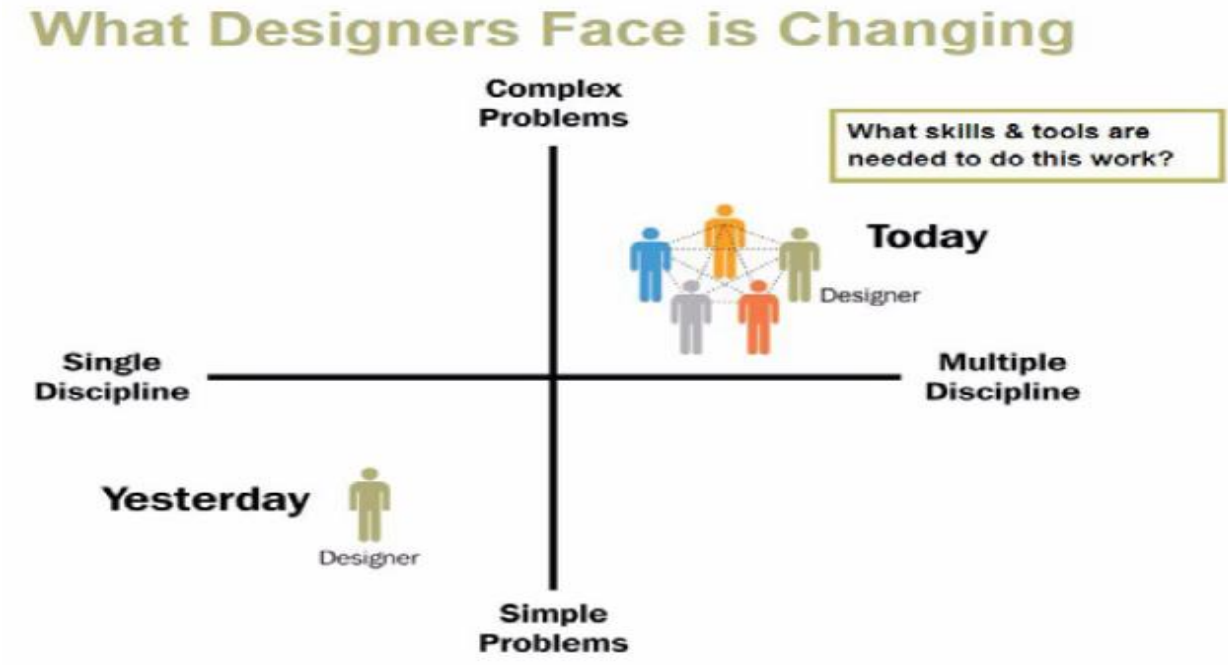
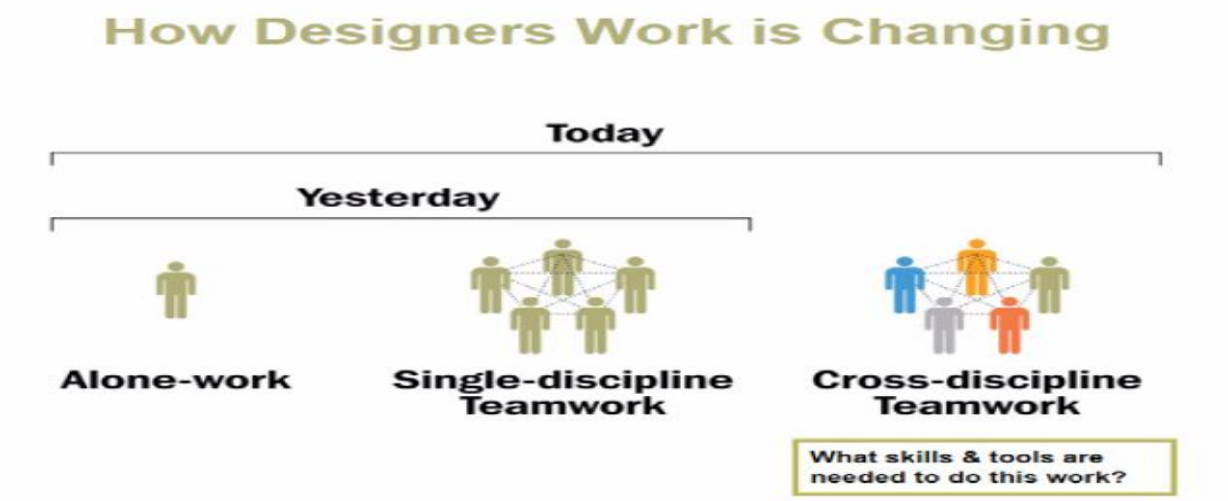
Unit-II

2.0. **Design thinking Vs Human centered design:**

- Design thinking is a methodology that uses complex problems, and it is a way of using systemic reasoning and intuition to explore ideal future state
- Design thinking becomes more central to business strategies, marketing strategies and execution works in operations and product design and helps to tackle social problems.
- A new scope with in design thinking:





2.0.1. Which Problems Can Design Thinking help to solve:

One of the first question people ask when hearing about Design thinking is,**" what is Design thinking best used for?"**
Design Thinking is suited to address a wide range of challenges a wide range of challenges and is best used for bringing about innovation within the following contexts:

- Redefining Value
- Human-centered Innovation
- Quality of life
- Problems affecting diverse groups of people
- Involving multiple systems
- Shifting markets and Behaviors
- Coping with Rapid social or market changes
- Issues relating to corporate culture
- Issues relating to new technology
- Re-Inventing Business models
- Addressing rapid changes in Society
- Complex unsolved societal challenges
- Scenario's involving multi disciplinary teams
- Entrepreneurial initiatives
- Education advances
- Medical Breakthroughs
- Problems that data can't solve

- Design thinking is best suited to addressing problems where multiple spheres collide, at the intersection of business and society, logical and Emotion, rational and creative, human needs and economic demands and between systems and individuals
- Design thinking is not necessarily only understood as a process or method for solving a set-in-stone collection of problems. It can also be combined with others methodologies, business strategies, social innovation models and management practices.

- Design Thinking **starts with Empathy,** a deep human focus to gain insights which may reveal new and unexplored ways of seeing, and courses of action to follow in bringing about preferred situations for business and society

- It involves **reframing the perceived problem or challenge** at hand, and gaining perspectives, which allows a more holistic look at the path towards these preferred situations.

- It encourages **collaborative, multi-disciplinary team work** to leverage the skills, personalities and thinking styles of many in order to solve multifaceted problems.

- It initially employs **divergent styles of thinking** to explore as many possibilities, deferring judgment and creating an open **ideation space** to allow for the maximum numbers of ideas and points of view to surface.

- It later employs **convergent styles of thinking to isolate potential solution streams,** combining and refining insights and more mature ideas, which pave a path forward.

- It engages in **early exploration** of selected ideas, rapidly modeling potential solutions to encourage **learning while doing**, and allow for gaining additional insights into the viability of solutions before too much time or money has been spent

- It tests the prototype which survives the processes further to remove any potential issues.

- **It iterates** through the various stages, revisiting empathetic frames of mind and then redefining the challenge as new knowledge and insight is gained along the way

- **It starts off chaotic and cloudy** steam rolling towards points of clarity until a desirable feasible and viable solution emerges.

2.0.2. Design Thinking Approach:

Fundamental concepts which are integral to the approaches are

Empathy	"the ability to understand and share the feelings of another"
Ethnography	Ethnography is a research discipline interested in studying the behavior of people in specific situations and eliciting from the people and their interpretation of their behavior.
Divergent Thinking	Divergent thinking is an expansive mode of thinking
Convergent Thinking	Convergent thinking is converse of divergent thinking
Visual Thinking	In the context of design thinking visual thinking relates to communicating ideas through what is seen or experienced. By using mental images or representations, design thinkers can understand an idea and think beyond the visible literal forms and color to achieve an understanding.

- Design thinking promises to provide a realistic, practical and innovative solutions to the problems of organizational concern and gives **a systematic approach to finding solutions**

- The distinguishing feature of design thinking is that it encourages solution focused thinking or solution-based thinking.
- The design thinker is supported to have a clear idea of the goal of the entire process.
- The design thinkers are not supposed to solve every specific problem, but to start the process with the end goal in mind
- This methodology helps because by focusing on the present and the future conditions as well as the parameters of the problem statement, alternative solution can be explored simultaneously.

2.0.3. Design thinking Vs Scientific Method:

- The Design Thinking approach is altogether different from the scientific method

Scientific Method	Design Thinking
The scientific method begins with rigorously defining all the parameters of the problem, so as to arrive at a solution	**In** Design thinking it is supposed to identify both the known and the ambiguous facets of the problem statement along with the current situation. Design Thinking helps to unearth hidden parameters and open alternate paths to reach the solution Design Thinking is an iterative approach; intermediate solutions in the process of developing the larger solution to achieve the goal can also act as prospective starting points for chalking out alternative paths. This can, at times also lead to redefined of the problem statement

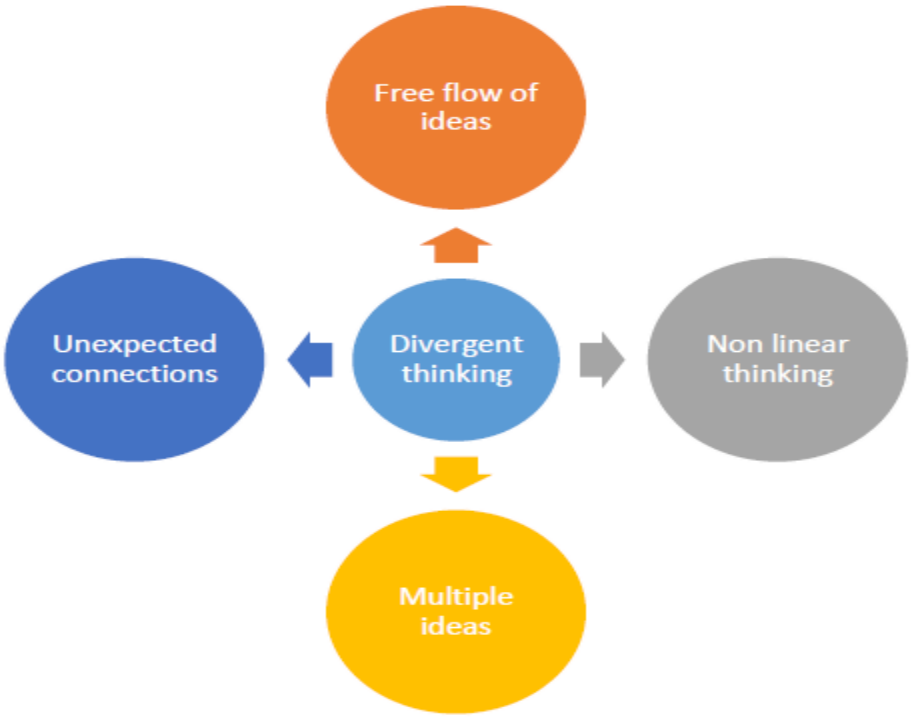
2.0.4. Design Thinking ---Divergent Thinking:

Divergent thinking is the process of devising more than one solution for a problem statement. It refers to the thought process of generating creative solutions.

The main features of divergent thinking:

- It is a free-flowing Chain of ideas.
- It happens in a non-linear manner. i.e it does not follow any particular sequence of thinking. Moreover, ideas can emerge at the same time, rather than one idea coming up only after the other has occurred.

- Non-linearity also means that multiple solutions are thought of and explored at the same time. This happens in a very short amount of time and unexpected connections are developed between the ideas.



- The term Divergent Thinking was first coined by J.P Guilford in 1956.
- Divergent thinking is supposed to enhance creativity of thinkers.
- Psychologists have claimed that the difference in creativity levels of people is dependent on the type of semantic networks of concepts inside the human mind. There are **two types of connections**
    - Flat
    - Steep
- The design thinkers with flat network are those with numerous loose conceptual connections. They are more creative.
- The people with steep networks are more logical, because of the linear associations between the nodes. Because divergent the thinking proceeds in a non-linear fashion, a person with flat associative network will be more successful in divergent thinking.

Exercise on Divergent Thinking:
Case Study:

Problem Statement: The process of knowledge transfer is a huge problem for the Organization. Let's call organization 'DT'. DT wants to eliminate the overhead of shelling out extra money and investing time for transferring knowledge to its new employees. The problem statement at hand is "Knowledge transfer adds to the cost of the company". Let's think of ways to eliminate or at least, reduce the cost to the company.

Solution: Following can be some of the possible and even not-so-possible solutions.

- DT can eliminate the process of knowledge transfer.
- DT can conduct classroom sessions for knowledge transfer, where a large number of new employees can be seated and just one instructor can deliver sessions to many employees at once. This will reduce the cost as the number of paid instructors required will be less.
- DT can come up with a document for knowledge transfer and can mail it to every new employee. The employees can go through the document and hence, can self help for knowledge transfer.
- DT can ask the employees to search for material online to gain knowledge of new tools and processes, which are currently in use in the industry.

There may be many other solutions that may come to your mind. Write them down on a sheet of paper. Here, won't focus on whether a solution is possible, feasible or viable. It just needs to bring ideas to the table, no matter how absurd they may sound. This is called the process of divergent thinking, where a thinker is free to move or flow in any direction.

2.0.5. Design Thinking- Convergent Thinking:

- Convergent Thinking is exactly opposite of what divergent thinking is
- The term convergent Thinking was coined by '**Joy Paul Guilford' in 1956**.
- The concept of convergent thinking requires the design thinker to go through all possible solutions thought during divergent thinking and come up with a correct solution.
- Convergent thinking is the type of thinking in which a thinker is generally supposed to come up with a single well- established best—possible solution to a problem.
- Convergent thinking requires speed, accuracy, logic reasoning and techniques.
- Convergent thinking delivers the best and a concrete solution to a problem statement, taking into account all the factors and requirements specified in the problem statement

Aspects of convergent Thinking:

- The principle aspect of convergent thinking is that it should help to **arrive at a single best answer without any room for ambiguity**.
- Another important aspect of convergent thinking is that **Judgment is an important part** of this process.
- Divergent thinking requires thinkers to suspend judgment. but in convergent thinking encourages thinkers to apply the power of judgment.

Exercise on Divergent Thinking and start applying convergent thinking on it

Case Study:

Problem Statement: The process of knowledge transfer is a huge problem for the Organization. Let's call organization 'DT'. DT wants to eliminate the overhead of shelling out extra money and investing time for transferring knowledge to its new employees. The problem statement at hand is "Knowledge transfer adds to the cost of the company". Let's think of ways to eliminate or at least, reduce the cost to the company.

The following ideas in divergent thinking exercise

i. Elimination of knowledge transfer program
ii. Having a single instructor for knowledge transfer program in a class room session
iii. Preparing a document for knowledge transfer program
iv. Making it mandatory for employees to search for knowledge resource online.
v. Hiring only those employees who are experienced enough and who doesn't need knowledge transfer.

Apply convergent thinking…...

- It can be easily said that option 1 is not feasible. Every employee does not have an idea of a company's tools and techniques and hence cannot be expected to survive without knowledge transfer
- Option V is also not acceptable. The best practice of a company is seldom known to new employees and taking an assumption about an employee's knowledge is a huge mistake.
- Option 4, it was not assuring of the pace at which learning will happen for the new employees. Each employee can take variable amount of time to grasp the concepts. The time taken to search material online and read them is an overhead in itself and it cannot be monitored.
- Hence, the two better options that remain are option 2 and option 3. however, one cannot correctly, estimate the effectiveness of document for knowledge transfer. It is similar to reading material online.
- Therefore, the best option available is to **have an instructor teaching employee in classroom program**

  Although, the employees won't get personal attention at times, yet by maintaining a fine balance between the strength of the batch and length of class, this can be best option to reduce the cost and overhead.

  This is how convergent thinking gives one best solution

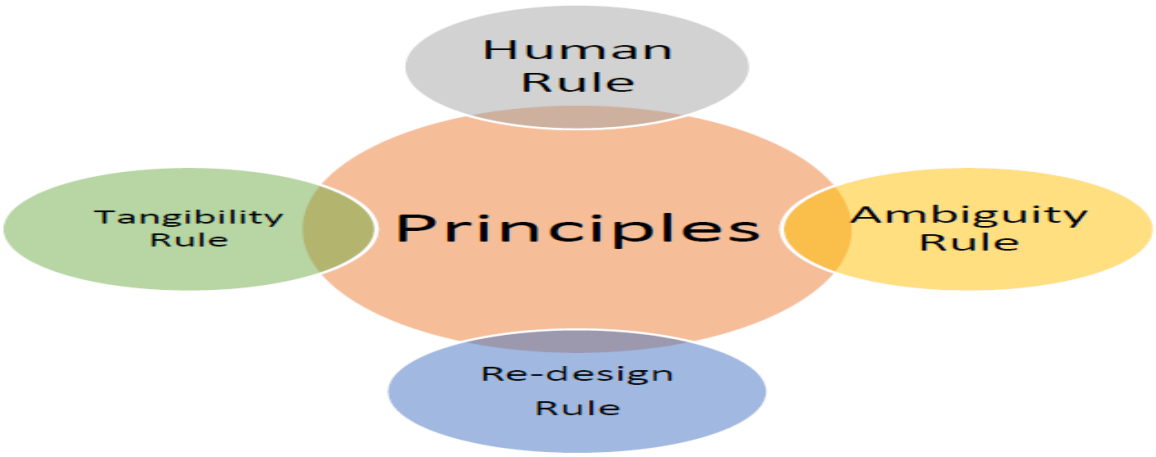
2.0.6. Design Thinking –Attributes

Design thinking is an extensive study of various attributes, like principles, methods and processes, challenges etc.

