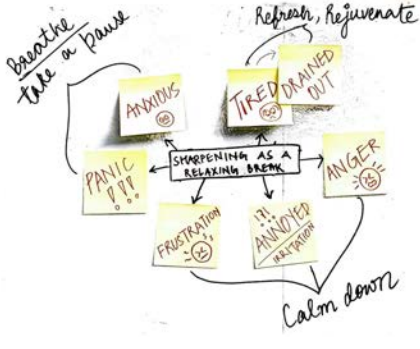
The modern-day professional must deal with unhealthy amounts of stress being accumulated over time. In today's time time, we work without any time limit. Specifically, professionals in the field of creative arts such as designers, architects, writers, artists etc. A work day in the life of a creative professional lasts more than the usual 8 hours. The work usually revolves around giving intense attention on one single project at a time resulting the professional sitting at one place, staring at the same thing for an extremely long time. Without taking adequate breaks from work, any individual's productivity, mental well-being and overall work performance begins to suffer. Now of course, taking a walk outside is always an effective solution but for an individual who's been stressed for hours and feels like taking a walk will "waste their time", how do we help them? How do we help them pause and breathe to prevent them from a possible burnout?

Hence, the goal became to help design an experience of sharpening a pencil to relax a stressed user. A sharpener because it is one of the most common tools of a creative professional. Any designer, architect, writer or a student in any field has a sharpener on their desk. So I decided to work on redesigning a sharpener into a product which aims to help a user de-stress as well.



What are the emotions one feels when stressed about work?

How should the product help the user?

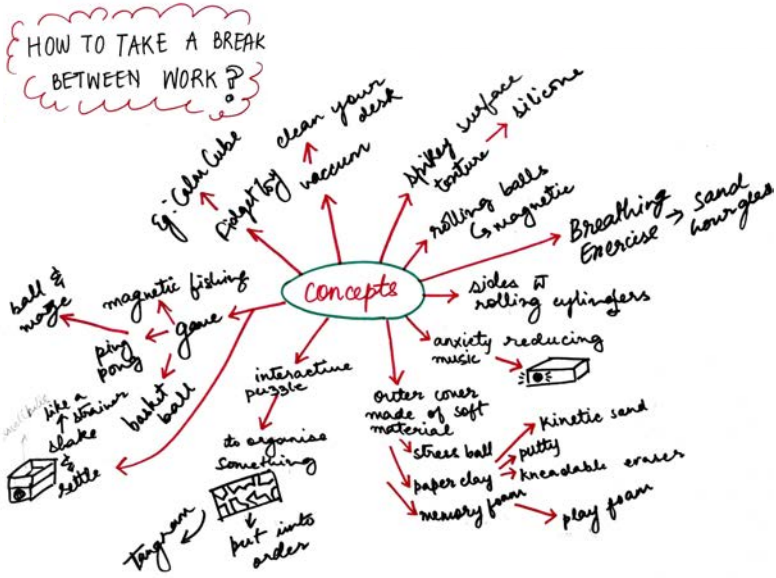


To calm down

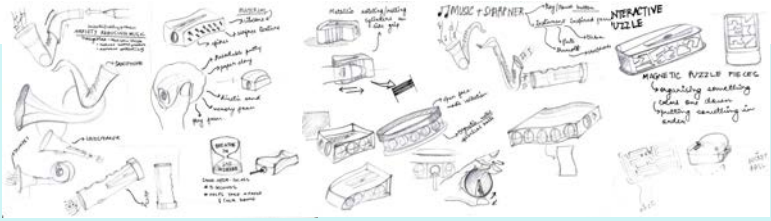
To rejuvenate oneself

To help take a pause

BRAINSTORMING



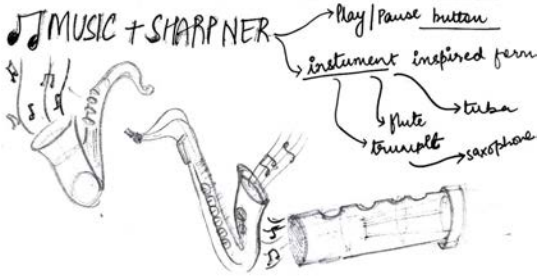
CONCEPT SKETCHES

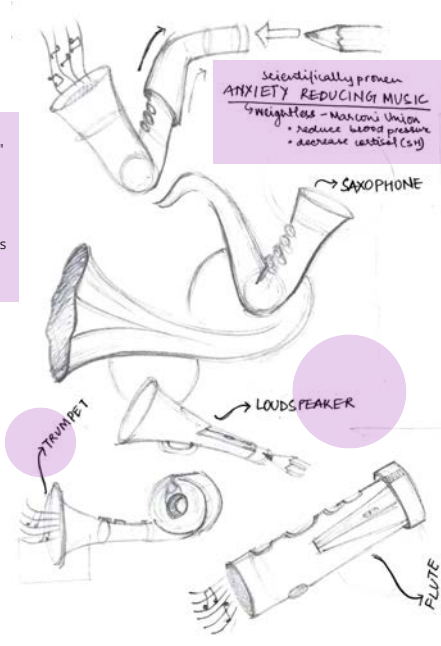


FINALISED CONCEPTS

After brainstorming numerous ideas, I finalised on four prospective concepts. They range from tactile play to a quick meditative process.