The principles of Design Thinking:

According to the Christoph Meinel and Larrry Leifer, there are four principles to design thinking.

The Human Rule	This rule states that all kinds of design activity are ultimately social in nature
The Ambiguity Rule	This rule Requires all design thinkers to preserve ambiguity in the process design thinking.
The Re-design Rule	The Re-design rule states that all design are basically examples of re-design
The tangibility Rule	The tangibility rule states that making ideas tangible always facilitates communication between design thinkers.



These four principles form the foundation of the design thinking process. A design thinker needs to form his ideas and put the forward based on these principles.

The Challenges:

The next attribute is called as the '**wicked Problems'**. These are the challenges that are faced by the design thinkers.

- Design thinking helps the designers in almost all professions to tackle these wicked problems. These challenges are supposed to be ill- defined or tricky
- **Horst Rittel was** the first person to refer to such problems with the word wicked problems.
- **In the case of ill- defined problem**s, the problem statement and the solution are both unknown at the beginning of the design thinking exercise.
- **In well –defined problems,** at least the problem statement is clear and the solution is available through technical knowledge.
- **In wicked problems**, the design thinkers may have a general idea of the problem, but significant amount of time and effort goes into requirement analysis.
- Requirement gathering, problem definition and problem shaping are the major parts of this aspect of design thinking.

2.0.7. Design Thinking- Analysis Vs Synthesis

Analysis:

- Analysis is derived from the Greek word ‘analusis’, which **translates into ‘breaking up’** in English.
- Analysis is older than the times of great philosophers like Aristotle and Plato. As discussed in the previous section, analysis is the process of breaking down a big single entity into multiple fragments.
- It is a deduction where a **bigger concept is broken down to smaller ones**. This breaking down into smaller fragments is necessary for improved understanding.
- So, how does analysis help in design thinking? During analysis, design thinkers are required to break down the problem statement into smaller parts and study each one of them separately.
- The different smaller components of the problem statement are to be solved one-by-one, if possible. Then, solutions are thought for each of the small problems. Brainstorming is done over each of the solutions.
- Later, a **feasibility check** is done to include the feasible and viable solutions. The solutions that don’t stand firm on the grounds of feasibility and viability are excluded from the set of solutions to be considered.
- Design thinkers are, then, encouraged to connect with the diverse ideas and examine the way each idea was composed. This process of breaking down the bigger problem statement at hand into multiple

Synthesis

- Synthesis refers to the process of combining the fragmented parts into an aggregated whole.
- It is an activity that is done at the end of the scientific or creative inquiry. This process leads to creation of a coherent bigger entity, which is something new and fresh.
- How does synthesis come into picture in design thinking? Once the design thinkers have excluded the non-feasible and non-viable solutions and have zeroed-in on the set of feasible and viable solutions, it is time for the thinkers to put together their solutions.
- Out of 10 available solutions, around 2-3 solutions may need to be excluded since they may not fit into the larger picture, i.e., the actual solution.
- The design thinker’s start from a big entity called the problem statement and then end up with another bigger entity, i.e., the solution.
- The solution is completely different from the problem statement. During synthesis, it is ensured that the different ideas are in sync with each other and do not lead to conflicts.

Case Study

Problem Statement:

Suppose the problem statement at hand is to contain the attrition that happens in companies worldwide. High quality employees leave the organization, mainly after the appraisal cycle. As a result, an average company loses its valuable human resources and suffers from an overhead of transferring the knowledge to a new employee. This takes time and additional

human resource in the form of a trainer, which adds to the company's costs. Devise a plan to contain attrition in the company

Analysis:
Now, let's break down the problem statement into various constituent parts.
Following are the subparts of the same problem statement, broken down to elementary levels.

- The employees are not motivated anymore to work in the company.
- Appraisal cycle has something to do with attrition.
- Knowledge transfer is necessary for new employees
- Knowledge transfer adds to the cost of the company.

Synthesis: Now, let's start solving each problem individually. In this step, we will do synthesis. Let's look at one problem at a time and try to find a solution only for that problem statement, without thinking of other problem statements.

- To solve the problem of lack of motivation, the management can plan some sort of incentives that can be given on a regular basis. The efforts put in by the employees must be rewarded well. This will keep the employees motivated.

- To solve the issue of occurrence of attrition during appraisal cycle, the management can conduct a meeting with the employee leaving the organization, and take their insight as to what led them to leave the company.

- For knowledge transfer, the management can hire only those people who are experts in a domain.

- Regarding concerns for budget of knowledge transfer, the management can have a document prepared by experts in a domain and this document can be uploaded on intranet. This can be made available to new joiners. Hence, additional human resource is not required for knowledge transfer and this will reduce the figures in the company's budget

Now, it was observed carefully, the third solution may not be feasible all the time. It cannot be assured of expert professionals coming for interviews all the time. Moreover, expert professionals demand more compensation than not-so-expert professionals. This will increase the company's budget.
Hence, combine the other three solutions to form a coherent one. The final solution will be for the management to first have a talk with the employees leaving the organization to know the reasons behind attrition, then come up with awards in suitable categories and then, create an easily and universally accessible document in the organization for knowledge transfer.
This way, analysis and synthesis together help in design thinking process. Design thinkers start with breaking down a problem into smaller problems that can be handled and studied easily. Then, the different solutions are combined to form a coherent single solution.

Popular Design thinking Frame works:

1. Heart, Head and Hand

2. Design School's 5 stage process
3. Deep-Dive process (IDEO's First Expression)
4. Design Council of the UK: 4D's (Discover, Define, Develop, Deliver)
5. Frog Design (Discover, Design, Deliver)
6. HCD-Human-Centered Design

2.0.8.HCD - Human-Centered Design

IDEO developed contextualized toolkits which repackaged the Design Thinking processes. One such iteration focuses on the social innovation setting in developing countries. For this context, the terminology needed to be simplified, made memorable and restructured for the typical kinds of challenges faced. The HCD process (Human-Centred Design) was re-interpreted as an acronym to mean **Hear, Create, and Deliver**.

H: Hear

Similar to early phases in other Design Thinking processes, the Hear stage is about developing an empathic understanding of users, as well as Defining the problem that the team is trying to solve. It serves the purpose of gaining a solid foundation in the context of the problem and sufficiently reframing it to progress. In this phase of the process, design thinkers need to:

- **identify their challenge,**
- **recognize existing knowledge in the challenge space,**
- **identify people to engage with to understand the deeper human side of the challenge,**
- **engage in a range of ethnographic research activities to uncover sufficient human insight, and**
- **Develop points of view or stories to guide the creation phase.**

C: Create

Similar to the Ideate and Prototype phases in school's 5-stage approach, the Create stage is concerned with exploration, experimentation and learning through making. It involves pinpointing potential areas of exploration, and then engaging those closest to the problem to co-create solutions. This allows design teams to maintain the highest levels of empathy during early design phases, as well as weed out potential problematic assumptions made by designers who do not sufficiently understand the context.

- Highlight opportunities to explore from insights gained in the Hear phase
- Recruit participants for the co-design task from a diverse pool of those affected
- Maintain awareness of sensitivities by avoiding judgments
- Encouraging storytelling and expression
- Facilitate action orientated creation of tangible solution

D: Deliver

The Deliver phase of the HCD process is centred on logistical implementation, and overcoming any obstacles which may exist when rolling out a solution within the required context. Though solutions arrived at may provide a functional patch to a problem, getting by in communities and bypassing any other roadblocks on the path of implementation is essential for the process to be completed success

2.1. Human-Centred Design (HCD) process

Definition:

Human-centered is a philosophy that empowers an individual or team to designing products, services, systems and experiences that address the needs and insights of the user who experience the problems

- Human-centered design is a creative approach to solve problems
- It has been championed by Nobel Prize Laureate Herbert Simon, Developed by Stanford university Design school
- **Human-centered design** is distinguishing **other problem-solving approaches** by its **intensive focus on understanding** the perspective of the **person** who experiences **a problem and needs**.
- The solution that has been designed for the end users is truly meeting their needs effectively.
- The **end users** are **constant part of design process** and become part of the design team itself in this human centered design.
- Human-centered design process has many forms, the model developed by Stanford design school has 5 Key phases.
- The phases are
  1. Empathize
  2. Define
  3. Ideate
  4. Prototype
  5. Test and iterate
- For general understanding
  Human-centered design consists of three phases.
  1. Inspiration Phase
  2. Ideation phase
  3. Implementation Phase

- In inspiration Phase it consists Empathize and Define stages
- In Ideation Phase it consists ideate stage and prototype
- In implementation it consists testing and iterate stages.
- In the Inspiration Phase designer learn directly from the people (end users and stake holders) for his design, and immerse himself in their lives and come to deeply understand their needs
- In the Ideation Phase designer make sense of what he learned, identify opportunities for his design, and prototype possible solutions
- And in the Implementation Phase designer will bring solution to life, and eventually, to market. And the solution will be a success because it kept the people looking to serve at the heart of the process
- Human-centered design is all about building a deep empathy with the people designing for; generating tons of ideas; building a bunch of prototypes; sharing with the people, and eventually putting a new innovative solution out in the world.

- . Human-centered design (HCD) is a term product creator use to describe a process of **designing *for people***
- HCD develops solutions to problems by involving the human perspective in all steps of the problem-solving process
- . The four fundamental principles of HCD.
    1. Focus Upon the People
    2. Find the Right problem
    3. Think of everything as a system
    4. Always test design decisions.

Focus upon the people:

Whatever the designer designs always thinking of people who will use this product/service.

Keep in mind that product or service is just tool that helps people to reach their goals

It is vital to identify the real goal of real people who will use the product.

The process of identification starts with who will be using this product? IN what context (time, place, device etc) will it most likely happen?

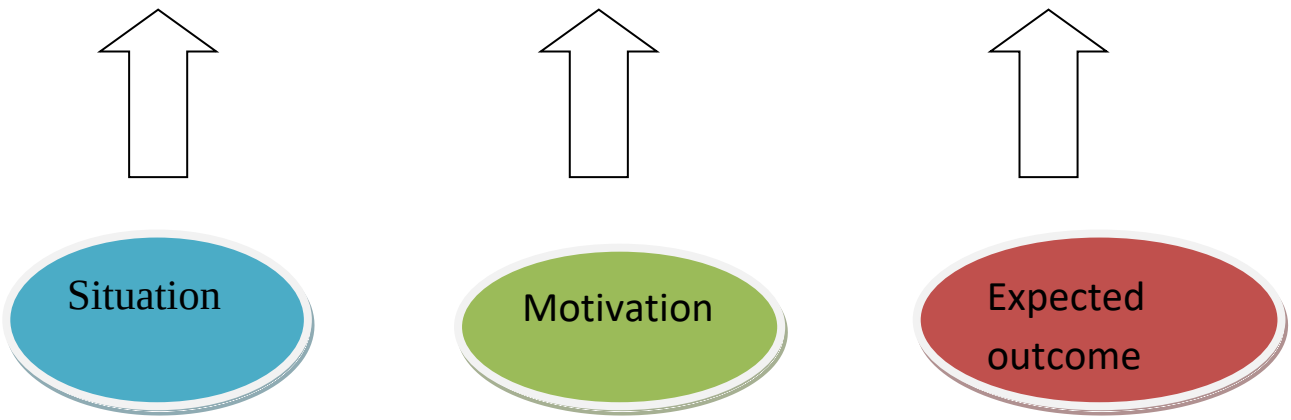
After define the target, figure out critical user journeys. A tool called the job to be done (JTBD) frame work can help that.

When_____, I want to____, so I can____

This frame work provides an excellent way to identify critical user journeys and map them to possible solution.

JTBD Framework

When_____, I want to____, so I can____



Find the Right problem

Not all problems worth solving. Don Norman identifies two types of problems: Fundamental problems and symptoms of the problem. It is essential to solve a fundamental problem first because by doing that it will solve a root cause of problem.

Identifying Fundamental problem requires time. But no matter how much time it takes, the process of identification of core problems should be an inalienable part of the design process. Otherwise, it leads to wrong orientation towards the problem.

Think of everything as a system

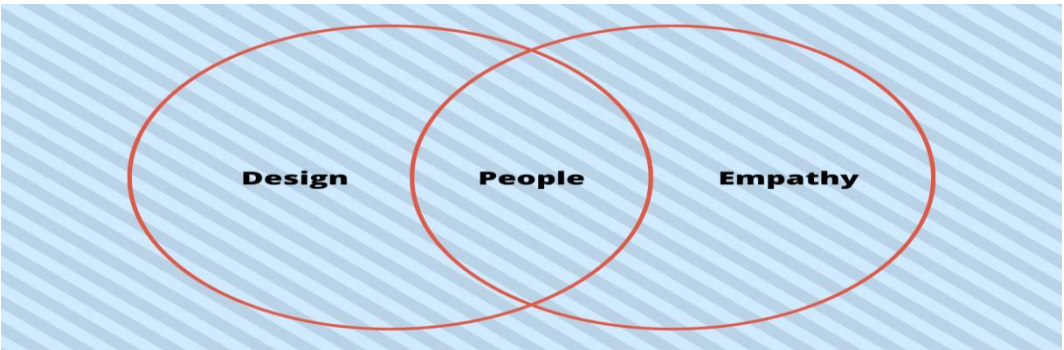
Users Should Have Good User experience at all touch points, both digital and physical. Don't focus solely on one part of a user journey; always think about the big picture. i.e., what want to achieve with experience and what is the final result care about.

Always test design decisions

The feedback from the testing session will help to understand what part of design requirement will improve further. No matter how much time spend on ideating and prototyping design solution, but it should be always test it with real people.

2.1.1. **Examples of human centered design**:

Human centered approach problem is an approach of problem solving mostly used in design and management sectors by defining human perspectives in all steps of problem solving.



1. Pull/Push Door:

The Norman Door

Problem	Solution designed
➢ The design had interrupted human brain cognitive Bias. ➢ For brain seeing handle triggers an action to pull it. ➢ In this case the push and pull part of the door are fitted with a handle, this creates confusion in brain.	➢ The push part of the door does not need handle. ➢ Design a door with only in the pull side of the door. ➢ Leave the push side with a plain pad. ➢ People will push the door automatically if they don't see a handle

2. **Kids Toothbrush**:

Kids hold tooth brushes is totally different from an adult. so it is harder for them to use a toothbrush that are designer for adults.

Tooth brush for adult

Problem	Solution designed
➢ Kids hands are so small ➢ They hold tooth brush inside their fist. Adults hold it inside the fingers ➢ Lack of motivation to brush their teeth 	➢ Made the hands of brush fat and squishy ➢ Introduced small bristles ➢ Introduced funny character to the handle ➢ Created funny accessories  Designed by IDEO for Oral-B

3. Portable Music player –I pod Shuffle

- Portable music players are introduced in 1997 from that time manufacturers tried to include more and more functionalities of music players. This result in abandoning the user experience of these devices.
- Too much of functionalities and complicated design. The control buttons are too close and accessibility was an issue. Most people use portable music player when they are outside (jogging, gym, gardening etc) .and it was difficult to hold it during activities

Problem	Solution designed
➢ Inaccessible buttons ➢ Too much features and increased complexity ➢ Difficulty in carrying it 	➢ Simple and accessible buttons ➢ Comes with a clip ➢ Reduced complexity with sleek design  Designed by Apple Inc

4. Ketchup bottle:

- Getting full ketchup out of a ketchup bottle was a pain task. The ketchup was thick and it takes more time to squeeze out till the last drop from that bottle and that's why HEINZ introduced an inverted bottle design.
- HEINZ purchased the inverted bottle design from an American designer named Paul Brown. They redesigned the bottle to have a handgrip and holding space. because of its inverted design, the user will get the last drop from the bottle

Problem	Solution designed
➢ Difficulty in getting full ketchup out of the bottle ➢ Difficulty in handling and squeezing the bottle with one hand 	➢ Designed inverted standing bottle ➢ Designed bottle for easy handling with one hand  Designed by Paul Brown for HEINZ

5. Lay's Stax packaging

- The famous snack and beverage Brand PepsiCo introduce a new type of packaging for lays.
- PepsiCo previous CEO Indra Nooyi Introduced the human centered design approach in lays
- PepsiCo's design team analyzed how people are using their products, and they find out most of the women prefer to eat neat and clean.
- They want to have last chip in that packet but they are not ready to dump all that small cracked chip into their mouth
- Solution is created a vertical and round bottom can with tray, so the user can take out the tray whenever they need a snack and put it back in after use

.

Problem	Solution designed
➢ Normal package can't be reused ➢ Product wastage is high	➢ Designed around pillar package ➢ Introduce a tray for easy access ➢ Snack size was reduced .so user can finish it in two bites

2.1.2. Winning Companies Use Human Centered Design:

Kellogg's Corn Flakes:

Human centered Design has been around since the 1800's. In 1894, Kellogg Cereal was invented as a more digestible breakfast alternative for hospital patients. In seeing how they struggled to east toast, Kellogg boiled wheat and rolled the dried flakes to make cereal the patients could eat more easily. He then tried this technique with corn and observed how the patients ate the corn. This became today what know Kellogg's Corn Flakes.

This focus on observing human interactions with empathy for their needs is putting the customer at the hub and why human centered design is so valuable to a product's or service's success.

Uvex:

Uvex wanted Altitude to Create a new generation of protective safety eyewear. By incorporating user centered design in their approach to learn what user really want, they were able to design fit logic safety Eyewear, an innovate product design that combines comfortable fit, functionality, and style and subsequently generated high sales for Uvex.

Colgate (Electrical Toothbrushes):

Colgate Hired Altitude to restore their leadership position in electronic toothbrushes. Innovation Strategery and research team determined that users wanted a better fitting, more effective, longer lasting, and easier to maintain toothbrush. They develop the motion, a high-powered, slim profile brush, with dual oppositional oscillating heads and a patented ergonomically correct arcing neck

2.2. Role of Empathy in design thinking:

- As the starting point of the design process, Empathy allows a designer to understand the people who will eventually use their product or service
- Empathy is a core value of design thinking .it is also the first step in the design thinking process.
- Empathy, draws attention to the abilities of researchers and designers to see the world through other people's eyes, feel what they feel, and experience things as they do
- Empathy allows a designer to understand the user's physical and emotional needs.
- The Oxford Dictionary defines Empathy as "the ability to understand and share the feeling of another".
- Empathy is the first step in design thinking because it is a skill that allows us to understand and share the same feelings that others feel. Through empathy, we are able to put ourselves in other people's shoes and connect with how they might be feeling about their problem, circumstance, or situation

  Some questions to consider:
  - What is the person feeling?
  - What actions or words indicate this feeling?
  - Can you identify their feelings through words?
  - What words would *you* use to describe their feelings?
- Empathy is the cornerstone of any successful design project. The extent to which you understand and empathize with your users ultimately determines the outcome of your design

- This means observing and engaging with people in order to understand them on a psychological and emotional level. During this phase, the designer seeks to set aside their assumptions and gather real insights about the user.
- Design Thinking cannot begin without a deeper understanding of the people you are designing for. In order to gain those insights, it is important for you as a design thinker to empathize with the people you are designing for so that you can understand their needs, thoughts, emotions and motivations
- Finally, empathy shows a designer how users think about the world and what is meaningful to users.

2.2.1. Why Empathy is so important?

- In a social context, empathy is often what drives us to take action
- If we see people suffering or struggling, and we are able to empathize with their situation, we are compelled to help relieve them in some way.
- Designers need to build empathy for their users in order to take the right course of action
- It's important to understand how the user feels when interacting with a certain product or interface; does the layout of this website evoke feelings of frustration?
- In building empathy, designers can create products which truly please the user and make their lives easier
- Without this empathy, the design process lacks that all-important user-centricity which often marks the distinction between product success and failure.

2.2.2. Where does empathy fit into the Design Thinking process?

- During the empathize phase, the designer spends time getting to know the user and understanding their needs, wants, and objectives
- Empathize phase requires you to set aside your assumptions. It's human nature to assume that others will think and feel the same as you in particular situations, but of course this isn't always the case.
- the first step in empathizing with your users is to suspend your own view of the world around you in order to truly see it through your users' eyes
- When it comes to Design Thinking and Human –Centered Design it's time to stop guessing and start gathering real insights about the user!

2.2.3. What is empathic design?

- One of the main objectives of empathize stage is to identify user needs and behaviors that are latent, or unarticulated.
- As a designer, it's important to distinguish between what people say they would do in a certain situation, and what they actually do
- In reality, users may have habits or desires that they're not aware of, so it's essential for the designer to observe the user in action
- Empathic research and design are not concerned with facts about the user, such as their age or location. Rather, it focuses on their feelings towards a product and their motivations in certain situations.
- Why do they behave in a certain way? Why do they prefer to do this instead of that? Why do they click here rather than there when presented with a particular screen or page?

- These are the kinds of insights you will uncover during empathize phase, and they will help you to create user experiences that cater to your audience.

2.3. Methods and tools of empathy:

Know The people:

- The concept of "user-centered" or "human-centered "design is not exactly new
- In fact, most definitions of design include some reference to crafting things that people use
- However, as an antidote to the one-size-fits all, mass production age of 19th and 20th century design, it has become important to re-emphasize the centrality of users to the process
- Design That is sensitive to and based on people's needs and patterns of behavior will be good design.
- The mode of Know people, with its focus on Empathy, observation, personal engagements, and problem solving, is an indispensable of the design process.
- Knowing people is about gaining an empathic understanding of thoughts, feelings, and needs by listening, observing, interacting, and analyzing.
- Immersing yourself in people's daily lives and keenly listening to their stories can reveal very valuable insights, sometimes quite surprising and nonobvious
- To get to such valuable insights we should focus on everything that people do, say, and think; we should be in the mindset to deeply understand people's activities, needs, motivations, and overall experiences, just as well as we study our products when we do a product development project.
- Knowing people well can lead us to entirely new categories of products, services, or business strategies that fundamentally address people's needs and desires, create significant new value, and are very hard to copy.

2.3.1. Various Mindsets:

- Observing Everything
- Building Empathy
- Immersing in daily life
- Listening openly
- Looking for problems and needs

- **Observing Everything:**
  - Observe everything in the context of study, not just the people or the products in use.
  - Notice places notice other people, notice inconsistencies between what people say and what they do.

- ❖ Be prepared to consider innovations that address these seemingly external factors. Even more importantly, look at who and what is not in the field of study

- **Building Empathy:**

  - ❖ Is it possible to go beyond just knowing about people's experiences and feelings, to the point of sharing them?
  - ❖ e.g Spend a day with a busy mom as she struggles to organize the family's day, share, and identify with her daily experiences, frustrations, and challenges
  - ❖ make a deep, direct emotional connection with end users' needs, we will be in a far better position to develop new ideas in tune with the customer

- **Immersing in Daily Life**

  - ❖ Spending time with people in their everyday lives can be eye opening. Use the ethnographer's approach.
  - ❖ ive with and learn about the behaviors, practices, and motivations that form the context in which people will use the tools, artifacts, messages, and services that you intend to create
  - ❖ Spending a day in the life of people for whom you are designing will be revealing.

- **Listening Openly:**

  - ❖ Designer should not just prepare and follow a script for our interaction with research participants. We should let them guide the discussion toward what is important to them; we must be students, not teachers.
  - ❖ We ought to think of open-ended questions, suggest general solution alternatives, and be prepared to hear things

- **Looking for Problems and Needs:**

  - ❖ What is not working well in the current situation and why? How are people facing challenges in their daily lives? How are they working around the problems? Or are they just giving up since there is nothing that can support their needs?
  - ❖ These are great questions that we should ask to reveal opportunities for new products or services

2.3.2. Know People Methods:

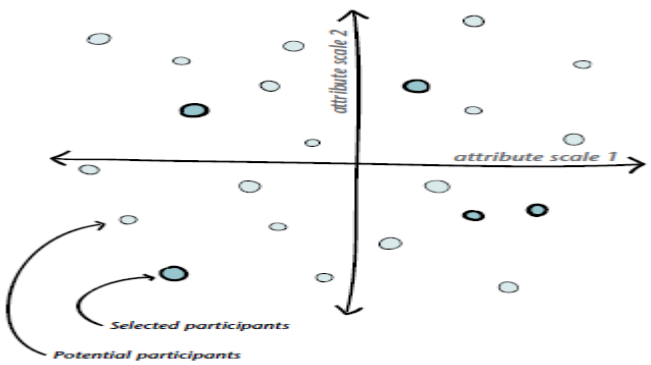
1. Research Participant Map
2. Research Planning Survey
3. User Research Plan
4. Five Human Factors
5. POEMS

6. Field Visit
7. Video Ethnography
8. Ethnographic Interview
9. User Pictures Interview
10. Cultural Artifacts
11. Image Sorting
12. Experience Simulation
13. Field Activity
14. Remote Research
15. User Observations Database

Research Participant Map:

- Research Participant Maps help us see an overview of all the people involved in the project topic, based on their roles and activities, to ensure that the right people are researched for a given project intent.
- A Research Participant Map begins with a consideration of the kinds of people we want to study and the aspects of their daily lives or activities we want to understand.

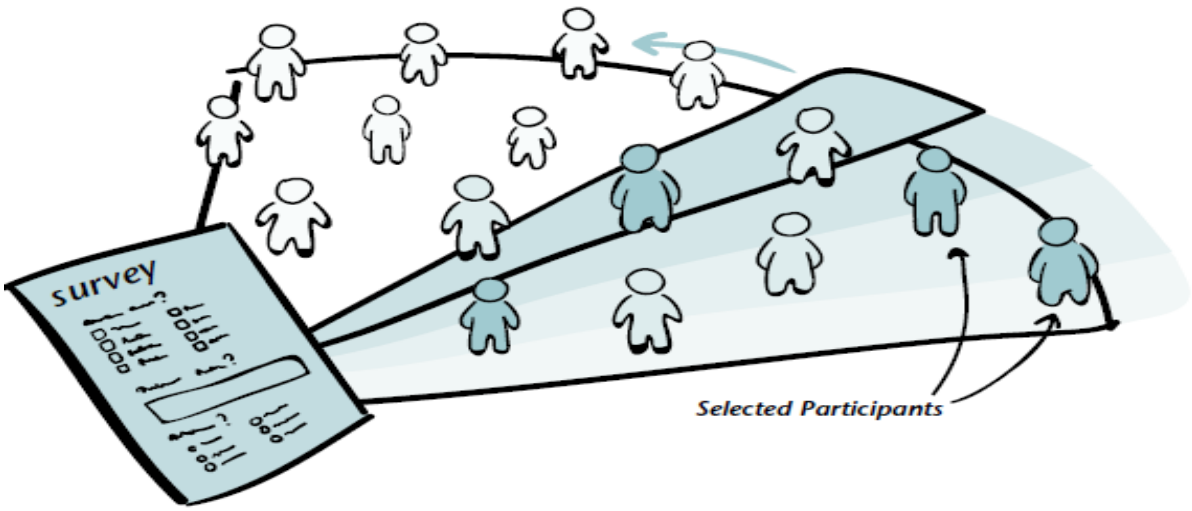
BENEFITS	INPUT	OUTPUT
Encourages comprehensiveness	Project's area of study	Selection of participants that covers the full range of the project space
Facilitates comparison	List of people as possible participants in the project	
Facilitates discussion		
Helps select options		
Structures existing knowledge		
Encourages comprehensiveness		



Research Planning Survey:

- Unlike traditional market research surveys, Research Planning Surveys are short, quick, loosely constructed questionnaires used at the early phase of a research project to understand peoples' activities, behaviors, and attitudes about a topic of interest.
- Conducting preliminary surveys to select candidates and identify areas for further research

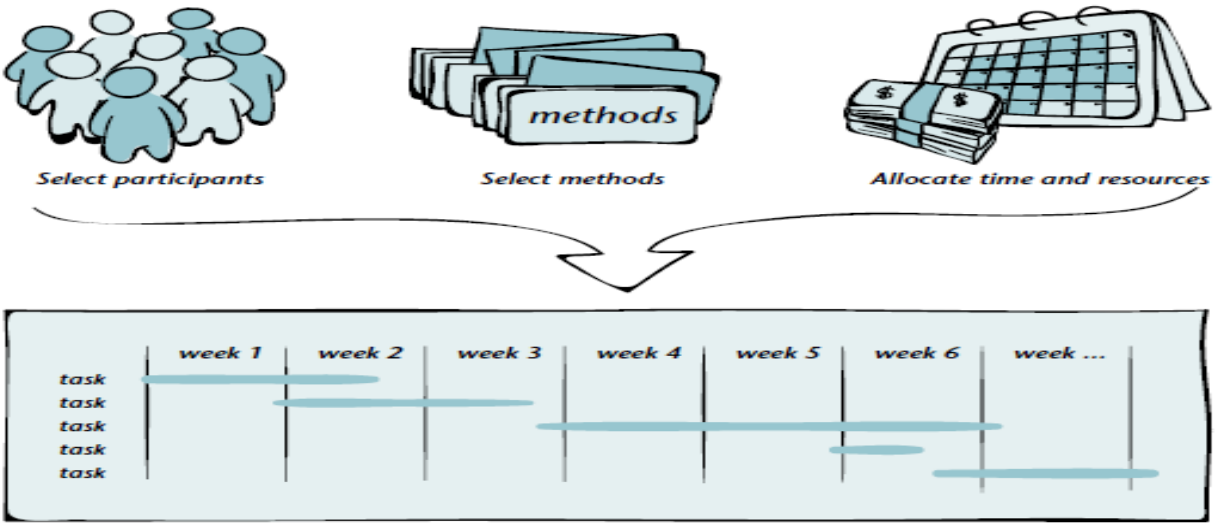
BENEFITS	INPUT	OUTPUT
Facilitates quick and early discovery	Project's topic area and the innovation intent	Understanding of participants' behaviors and interesting patterns to guide further research
Provides evidence		Identified participants that can be contacted for further research
Reveals patterns		
Supports decision making		



User Research Plan:

- A User Research Plan is a method for organizing the research portion of a project
- The method is a disciplined approach to define all aspects of the work to be done.
- Detailing the type of people to be researched, and when and how the research will be conducted

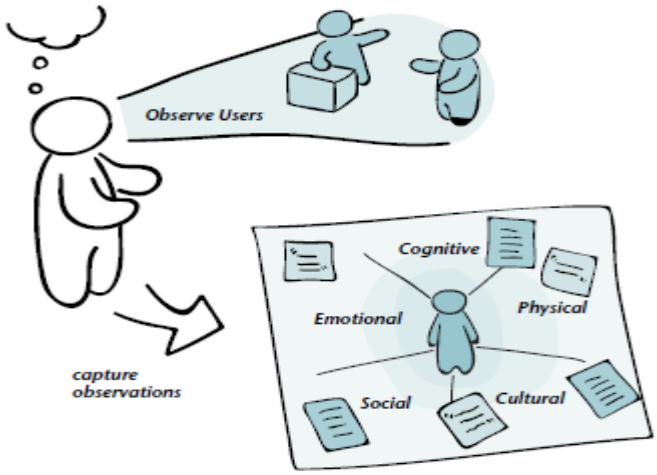
BENEFITS	INPUT	OUTPUT
Defines direction	Project topic and innovation intent	Detailed plan defining schedule, methods, and participants for research
Manages resources		
Promotes shared understanding	Time and resource limitations	
Supports transition		



Five Human Factors:

- The Five Human Factors is a method for supporting observation in the field, prompting researchers to look for the physical, cognitive, social, cultural, and emotional elements present in any situation to understand how they affect peoples' overall experiences
- Understanding five factors of a person in a structure way and thinking about all these factors together will give us a rich, deeper understanding of the experience of that person
- Studying physical, cognitive, social, cultural, and emotional factors that drive overall user experience

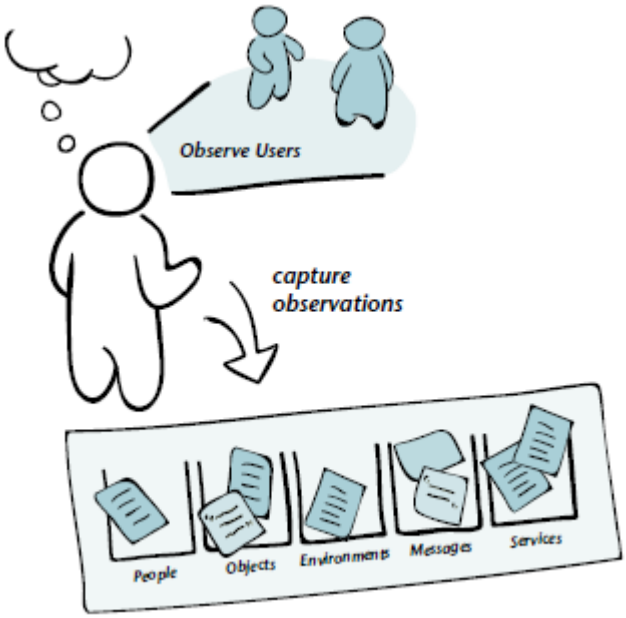
BENEFITS	INPUT	OUTPUT
Broadens mindset	Project's area of study	Organized observations about each of the five factors that drive user behavior
Encourages comprehensiveness	Identified situations for user observation	
Focuses on details		
Focuses on experience		
Gives focus to the process		



POEMS:

- The POEMS framework is an observational research framework used to make sense of the elements present in a context
- The five elements are: People Objects, Environments, Messages, and Services
- Application of the POEMS framework encourages researchers to examine these elements independently as well as an interrelated system
- Studying people, objects, environments, messages, and services in a context.