CONCEPT 1
A sharpening tool with waste collector inbuilt with a speaker which plays scientifically proven anxiety reducing music.

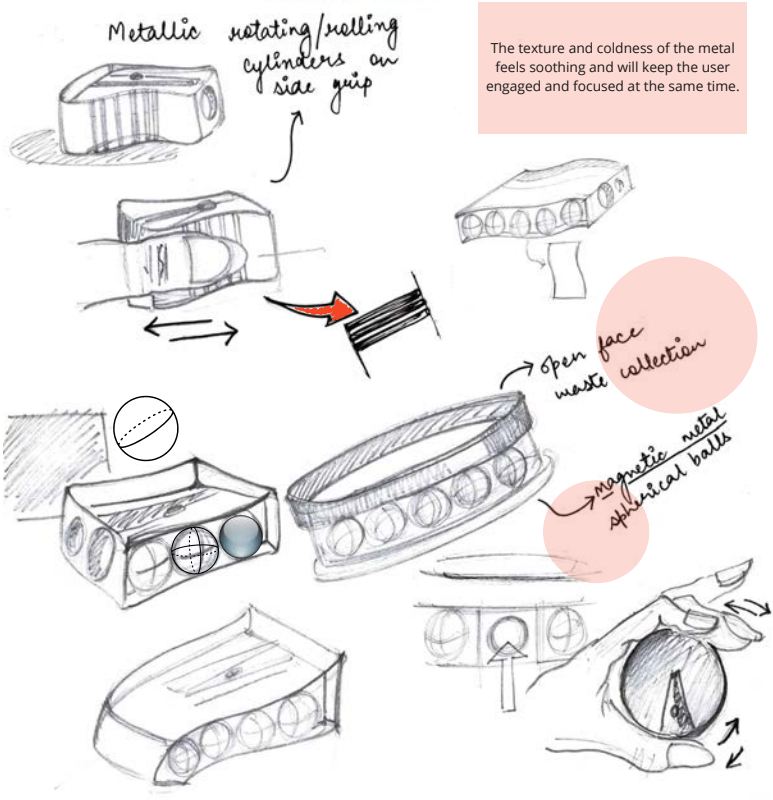




"Weightless by Marconi Union" is known as the world's most relaxing song.

Its commonly played for patients before surgeries and is also used for sound therapy.

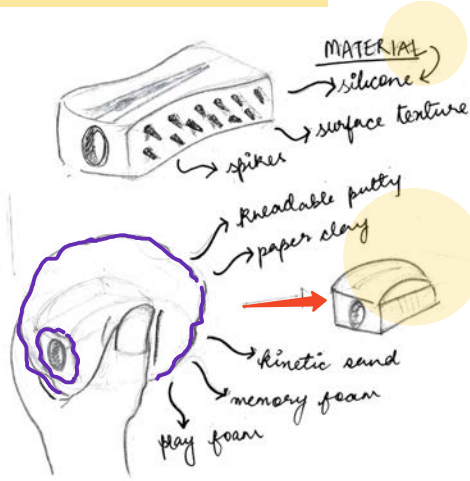
CONCEPT 2
A sharpener with metallic cylinders or magnetic balls which the user can engage with and cool down while sharpening their pencil.



The texture and coldness of the metal feels soothing and will keep the user engaged and focused at the same time.

CONCEPT 3
A sharpening tool with a surface texture made from materials such as silicone, kinetic sand, play foam etc. for the user to interact with while they sharp to release tension.

Tactile play can help calm nerves in a stressful situation by taking attention from the activity. Having something to roll, squish, squash, sculpt, and squeeze can act as a great mindfulness technique as it may help in cutting down tension by releasing all the negative energy of frustration and irritability.



CONCEPT 4
A sharpening tool designed for taking a much needed meditative break in a stressful work environment.

The sand clock works with a 3 second time limit in which the user can inhale and exhale slowly and let go of the overwhelming feeling within them. Basic breathing exercises has been one of the most effective measures to calm oneself down during stressful times.

Yadu Yadav

Problem statement

Design a sharpening tool for a responsible consumer for whom the global environmental crisis matters.