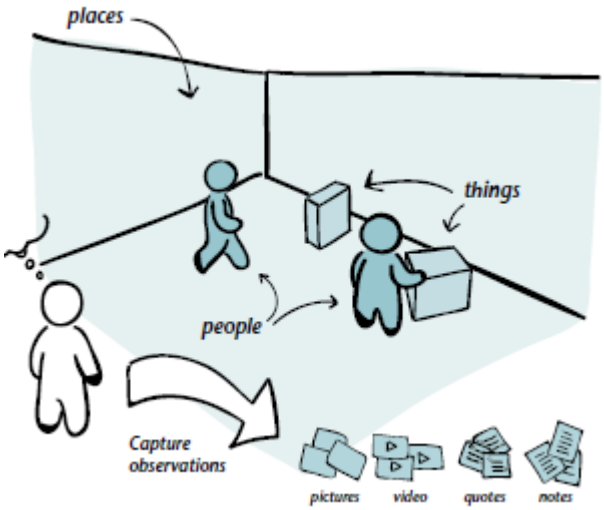
BENEFITS	INPUT	OUTPUT
Broadens mindset	Project's topic	Organized observations about aspects of a context
Encourages comprehensiveness	Identified situations for user observation	
Gives focus to the process		
Helps understand context		
Focuses on details		



FIELD VISIT:

- The field visit is the most direct means of building empathy with people
- Spending time with people engaged in real-world activities helps innovation researchers understand relevant behaviors firsthand
- Unlike surveys or focus groups, where researchers' questions dictate the conversation, a field visit emphasizes observation and inquiry about what is being observed
- Bringing researchers into direct contact with people, places, and things they are studying

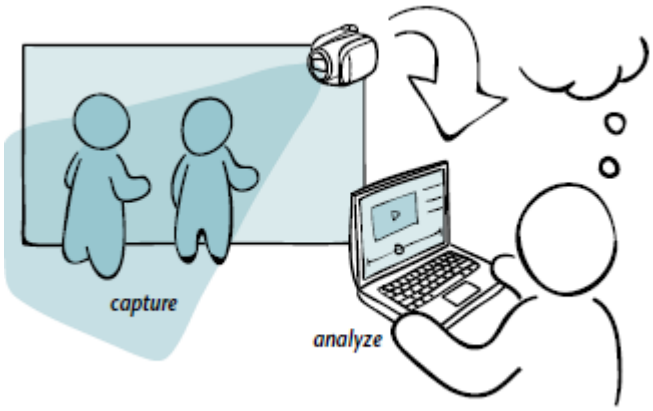
BENEFITS	INPUT	OUTPUT
Focuses on details	Project's topic	Rich observations about users' activities and behavior in context
Focuses on experience	List of important/relevant locations for understanding the topic	
Provides evidence		
Promotes learning in context		
Focuses on details		



VIDEO ETHNOGRAPHY:

- Video Ethnography is a method adopted from the field of visual anthropology
- The objective is to capture peoples' activities and what happens in a situation as video that can be analyzed for recognizing behavioral patterns and insights
- The method is like photo ethnography, but can capture entire periods of time as well as audio recording
- It is good for recording processes or dynamic situations such as public or group spaces, and for conversations or experiences in which sound is important
- Video documenting people and their activities in their context to reveal insights

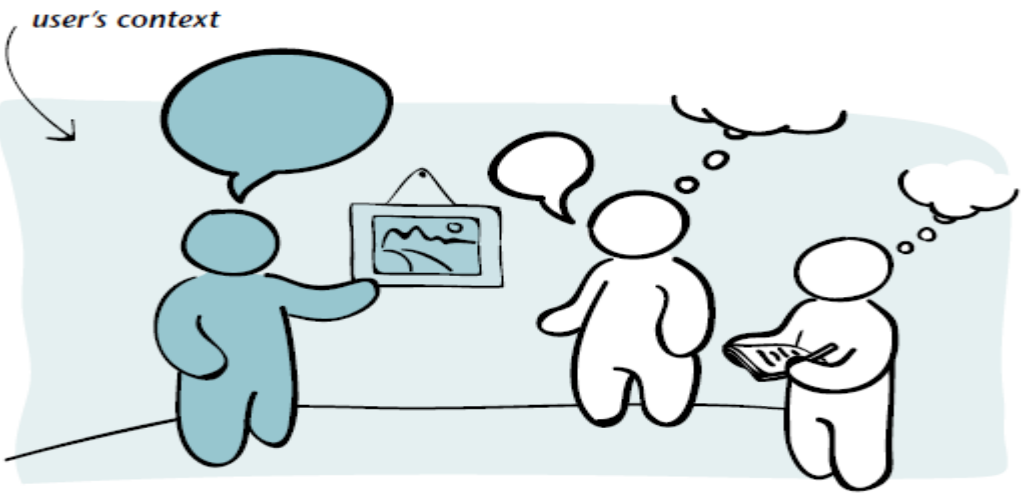
BENEFITS	INPUT	OUTPUT
Captures information over time	Project's topic	Video footage showing user processes and behavior over time
Facilitates storytelling	List of locations for Video Ethnography	Observations about user processes and behavior
Focuses on experience		
Provides evidence		
Reveals the unexpected		



Ethnographic Interview:

- A close companion to field visits observational research, Ethnographic Interview is concerned with understanding peoples' activities and experiences from their own perspectives and in their own places
- It lets the researcher learn about people through their stories and in their own words, in an open-ended and exploratory fashion, with less risk for bias than interviews based on scripted questions.
- Having conversations with people about their daily lives and contexts.

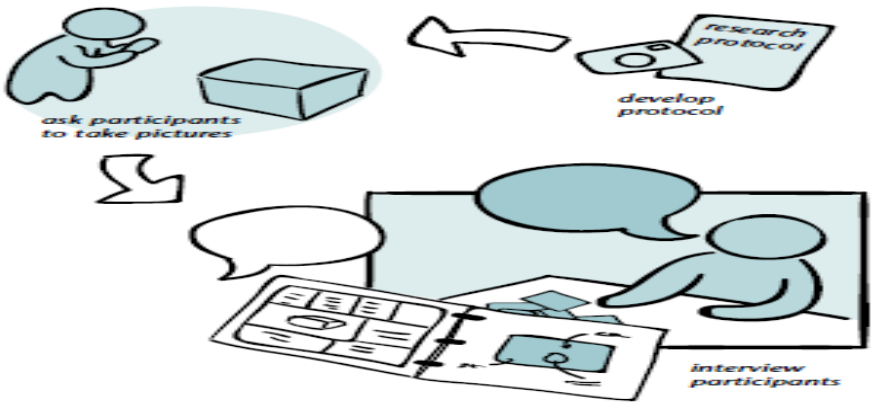
BENEFITS	INPUT	OUTPUT
Builds empathy	Project's topic	Observations about users' experience told from them point of view
Focuses on experience	List of possible questions to initiate the conversation with the participants	
Promotes learning in context		



User Picture Interviews:

- The User Pictures Interview is a method that combines aspects of Photo Ethnography and Ethnographic Interview
- The interview follows a period in which subjects have been asked to use photography to document their engagement in specific activities or experiences
- An interview is scheduled, and a researcher sits down with the participant to review the photographs

BENEFITS	INPUT	OUTPUT
Builds empathy	Project's topic	Observations about users' experience told from them point of view
Focuses on experience	List of possible questions to initiate the conversation with the participants	
Promotes learning in context		



Cultural Artifacts:

- This method leverages the emotional charge and cultural meaning artifacts have on people
- The connotation of "culture" here is not restricted only to nationality or ethnicity. Sociocultural groups have customs, behaviors, traditions, thoughts, and practices of everyday life.
- The Cultural Artifacts method re appropriates a specific element of that culture, either tangible such as a physical object or intangible such as a specific belief the group has, into an artifact relevant to that group and uses that artifact to discover peoples' perceptions traditionally overlooked by other research methods.

- Discovering perceptions of people using artifacts that are culturally relevant to sociocultural groups

BENEFITS	INPUT	OUTPUT
Builds empathy	Project's topic	In-depth knowledge of users' activities and thought processes
Captures users' points of view	A relevant artifact significant to the group of users being studied	Kits and activities completed by users
Grounds conversation with artifacts		
Promotes playfulness		
Reveals the unexpected		

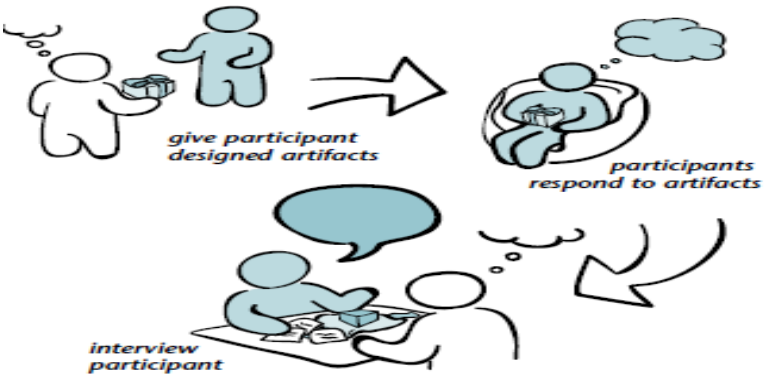
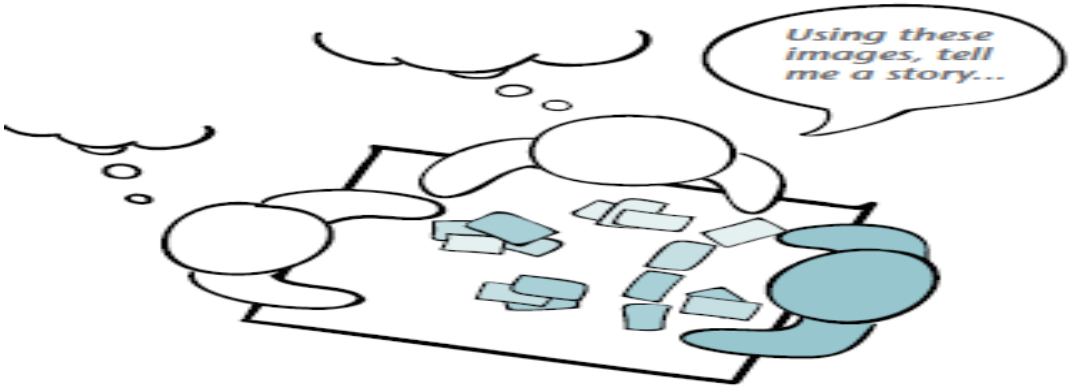


Image Sorting:

- Image Sorting is a method used to find out peoples' associations and perceptions of particular topics
- Engaging in activities in which people sort, discuss, and create stories using pre-prepared images is a powerful way of revealing the emotions, relationships, and values people associate with other people, places, and objects in a situation.
- Image Sorting works by presenting participants with images of common objects, people, or places and having them sort according to particular themes or criteria
- Having people sort symbolic images to find out their thoughts and attitudes about a topic

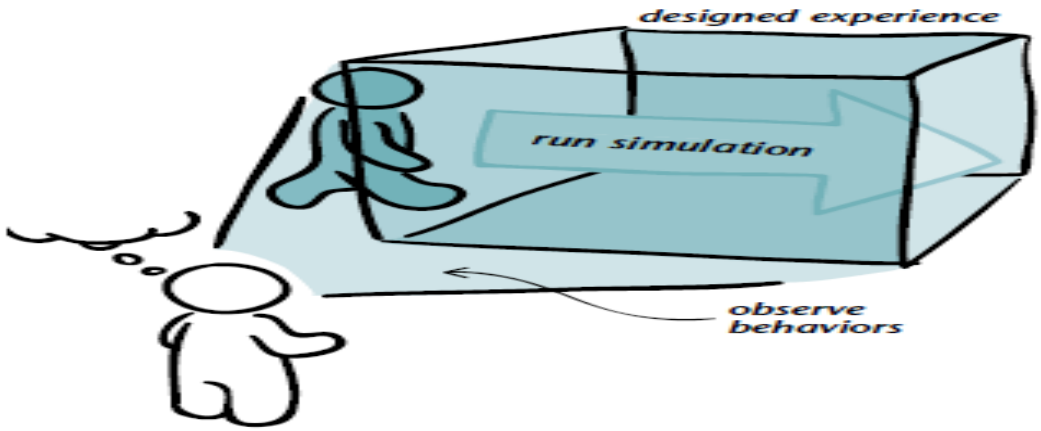
BENEFITS	INPUT	OUTPUT
Captures users' points of view	Project's topic	Observations about users' values and attitudes toward a topic
Grounds conversation with	A comprehensive set of images to help users communicate abstract ideas	
artifacts		
Provides evidence		
J Reveals relationships		



Experience Simulation:

- Experience Simulation is a research method used to help researchers understand how people might behave or interact in a given situation.
- The method is useful for studying experiential offerings such as new services, environments, or interactions.
- The method allows us to explore what matters most to users in an experience.
- An environment is constructed, and participants are invited into it to spend time engaging in an activity or activities.
- Engaging people in simulated experiences to understand what matters to them

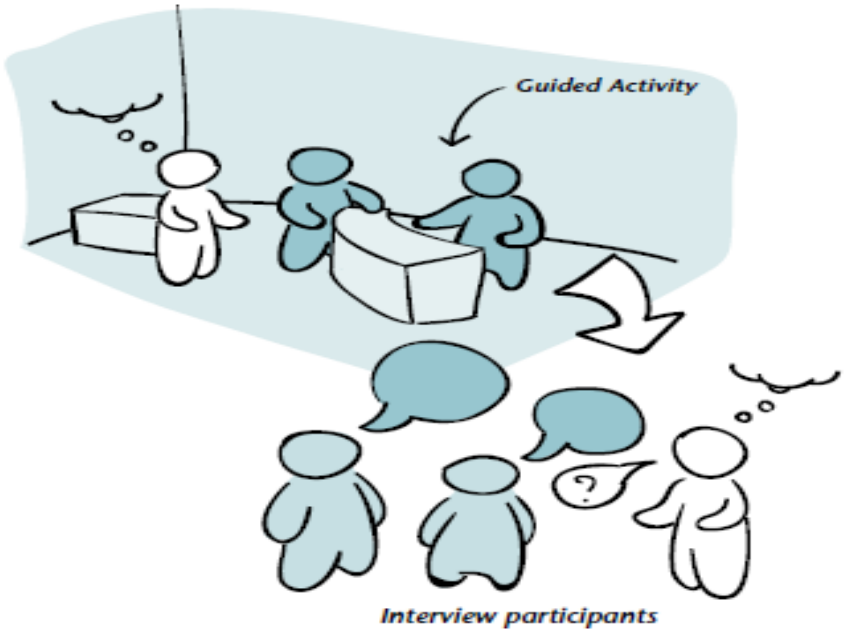
BENEFITS	INPUT	OUTPUT
Captures information over time	Research questions about behaviors or activities	Observations of how users might behave or interact in a situation
Facilitates comparison	Selected experiences to simulate	
Focuses on experience		
Grounds conversation with		
artifacts		



Field Activity:

- Field Activities is a method designed to understand how people might respond to an actual situation by having them engage with it
- The method involves taking targeted users into the field and engaging them in selected activities in a specific situation in order to observe their behaviors
- Follow-up interviews are conducted with the participants to collect statements about their experiences
- Engaging people in contextual activities, observing them, and later interviewing them

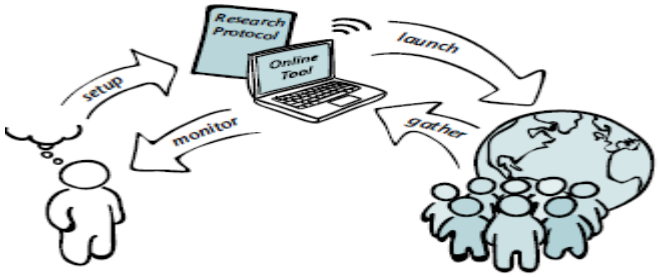
BENEFITS	INPUT	OUTPUT
Builds empathy	Behaviors and activities to be studied	Observations of how users engage in existing situations
Focuses on experience		
Grounds conversation with artifacts		
Promotes learning in context		
Builds empathy		



Remote Research:

- Remote Research is a method of user self-documentation that employs Web-based tools
- The method leverages Internet connectivity so that studies can be conducted simultaneously in multiple locations anywhere in the world without requiring researchers to be out in the field.
- start to document their activities, upload photos and videos, and communicate directly with researchers online
- Information uploaded by users flows into research documents that can be reviewed and analyzed on an ongoing basis
- Using online research tools for users' self-documentation studies

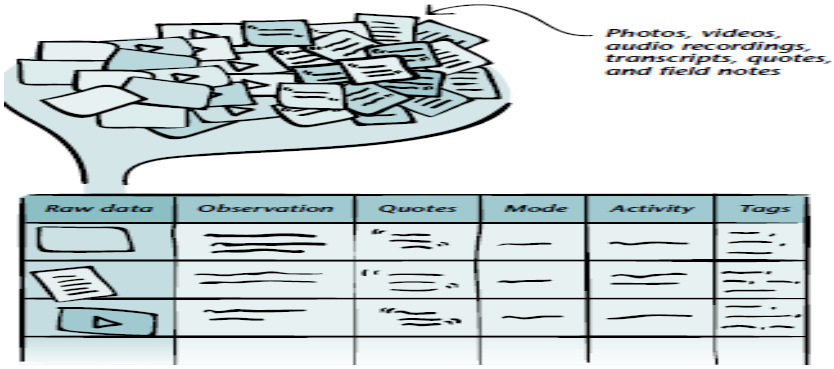
BENEFITS	INPUT	OUTPUT
Accesses hard-to-reach user groups	Topic that would benefit from reflective responses from participants	Users' documentation of attitudes, motivations, thought processes, and contextual stories around a topic
Builds empathy		
Captures information over time		
Captures users' points of view		
Organizes information for easy access		



Users Observation Database:

- The User Observations Database is a method for organizing data gathered during user observation
- It contains data in many forms—videos, photos, field notes, diagrams, and others—captured during a research project.
- Each piece of data is tagged using frameworks like POEMS and Five Human Factors so that the data can be searched using these tag words
- The database becomes more useful over time as it is populated with more data as new projects are completed.
- Organizing and sharing observational data and insights from different projects

BENEFITS	INPUT	OUTPUT
Builds knowledge base	All previously generated user research data (observations, photos, videos, etc.)	Organized and searchable archive of user observations
Enables systematic analysis		
Handles large sets of data		
Organizes information for easy access		
Reveals patterns		
Supports transition		



2.3.3. How to become more Empathic Designer:

- There is plenty of research to suggest that empathy is not a fixed personality trait.
- According to the largest ever study into the genetic basis of empathy, only 10% of the variation between people's compassion and understanding is down to genes.
- This indicates that empathy can be learned and improved.

how might train yourself to become a more empathic designer.?

Practice Empathy in Everyday life:	The more practicing of empathy in the outside world, the easier it will be to put designer himself in user's shoes when it comes to design thinking Project.
The power of Facial Expressions.	Researchers Found that_empathic actions, such as mimicking someone's facial expressions, trigger far greater activity in the emotion centers of the brain than when merely observing these facial expressions. When engaging in conversations or observing users, try mimicking their facial expressions as a way of building empathy.
Assume a Beginner's Mindset (Listen, do not Judge)	When listening to and engaging with people, get into the habit of suspending own judgements and assumptions think of it as a mental reset; assume a "blank" mindset, free of any preconceived ideas and beliefs. Really listen attentively to what other people are saying, and it uncover much deeper insights about how they tick as a person.
Pay Attention to Body Language	From the way a person stands and where their arms are positioned, to the tiniest of micro expressions; there is so much to be deduced from body language alone to become a more empathic designer, learn to study and interpret these physical signals.

2.4. Methods &tools:

1. Constant Curiosity: Ask What-how-why
2. Ask the 5 whys
3. Conduct interviews with Empathy
4. Build Empathy with Analogies
5. Use photo and video user-based studies
6. Use personal photo and video journals
7. Engage with extreme users
8. Story share-and -capture
9. Journey maps
10. Empathy Maps
11. Golden Circle Design
12. Mind Mapping
13. Body storm
14. Immersion and observation
15. Survey forms

Constant Curiosity: Ask What-how-why:

- Throughout the empathize Phase, the constant considering of What, how, and why is important for understanding the user's Behavior.
- The what-how-why framework can help you translate your (assumption-free) observations into more abstract user motivations

- **What?** Refers to the details of what has happened: for example, the user took the following actions when entering their payment details on an ecommerce website.
- **How?** Here it will consider how the user has completed these actions. What were their facial expressions? Were they exerting a lot of effort? Did they seem at ease, frustrated, or confused?
- **Why?** Now it is time to make some educated guesses about the user's motivations and emotions as they complete these tasks
- The more it reflects on how and why of users might behave in a certain way, the more it can empathize with (and design for!) them

Conduct interviews with Empathy:

- One Way to build empathy is by conducting empathy interviews
- The key to an effective empathy interview is to structure it as an open conversation
- The Stanford d. school provides some excellent tips on interviewing for empathy
- such as constantly asking "why?" (even if you think you already know the answer!), asking non-binary questions, encouraging storytelling, and paying attention to nonverbal cues.
- One of the most important things to bear in mind when conducting an empathy interview is that you need to be present and attentive

Immersion and observation:

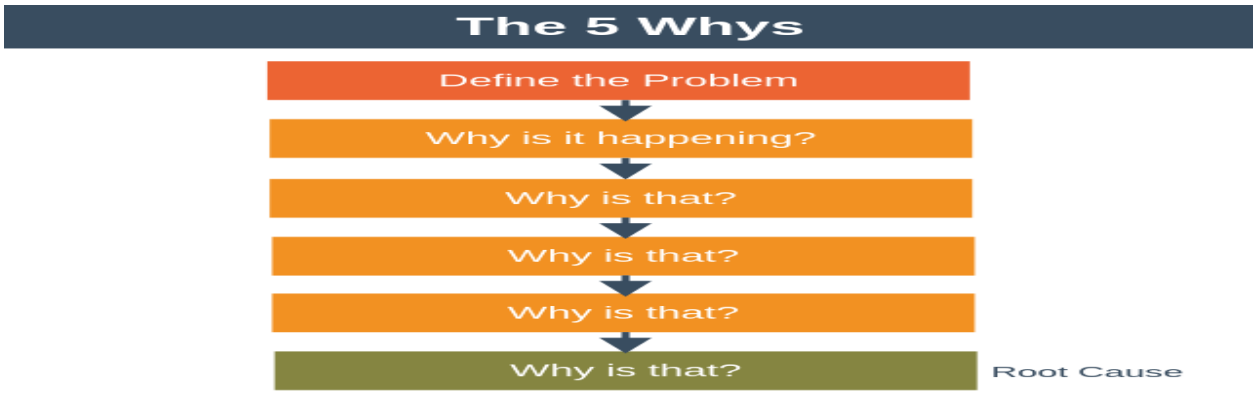
- It is extremely useful to observe users in action, be it in their natural environment or immersed in a certain situation.
- Observing users, either by photographing or videoing them, helps to identify needs, motivations, or challenges that they are not aware of—and therefore not able to articulate.
- There are several ways of observing your users. One option is to bring them in and observe them while they interact with the product, service, or problem, that trying to design for
- It might video them or record their screen as they navigate a website
- Another option is to ask users to keep their own photo or video journal over a certain time, or while completing certain tasks in their everyday lives
- The advantage of this is that users are not so aware of being watched and may therefore act more naturally.

Engage with extreme users:

- In quest to build empathy and truly understand the problem that their users face, designers will often turn to extreme users.
- Extreme users help to reframe the problem and uncover new insights
- "Extreme users' needs are somewhat amplified.
- They need/want less or more of something to solve their problems
- They often find workarounds to existing problems, unlike average users."
- Engaging with extreme users it can help to identify problems and needs that so-called mainstream users may have trouble voicing
- By building empathy with both the "averages" and the "extremes" of target user base, the better equipped to come up with innovative solutions.

Ask the 5 whys:

- The Five whys are a fantastic Method to sue to get the core of a person's beliefs and motivations
- Sakichi Toyoda, the Japanese industrialist, inventor, and founder of Toyota Industries, developed the 5 Whys technique in the 1930s
- It became popular in the 1970s, and Toyota still uses it to solve problems today.



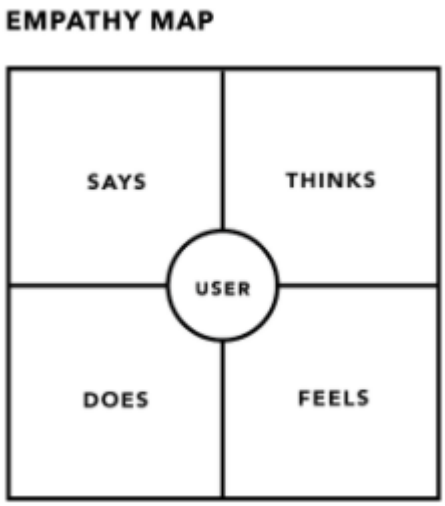
2.5. Understanding Empathy tools.

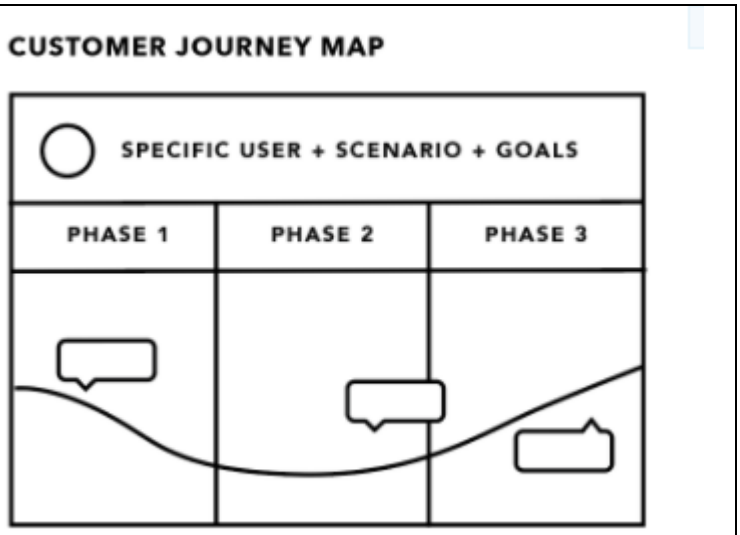
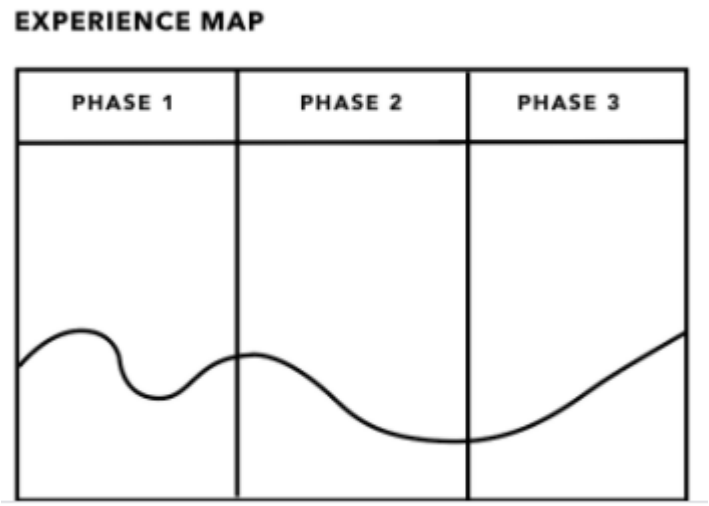
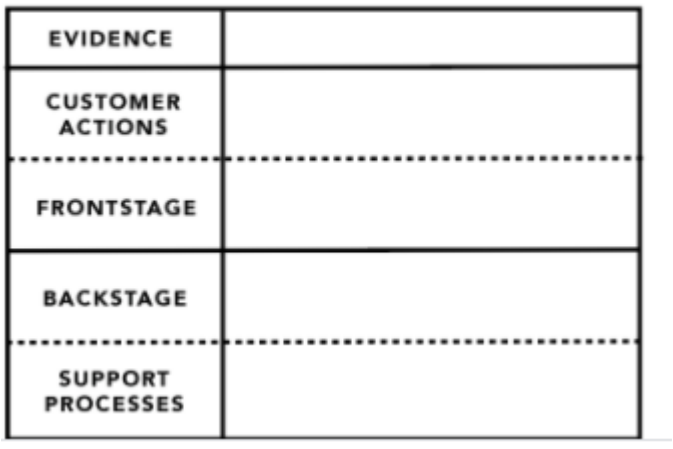
2.5.1. Empathy Maps:

- Designing and developing a product or service often involves a large team of people with different background and experiences who must be on same flatform regarding the project (user's needs, behaviors, and objectives) and even the processes involved.
- This common understanding is often built with visualizations (commonly referred to as Mappings).
- Mappings Make sense of and describe various aspects and processes associated with a product or services.

Four Types of Mapping:

1. Empathy Mapping
2. Customer journey Mapping
3. Experience Mapping
4. Service Blueprint

Empathy Map	

Customer Journey map	
Experience Map	
Service Map	

Empathy Map	Empathy Maps help team members understand the user's Mindset
Customer Journey map	Customer journey maps Focus on a specific customer's interaction with a product or service
Experience Map	Experience Maps generalize the concept of customer-journey maps across user types and products.
Service Map	Service blueprints are counterparts to customer journey maps, focuses on the employees.

Three -step Decision Framework:

- Before beginning any mapping effort (regardless of the type), 3 decisions must be made
    1. Current Vs Future
    2. Hypothesis Vs Research
    3. Low-fidelity Vs high-fidelity

Current Vs Future	• This decision involves the actions and states depicted in the visualization: do they reflect the current state of the world or a desired state of the world? • Current mappings are based on an actual "today" state of what are going to map. This approach is ideal when the mapping goal is to identify and document existing problems and pain points. Use current state maps to help analyze research or align a team around a data validated problem • Future mappings are based on an "ideal" state for a user type, experience, or a to-be service structure. Future state maps help reinvent and conceive how a user or experience would feel in the future. Use future state maps to set a benchmark or goal for the ideal form for products or services
Hypothesis Vs Research	• This decision depends on the type of input that it will use to build the map • Hypothesis mappings are based on an accumulation of existing understanding within a team or organization. This approach is a great way to merge multiple existing team views, create a research plan (based on the gaps that emerge from your hypothesis map), and make a first step towards a higher-fidelity, research-based map. • Research mapping is based on data gathered specifically for building the map. This approach

	is best when there are time and resources dedicated to creating a research plan. While this method creates the best maps, it takes time and significant buy-in. Regardless of where to start, the maps should be iterative and constantly updated with new findings
Low-fidelity Vs high-fidelity	• This decision pertains to the quality of the final map visualization • Low-fidelity maps are unpolished and often created with Sticky Notes in a flexible, unrefined manner. These maps are best in an early part of the process. Low fidelity means little commitment or creation effort and empowers people to collaborate, revise, and update as needed. Use sticky notes (physically on the wall or digitally) or collaborative excel sheets • High-fidelity maps are polished, created digitally, and look final. High fidelity maps are the best for creating an artifact that is going to be shared amongst many. High fidelity can be easier to read, but less flexible because of the "finished" nature of the product. These maps are often created digitally, then dispersed

Definition of Empathy Map:

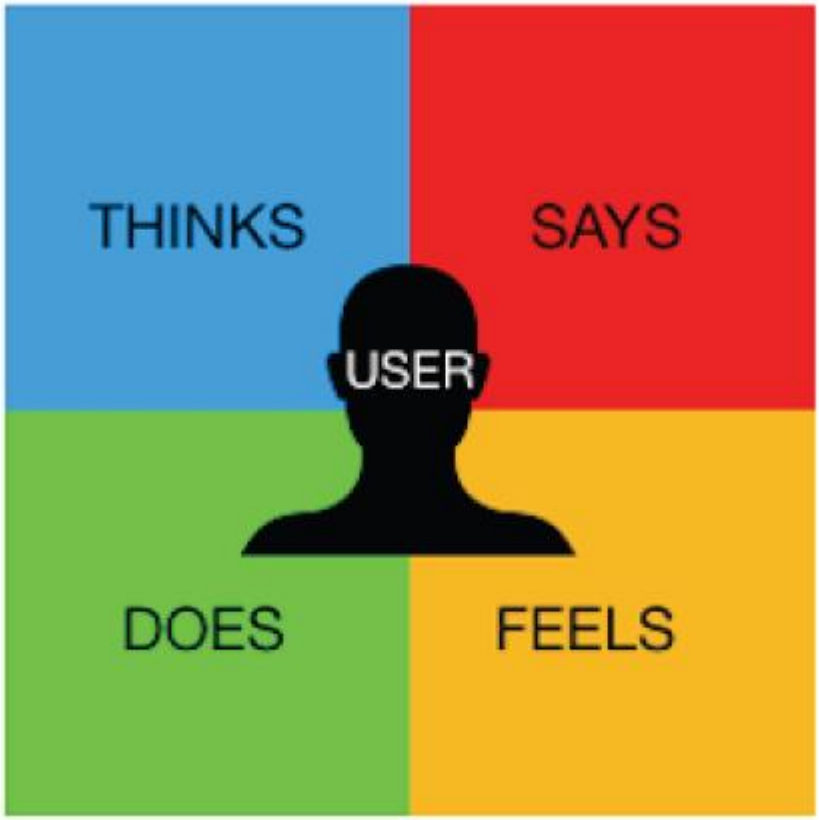
An **Empathy Map** is a collaborative Visualization used to articulate what is know about a particular user. It externalizes user knowledge in order to 1. Create a shared understanding and 2. Aid in decision making.

Empathy maps widely used is a powerful, fundamental tool for design communities.

Format:

- Traditional empathy maps are spilt into **four** quadrants.
- **The four quadrants are say, Thinks, Does and Feels with the user or persona in the middle.**
- Empathy Maps provide a glance into who a user is as a whole and are not chronological or sequential

EMPATHY MAP



Empathy Mapping Quadrants:

These are the four Quadrants that leads to greater understanding of design team's intended to.

Thinks:

- This is what an end user is thinking when using product or going through process.
- What types of thoughts that end-user is having?
- The ***Thinks*** quadrant captures what the user is thinking throughout the experience.
- Ask yourself (from the qualitative research gathered):
- what occupies the user's thoughts? What matters to the user?
- It is possible to have the same content in both *Says* and *Thinks*.
- However, pay special attention to what users think, but may not be willing to vocalize.
- Try to understand why they are reluctant to share — are they unsure, self-conscious, polite, or afraid to tell others something?
- This is really annoying."
- "Am I dumb for not understanding this?"
- Example: They hate packaging that requires scissors or a knife to open

Says:

- This is what a consumer says in an interview, research study or focus group about products or processes.
- What is the consumer saying about the packaging?
- The ***Says*** quadrant contains what the user says out loud in an interview or some other usability study.
- Ideally, it contains verbatim and direct quotes from research
- "I am allegiant to Delta because I never have a bad experience."
- "I want something reliable."
- "I don't understand what to do from here.
- Example: This packaging is really hard to open by hand

Does:

- This is the action a user can takes physically in response to product or processes. What behaviors or actions did you notice?
- The **Does** quadrant encloses the actions the user takes.
- From the research, what does the user physically do? How does the user go about doing it?
- *Refreshes page several times.*
- *Shops around to compare prices.*
- Example: User turns the packaging over and over, looking for an easy entry point

Feels:

- This includes the emotions a consumer is having while dealing with your product or processes.
- Observe a consumer's body language and facial expressions to gauge feelings.
- What emotions do you see?
- The **Feels** quadrant is the user's emotional state, often represented as an adjective plus a short sentence for context.
- Ask yourself: what worries the user? What does the user get excited about?
- How does the user feel about the experience?
- Impatient: pages load too slowly
- Confused: too many contradictory prices
- Worried: they are doing something wrong
- Example: The user is frustrated and annoyed that they can't get through the packaging easily

- users are complex humans. It is natural (and extremely beneficial) to see juxtaposition between quadrants. You will also encounter inconsistencies — for example, seemingly positive actions but negative quotes or emotions coming from the same user
- Some of these quadrants may seem ambiguous or overlapping — for example, it may be difficult to distinguish between *Thinks* and *Feels*
- Do not focus too much on being precise: if an item may fit into multiple quadrants, just pick one.
- The 4 quadrants exist only to push our knowledge about users and to ensure don't leave out any important dimension

Characteristics:

- The map is split into 4 quadrants: Says, Thinks, Feels, Does.
- It shows user's perspective regarding the tasks related to the product.
- It is not chronological or sequential.
- There is one empathy map for each persona or user type (1:1 mapping).