Design brief

Most of the sharpeners that we use are either made of plastic or metals. Prominent users of the sharpeners are students of various age categories . Since sharpeners are cheap, most of the time users prefer buying a new one. Whenever the sharpener loses its quality of sharpening, the users dispose of it carelessly. This creates a major environmental threat. Even the paints used in the material can also cause issues. The objective was to address this issues.
When we look at a sharpener, the body tends to take more space. The blade is attached to the body by a screw. Mostly sharpeners are made of plastics. Replacing plastic with Bamboo and combining it with a craft can add value to the product.
Most of the time people used to dispose of the sharpener is because of the loss of blade efficiency. Providing an option for replacing the blade can increase the life of the product and the user can save money. This can stop people from throwing away sharpeners.

Ideation

Replacing old blade with new

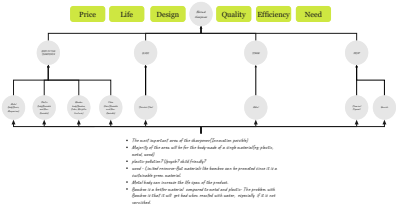
NORMAL SHARPNER

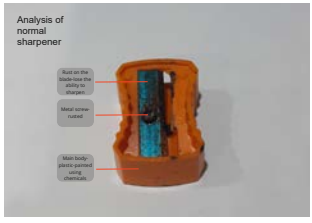
If the old blades can be replaced by new blades, disposing of the product after single use can be stopped.

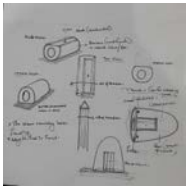
The sharpener blades are attached to the main body using screws. Whenever we try to change the blades, it is time consuming acti

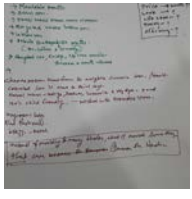
If we are attaching a power full magnetic rail in the sharpener, we will be able to eliminate the screw and also the blade can be easily changed.

Changing the material used to construct the body of sharpener









Bamboo

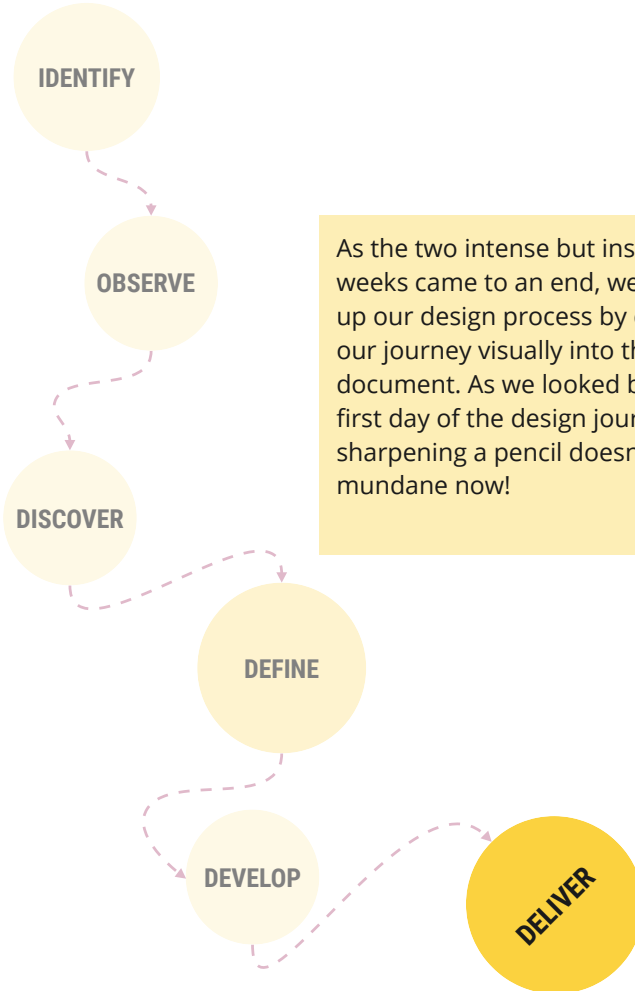
There are sharpeners made of bamboo already available in the market but they tend to appear in a wooden finish. But the problem is that they used to get dirty very fast since the bamboo is not applied with any coating. If it is applied with varnish, again it is a chemical. When the bamboo is not varnished, if it comes in contact with the water, black dots used to appear on the surface of bamboo.

Utilizing the toy making technique of channapatna.

- A similar technique can be utilized for making the sharpener more eco friendly.
- The natural colors can be used to make a variety of colorful sharpeners
- If the wood finish to be maintained, the lac polish can be used.

A sharpener with lesser carbon footprint that promotes the indigenous craft thereby adding more value to the product

THE STEPS OF DESIGN PROCESS



As the two intense but insightful weeks came to an end, we wrapped up our design process by compiling our journey visually into this document. As we looked back at our first day of the design journey, sharpening a pencil doesn't seem so mundane now!