Why use Empathy Maps:

- Empathy maps should be used throughout any process to establish common ground among team members and to understand and prioritize user needs
- In user-centered design, empathy maps are best used from the very **beginning of the design process**.
- Both the process of making an empathy map and the finished artifact have important benefits for the organization

1. **Capture who a user or persona is.** The empathy-mapping process helps distill and categorize your knowledge of the user into one place. It can be used to

   - ❖ Categorize and make sense of qualitative research (research notes, survey answers, user-interview transcripts)
   - ❖ Discover gaps in your current knowledge and identify the types of research needed to address it. A sparse empathy map indicates that more research needs to be done
   - ❖ Create personas by aligning and grouping empathy maps covering individual users

2. **Communicate a user or persona to others**

An empathy map is a quick, digestible way to illustrate user attitudes and behaviors. Once created, it should act as a source of truth throughout a project and protect it from bias or unfounded assumptions.

Process:

How to build an Empathy Map

- Go through the following steps to create a valid and useful empathy map:

1. Define scope and goals:

a. What user or persona will designer map? **Will designer map a persona or an individual user? Always start with a 1:1 mapping (1 user/persona per empathy map). This means that, if you have multiple personas, there should be an empathy map for each.**

b. Define your primary purpose for empathy mapping. **Is it to align the team on your user? If so, be sure everyone is present during the empathy-mapping activity. Is it to analyze an interview transcript? If so, set a clear scope and timebox your effort to ensure you have time to map multiple user interviews.**

2. Gather materials

Your purpose should dictate the medium you use to create an empathy map. If you will be working with an entire team, have a large whiteboard, sticky notes and markers readily available. (The outcome will look somewhat like the illustration above.) If empathy mapping alone, create a system that works for you. The easier to share out with the rest of the team, the better

3. Collect research

Gather the research you will be using to fuel your empathy map. Empathy mapping is a qualitative method, so you will need qualitative inputs: user interviews, field studies, listening sessions or qualitative surveys

4. Individually generate sticky notes for each quadrant

Once Designers have research inputs, they can proceed to mapping as a team. In the beginning, everybody should read through the research individually. As each team member digests the data, they can fill out sticky notes that align to the four quadrants. Next, team members can add their notes to the map on the whiteboard.

5. Converge to cluster and synthesize

In this step, the team moves through the stickies on the board collaboratively and clusters similar notes that belong to the same quadrant. Name your clusters with themes that represent each group (for example, “validation from others” or “research”). Repeat themes in each quadrant if necessary. The activity of clustering facilitates discussion and alignment — the goal being to arrive at a shared understanding of your user by all team members.

Once your empathy map is clustered, you can begin to vocalize and align as a team on your findings. What outliers (or data points that did not fit in any cluster) are there? What themes were repeated in all the quadrants? What themes only exist in one quadrant? What gaps exist in our understanding?

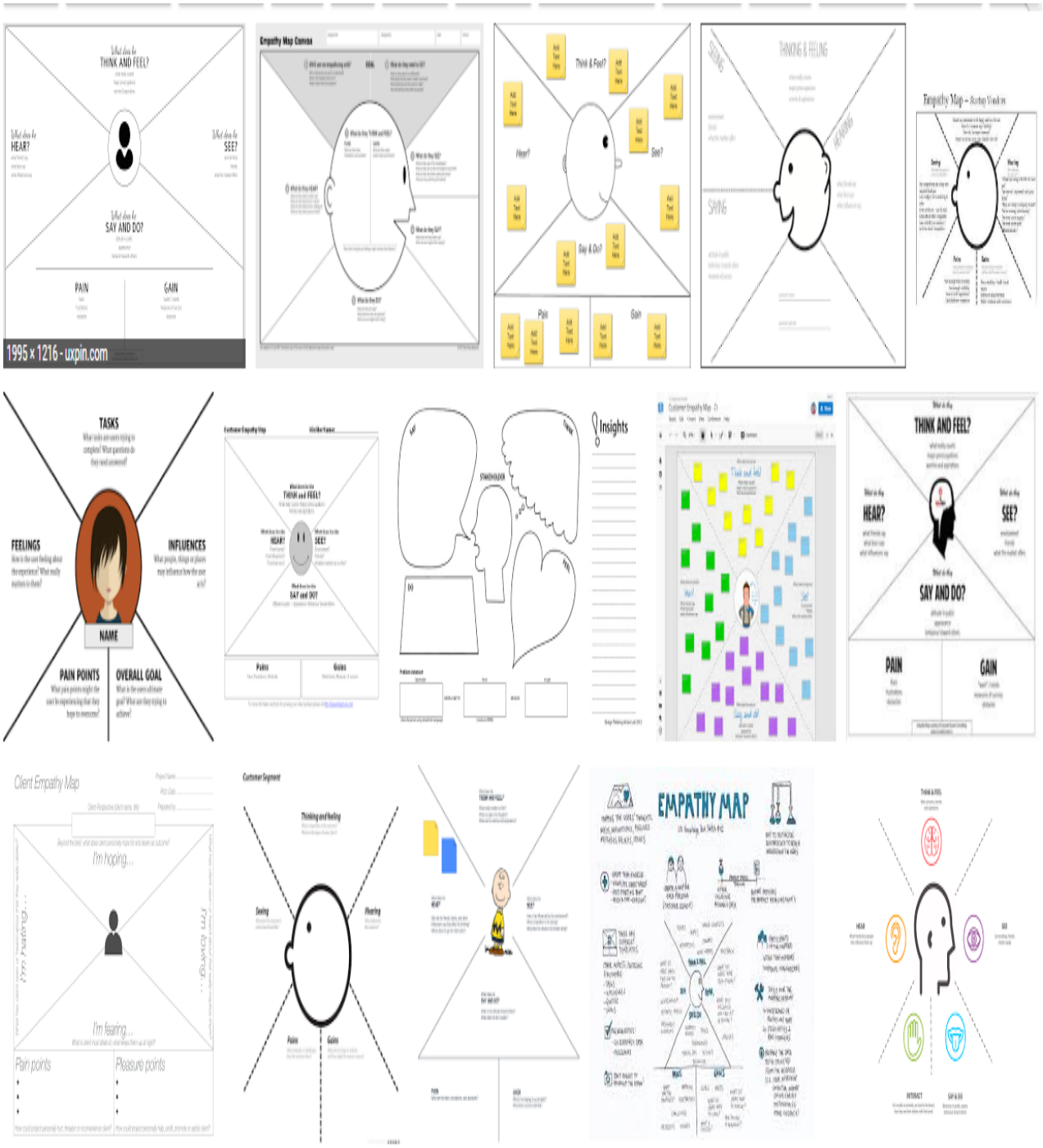
Polish and plan

If Designer feel that designer need more detail or you have unique needs, adapt the map by including additional quadrants (like Goals the example below) or by increasing specificity to existing quadrants. Depending on the purpose of your empathy map, polish and digitize the output accordingly. Be sure to include the user, any outstanding questions, the date, and version number. Plan to circle back to the empathy map as more research is gathered or to guide UX decisions.

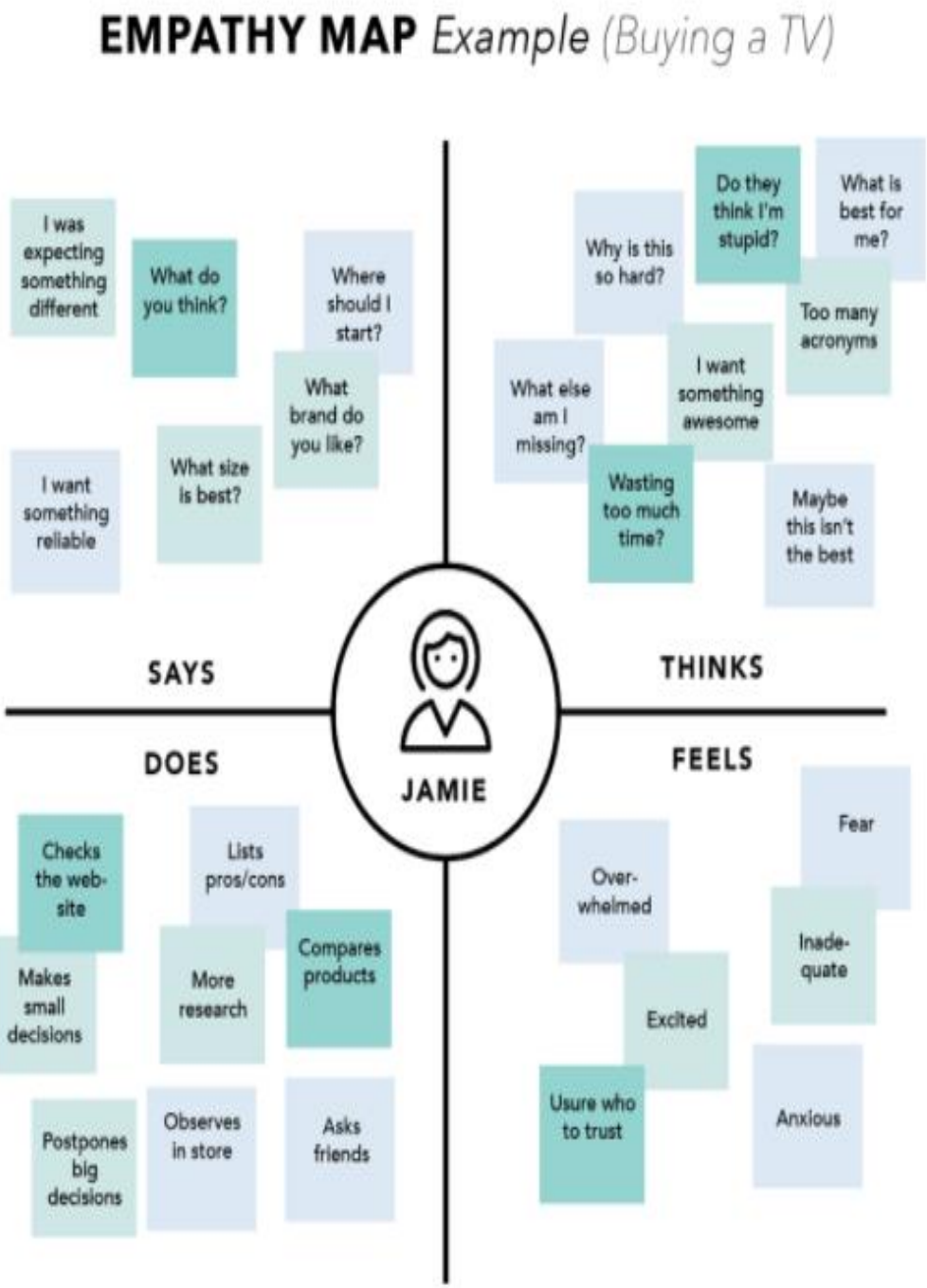
When to use it:

- Beginning of any design process
- When categorizing research notes from a user interview

Various Formats:



Examples of Empathy Map-1:



Example of Empathy Map-2:

Context: Students are not enjoying teaching process in school

Description: Everybody goes to school but still there is too much of unemployment even when there are so many job opportunities. Somewhere there is a gap between what is been taught and being learnt.

Stakeholders:

- stakeholders-Employees with 2-3 years of experience
- No. of interviewed :3
- Average age:27

Focus areas during Interview:

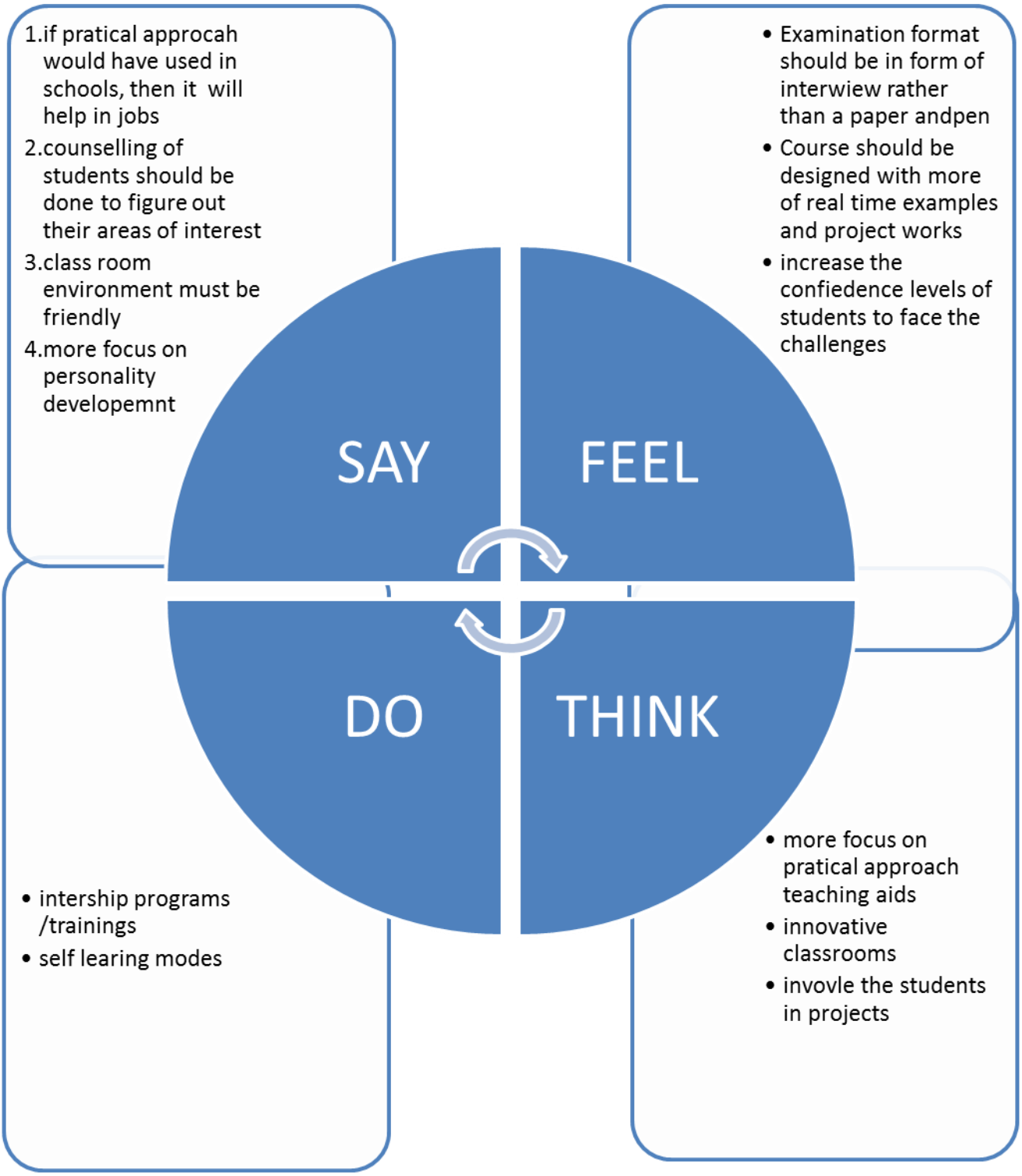
- Mode of teaching in schools
- How does things taught in school help them at their workplace?
- Do they feel that they benefited by things taught in school?

Observations from one of the interviews:

- Approach which is used in school to teach is totally theoretical, while in workplace it is totally practical
- Innovative & practical approach should be used while designing study material.
- Counselling should be done for students to figure out their interest areas
- Promotion to a higher class should be done based on learning level
- Course should include more of project work, by taking real life examples
- Examination pattern needs be in a form of interview rather than written pattern
- Schools need to focus more on personality development for students
- Environment of classroom needs to be changed to a friendly place where exchanges of ideas take place

Insights:

- Use working models which resembles filed work activities
- The teaching mode consists the practical approaches
- Change the exam patterns
- Textbooks and material should consist innovate teaching method and more real time examples, project works



One User Vs Multiple-users Empathy Maps:

- Empathy maps can capture one user or can reflect an aggregation of multiple users.
- One-user(individual) empathy maps are usually based on a user interview or a user's log from a diary study
- Aggregated empathy maps represent a user segment, rather than one user.

- They are usually created by combining multiple individual empathy maps from users who exhibit similar behaviors and can be grouped into one segment.
- The aggregated empathy map synthesizes themes seen throughout that user group and can be a first step in the creation of personas.
- Aggregated empathy maps can also become ways to summarize other qualitative data like surveys and field studies.
- For example, an empathy map can be used to communicate a persona, instead of the traditional 'business card' approach.
- As more research is gathered about that persona, it can circle back to the empathy map and add new insights or remove those that have changed or been invalidated

Conclusion:

- **Empathy** Maps simply help to build empathy with end users. When based on real data and when combined with other mapping methods.it can
- **Remove bias from designs and align the team on a single, shared understanding of the user**
- **Discover weakness in the research**
- **Uncover user needs that the user themselves may not even be aware of**
- **Understand what drives user's behaviors**
- **Guides towards meaningful innovation.**

Summary:

Visualizing user's attitudes and behaviors ina an empathy may help the design teams to understanding of inner views of end users.

The Mapping process also reveals any holes in existing user data

2.5.2. Customer Journey Mapping:

Definition:

A customer or user journey map is detailed record of how a customer experience a specific task, product, or service.

Or

A Customer Journey Map is a visualization of the process that a person goes through accomplish a goal tied to a specific business or product or service.

Or

A Customer journey map is research-based tool. It examines the story of how a customer relates to the business, brand, or product over a time

- It is used for understanding and addressing customer needs and pain points
- Journey mapping starts by compiling a series of user goals and actions into a timeline skeleton.
- The skeleton is fleshed out with user thoughts and emotions to create a narrative.

- Then the narrative is condensed into a visualization used to communicate insights that will inform Design Processes.
- It could either be constructed based observations and interviews with end users or it could be something ask the customer to draw out and explained.
- Each journey map should contain the journey that a customer goes through and could be either closely relevant or even tangential to the focus of the design project
- A customer journey map can help to build empathy towards the users as designers try to experience what they go through
- When Designers compare journeys between customers or end-users, they will also find common threads of find conflicting behaviors which will provide greater insights into user's needs, wants and motivations.
- Journey Mapping Combines two powerful instruments: storytelling and Visualization.
- Storytelling and visualization are essential facets of journey mapping because they are effective mechanisms for conveying information in a way that is memorable, concise and that creates a shared vision.

Characteristics:

- The map is tied to a specific product or service.
- It is split into 4 swim lanes: Phases, actions, thoughts, mindsets/emotions
- It reflects the user's perspectives:
    i. Including mindset, thoughts, and emotions
    ii. Leaving out most process details
- It is chronological
- There is one map per persona/user type (1:1 mapping)

Why Use it:

- To pinpoint specific customer journey touchpoints that cause pain or delight
- To break down into parts that shared, organization-wide understanding of the customer journey
- To assign ownership of key touchpoints in the journey to internal departments

When to use it:

- At any point in the design process, as a reference point amongst a team throughout a design cycle.

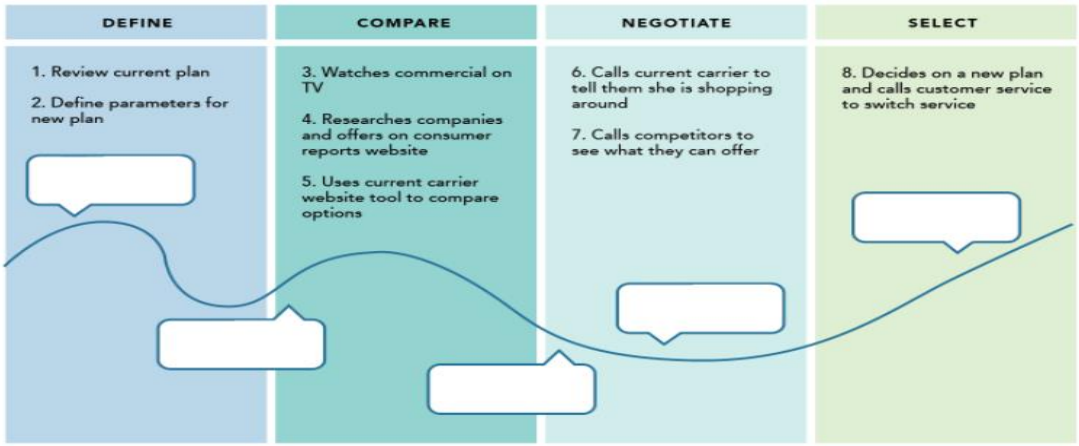
CUSTOMER JOURNEY MAP *Example (Switching Mobile Plans)*

JAMIE

Scenario: Jamie needs to switch her current mobile plan. She wants a plan that can save her money without having to sacrifice usage limits.

EXPECTATIONS

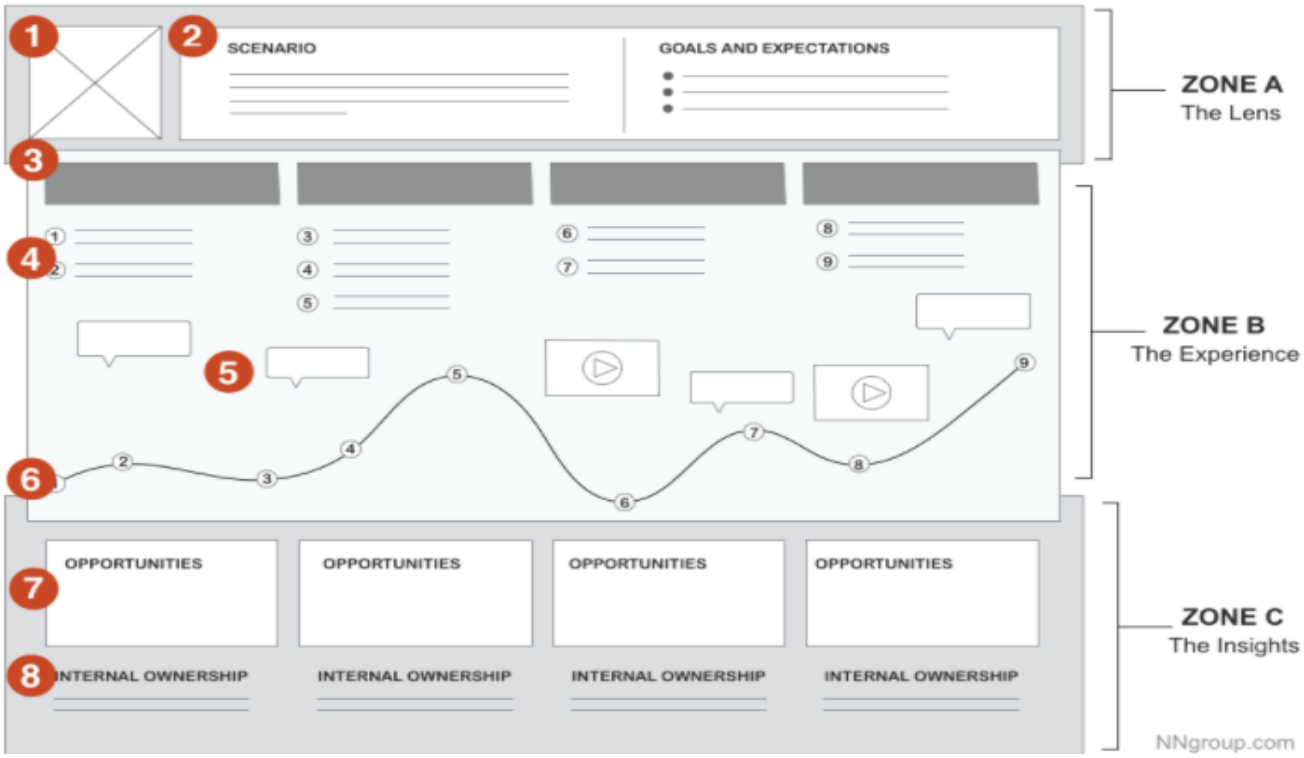
- Clear online information
- Ability to compare plan breakdowns
- Friendly and helpful customer support



Customer Journey Map Template

Attach a photo here	Scenario	Goals & Expectations

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
	Customer goals	Customer goals	Customer goals	Customer goals	Customer goals	Customer goals
	Customer thoughts and emotions	Customer thoughts and emotions	Customer thoughts and emotions	Customer thoughts and emotions	Customer thoughts and emotions	Customer thoughts and emotions
	Opportunities & ideas to improve	Opportunities & ideas to improve	Opportunities & ideas to improve	Opportunities & ideas to improve	Opportunities & ideas to improve	Opportunities & ideas to improve
	Internal ownership	Internal ownership	Internal ownership	Internal ownership	Internal ownership	Internal ownership



- While journey maps vary based on the specific context for which designers are used, they tend to follow a general model that includes zones for the "lens" the mapped experience and insights learned throughout the process.

Zone A:	**The lens provides constraints for the map by assigning** (1) **a persona ("who") and** (2) **the scenario to be examined ("what").**
Zone B:	The heart of the map is the visualized experience, usually aligned across **(3)** chunk able phases of the journey. The **(4)** actions, **(5)** thoughts, and **(6)** emotional experience of the user has throughout the journey can be supplemented with quotes or videos from research
Zone C	The output should vary based on the business goal the map supports, but it could describe the insights and pain points discovered, and the **(7)** opportunities to focus on going forward, as well as **(8)** internal ownership.

Key Elements of Customer Journey Maps:

While journey maps can (and should) take a wide variety of forms, certain elements are generally included:

Point of view	• First and foremost, choose the "actor" of the story. Who is this journey map about? • Actors" usually aligns with personas if they exist • For example, a university might choose either students or faculty members, both of which would result in very different journeys
Scenario	• Determine the specific experience to map • This could be an existing journey, where mapping will uncover positive and negative moments within that current experience, or a "to-be" experience, where the mapper is designing a journey for a product or service that does not exist yet
Actions, mindsets, and emotions	• At the heart of a journey map's narrative is what the user is doing, thinking, and feeling during the journey. • These data points should be based on qualitative research, such as field studies, contextual inquiry, and diary studies
Touchpoints and channels	• The map should align touchpoints (times when the actor in the map interacts with the company) and channels (methods of communication or service delivery, such as the website or physical store) with user goals and actions • These elements deserve a special emphasis because they are often where brand inconsistencies and disconnected experiences are uncovered.
Insights and ownership.	• The entire point of the journey-mapping process is to uncover gaps in the user experience (which are particularly common in omnichannel journeys), and then take action to optimize the experience. Insights and ownership are critical elements that are often overlooked • Any insights that emerge from journey mapping should be explicitly listed. If politically possible, also assign ownership for different parts of the journey map, so that it's clear who's in charge of what aspect of the customer journey

Rules for Creating Successful Journey Maps:

- Successful journey maps require more than just the inclusion of the “right” elements
- Journey mapping should be a collaborative process informed by well-defined goals and built from research

Rules:

Establish the “why" and the “what.”	identify the business goal that the journey map will support. Make sure there are clear answers to these basic key questions before you begin the process:
Base it on truth	Journey maps should result in truthful narratives, not fairy tales. Start with gathering any existing research, but additional journey-based research is also needed to fill in the gaps that the existing research This is a qualitative-research process
Collaborate with others	he activity of journey mapping (not the output itself) is often the most valuable part of the process, so involve others. Pull back the curtain and invite stakeholders from various groups to be a part of compiling the data and building the map
Don’t jump to visualization	The temptation to create an aesthetic graphic or jump to design can lead to beautiful yet flawed journey maps. Make sure the synthesis of your data is complete and well-understood before moving to creating the visual.
Engage others with the end product.	Don’t expect to get “buy-in” and foster interest in your journey map by simply sending a lovely graphic as an email attachment Make it a living interactive document that people can be a part of. Bring up your story in meetings and conversations to promote a narrative that others believe in and begin to reference

Summary:

Journey maps combine two powerful instruments—storytelling and visualization—in order to help teams, understand and address customer needs. While maps take a wide variety of forms depending on context and business goals, certain elements are generally included

2.5.3. Mind Maps:

- A Mind Map is a powerful Graphic technique which harnesses the full range of cortical (brain power) skills in a single powerful manner.
- A mind map is an easy way to get information into and out of the brain
- A mind map is the best way of coming up with new ideas and planning projects
- A mind Map is made up of words, colours, lines, pictures, numbers, logic, rhythm and spatial awareness.
- The Mind Map ca be applied to every aspect of life where improved learning and clear thinking which enhances human performance.
- Originated in the late 1960's by Tony Buzan
- Mind maps provides an overview of large subject/area.
- It enables to plan routes/ make choices and know where to go and where have been
- It allows together and represent large amounts of data.
- It encourages problem solving by showing new pathways
- It is attractive, easy to read and remember
- It is tool, not a solution
- It shows whole picture and details at the same time

Advantages of Mind Maps:

- It is quick and record more information in the same amount of time
- It can easily add ideas or links later.
- It helps to concentrate on information structure and relationships between ideas rather than disconnected facts
- With mind maps easy to visualize connections and similarities between various information
- Add sketches to make mind maps more memorable than conventional notes
- Mind maps can incorporate mass of material
- Mind mapping can help revision, even material is conventional. It condenses material into a concise, memorable format.

Disadvantages of Mind Maps:

- Maps of person personal view. It could be difficult for others to understand
- Mind maps are of great help when preparing essays and presentations, but they may be inappropriate as the final piece of work

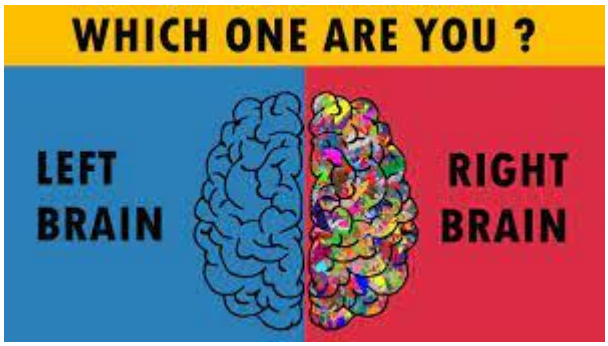
A Mind map Enables:

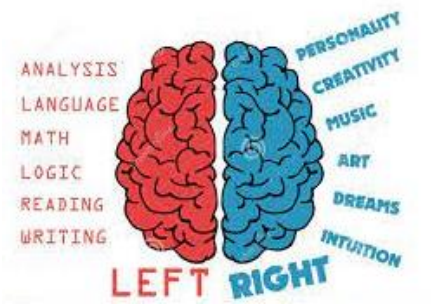
- To clear the mind of paradigms, this providing space for new creative thought
- To capture and develop 'flashes' of insight when they occur
- To explore all the creative possibilities of a given subject
- To encourage more consistent creative thinking
- To create new conceptual frameworks within which previous ideas can be reorganizes
- To plan creatively

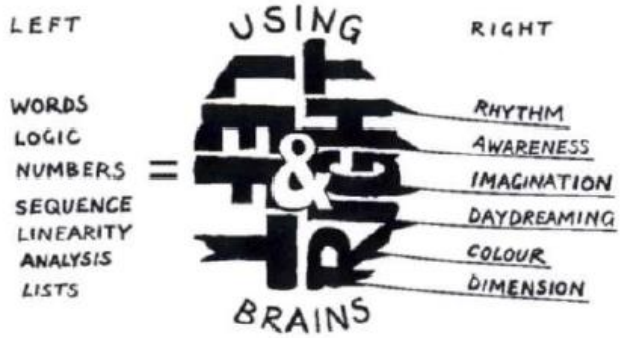
Why Mind Map?

Mind Maps are more convenient than traditional linear notes because

- Traditional notes writing is time wasted and energy wasted
- Other information may be missed while noting down one idea
- It takes longer to read and review
- Associations and connections between key words and ideas not readily apparent.
- It lacks colour and other visual qualities







Principles:

a. Start in the center of the page with a clear title
b. Main ideas are written on the lines branching off the subject. Other ideas branch off these as twigs would grow from the bought of a tree
c. Write only keywords, not sentence and draw pictures where possible
d. Write keywords on the lines so text is always connected to the lines showing the whole idea structure. draw additional lines connecting ideas wherever necessary
e. Print words. Mix lower- and upper-case letters so the text is varied, clear and easily readable.

Various mind maps:

Simple Mind Map:

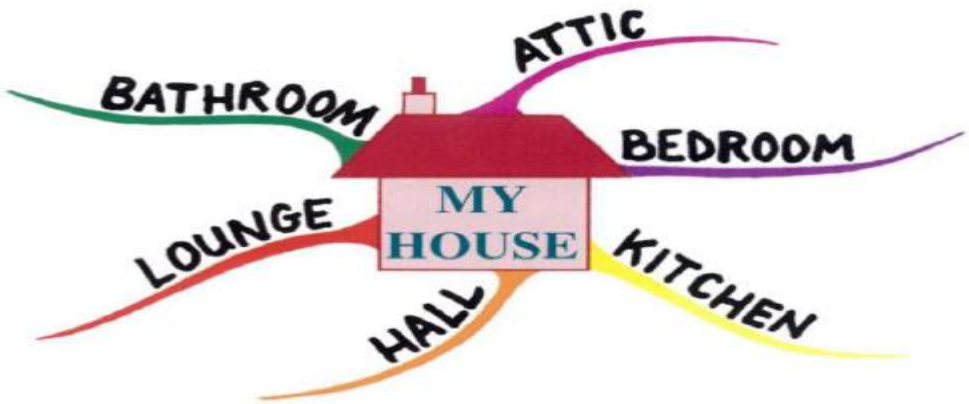
Complex Mind Map

Example: 1

Mind map for home

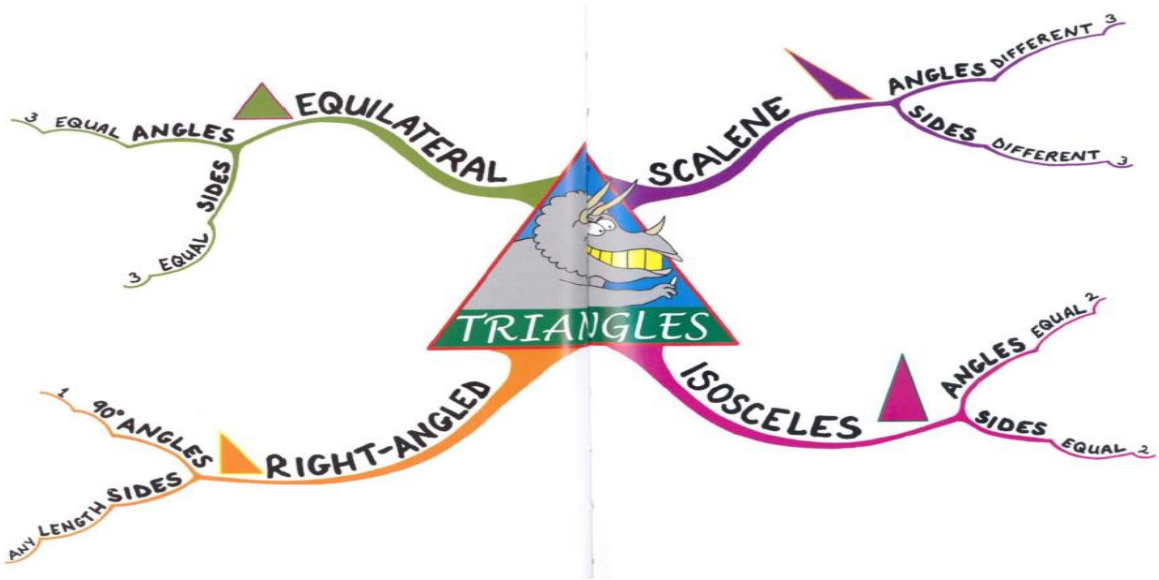
Step 1: Draw the house

Step2: write the rooms by using different colours on the lines

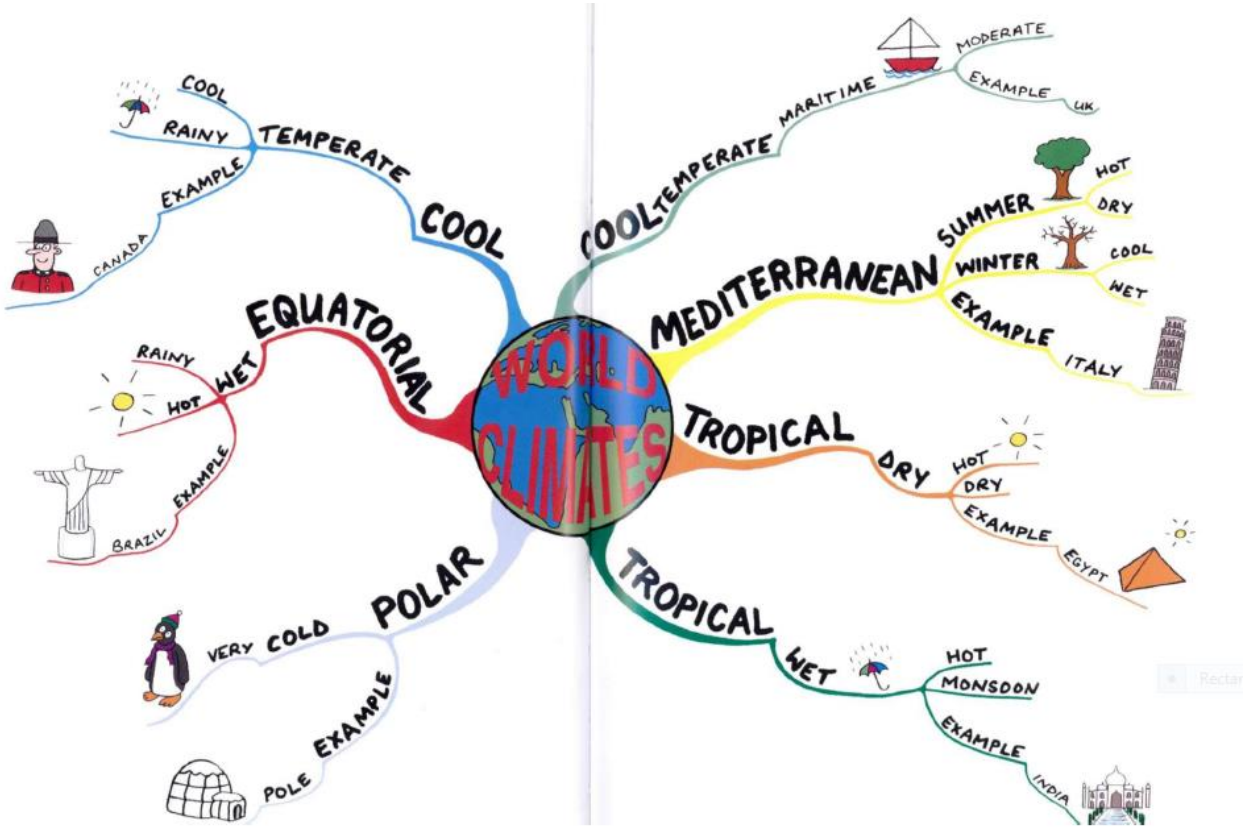


Step3: Add pictures to the rooms then it is easy to remember

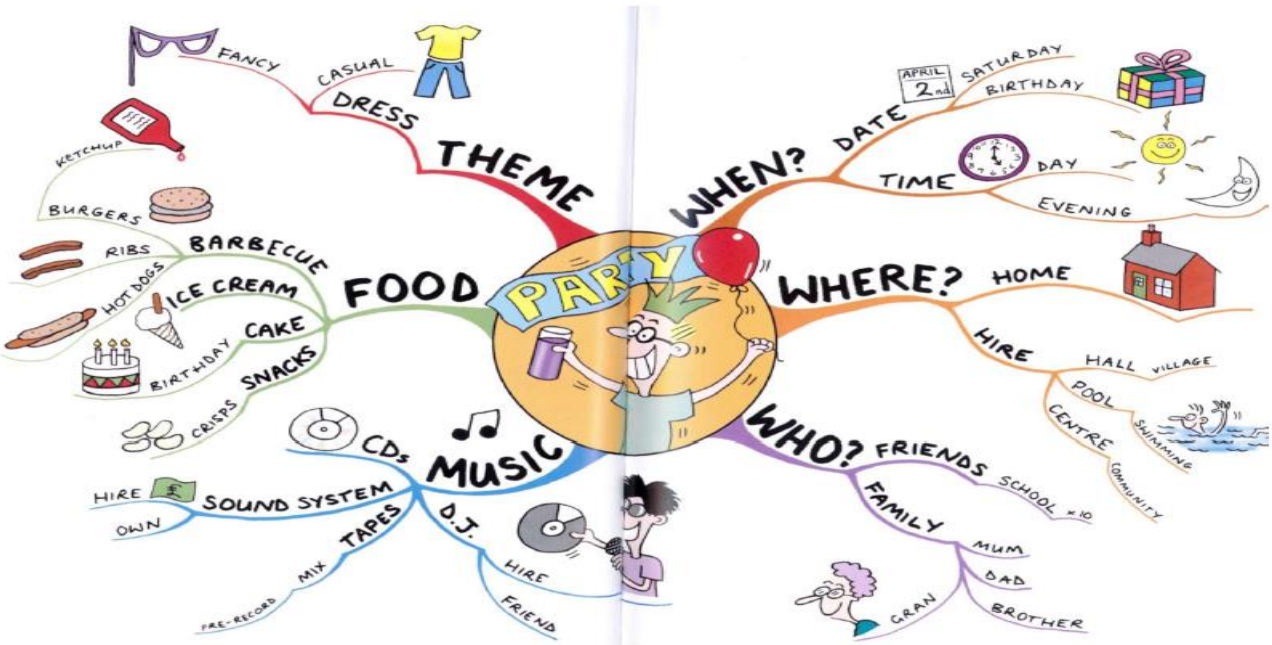
Example 2: Triangles:



Example 3: world climate



Example 4: party planning

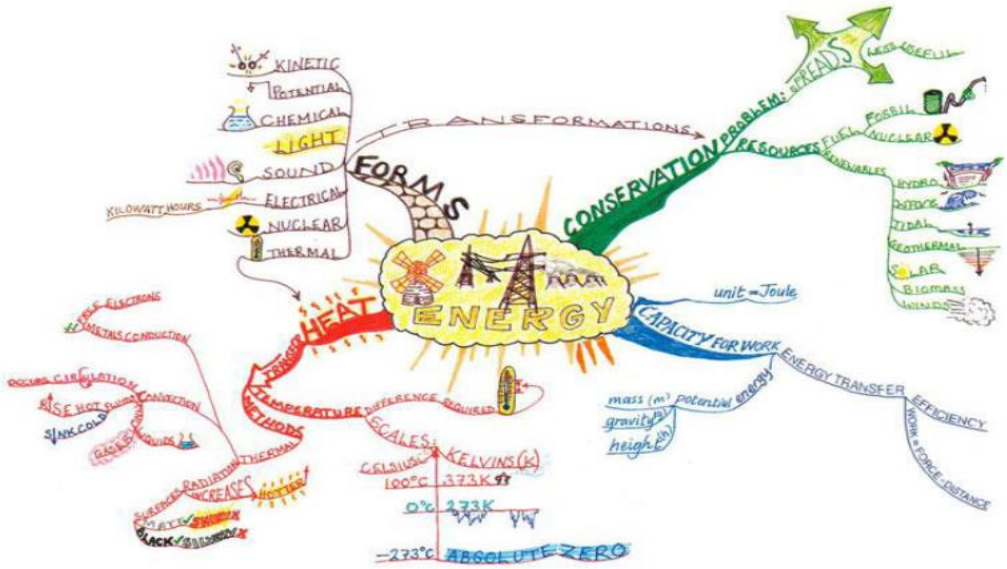


The Mind map Tool Kit:

- Manual toolkit: paper, colour pens/pencils
- Digital toolkit: Mind Map software.

Summary:

- Mind Maps keeps focused on the main idea and all the additional ideas.
- It helps to use both sides of the brain
- Mind maps helps to
    - ✓ Remembering Things
    - ✓ Making better notes
    - ✓ Coming up with ideas
    - ✓ Saving time
    - ✓ Concentrating
    - ✓ Effective time utilization
- It is a graphical, learning and creating aid
- Mind Mapping links the left side of the brain that focuses on numbers, words, lists and logic to the right creative side.
- Using Images, keywords and colour in mind maps are maximizing brain power which enhances learning and creativity.



2.6. Explore Define phase:

- As a Design Thinker it need to cover all the points and answers that got in the Empathize Phase.
- This is where the process of synthesis comes into picture.
- Clubbing all the answers together and convert them into a **coherent single statement Called Problem statement nothing but Define Phase**
- The first step towards defining a problem is to find who the user is, what is his/her/their needs and then develop insights from the answers
- Think of **'How might we?'** questions
- For example, 'how might we motivate the employees in DT?', 'How might to reduce the cost of knowledge transfer program without compromising its quality and the mandatory pre-requisite resources?'
- The following guidelines will help a design thinker to come up with 'how might we' questions.
    - **Amplify the good:** A design thinker must think how to amplify the positive aspects of the customers' needs
    - **Eliminate the bad:** Design thinkers need to remove all the bad elements observed in the problem
    - **Explore the opposite:** Design thinkers need to brainstorm on how to convert the problem into an opportunity
    - **Question the Assumptions:** This step involves questioning the assumption at hand
    - **Identify the Unexpected Resources:** Design thinkers should try to find whether some other resources not mentioned by the customer can be leveraged
    - **Create an Analogy:** Design thinking also involves, among many other things, how to create connections between the problem at hand and unrelated images
    - **Break the Problem into Pieces:** This is where again analysis comes into picture for a short while before the problem definition can be synthesized
- Mycoskie navigated the transition from the **Empathize** stage of design thinking to the **Define** stage

- The transition between the **Empathize** and **Define** stages hinges on the concept of **unpacking**
- unpacking tells the talking to, observing and learning about customers and creating a system for turning those insights into something actionable
- Unpacking insights from the Empathize stage does not have to be a complicated process
- The tasks involved in synthesizing empathy and definition can be as simple as breaking out a stack of sticky notes.\
- The primary goal of the unpacking stage is sharing what that learned with other designers and the rest of team members.

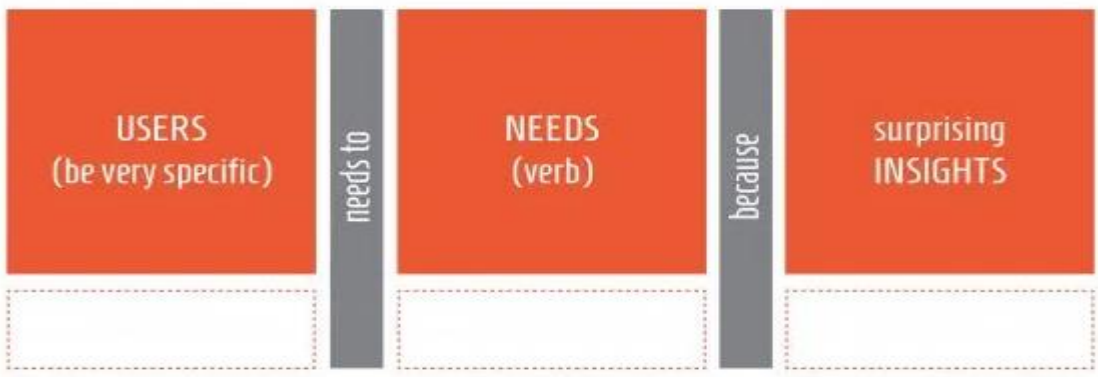
- it is important that everyone on the team is on the same page about the information gathered in the Empathize stage.
- Having a complete understanding of the customer and his or her needs will help you form a **problem statement**, which is a written expression of customer's or end user's problem

2.6.1 The Point of View (POV) and its purpose:

- **Point of view**, or POV, in design thinking is a written, actionable statement that expresses the problem that the design team is trying to address. This is also often called a **problem statement**
- that is, an expression of the problem (or problems that customers identified the Empathize stage
- In fact, crafting a POV statement is the central purpose of the **Define** stage of design thinking. It provides a framework for designers to use in later brainstorming sessions
- ***"If I had an hour to solve a problem, I'd spend 55 minutes thinking about the problem and five minutes thinking about solutions." – Albert Einstein***
- **User need statements**, also often called **problem statements** or **point-of-view statements**, are the primary tool in the second stage of design thinking — the define stage
- A **user need statement** is an actionable problem statement used to summarize who a user is, the user's need, and why the need is important to that user. It defines what you want to solve before you move on to generating potential solutions, in order to 1) condense your perspective on the problem, and 2) provide a metric for success to be used throughout the design thinking process.

How to Create POV:

- A good POV will allow you to ideate and solve your challenge in a goal-oriented manner – keeping the focus on your users, their needs and your insights about them



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- may come up with multiple POVs depending on the insights gained in interviews.

Steps for creating POV:

Step 1: Identify Users, Needs & Insights

There are three key components that make up the POV statement:

- **User:** Defines the type of specific user whom writing POV about.
- **Need:** Identifies the users' essential needs/goals.
- **Surprising Insight:** Synthesizes the gathered information into a key takeaway.

This statement can be used to design a solution

Step 2: Create Your Chart

Place your scenario into a template like the example below. This creates a guide for structuring your POV statement

Step 3: Form Your POV Statement

This is the fun part where you combine your user, needs and insight into a concise POV statement. If necessary, condense your statements to create a good story.

More Tips for Your POV Statements

- Keep the focus narrow.

- Frame the challenge as a problem statement.
- Use them to evaluate competing ideas.
- Make them actionable.
- Remember, these statements will guide your innovation efforts and provide inspiration for your team

❖ *Note: Since feelings, thoughts, and beliefs cannot be directly observed, infer those by carefully paying attention to clues*

- **Write down needs.** "Needs" are emotional or physical necessities. They are activities and desires, *not* solutions. Identify needs from traits or from contradictions – such as a disconnect between what he/she says and does. Write them down on the side of your empathy map

- **Write down insights.** An "insight" is a remarkable realization that you could leverage to better respond to a challenge. Insights often grow from contradictions between two user attributes (either within a quadrant or from two different quadrants) or from asking yourself "Why?" when you notice strange behavior. Write down potential insights on the side of your map. Capture tensions and contradictions as you work.

2.6.2 Story share-and-capture:

Type in one of your findings into each "sticky note." Each sticky note should contain a short title that describes the finding. Organize your sticky notes into groups based on a theme or pattern. Looking at these groupings did you learn anything surprising or interesting?

2.6.3 Persona

Persona development is to create user models –characters with a clearly defined purpose and characteristics –who will represent your target users

PERSONA CANVAS	Persona Name:	
Demographic Profile: Age: Gender: Home: Family: Education Background:	Goals: Motivation/Aspiration:	Deep Need Statement: Diversity of Needs: 
Hobbies/Likes/Dislikes:	Challenges/Pain Points:	
Social & Family Lifestyle:	Behavior:	

Example for problem statement:

Context: Students are not enjoying teaching process in school. From the example Empathy-2

Problem statement:

My Stakeholder A sincere, ambitious, smart working guy holding master's degree **needs** a way to learn to be employable **because** to get a better job opportunities student must understand & remember what is taught to them in school.

2.6.4. State users' needs and problems using empathy methods

- User need statements also often called problem statements or point of view statements, are the primary tool in the second stage of design thinking -define stage. They align different points of vies before moving forward into ideating.

- During Define phase empathy helps to define the problem statement. This stage based on what have learned about customer and context.
- During this phase, designer is wanting to organize their research using a different lens, maps or frameworks.
- **Empathy Map** — organize by consumer thinking/feeling, what they are experiencing and pains
- **Customer Journey** — organize along with how the consumer shops or interacts with the product
- **Point of View** — focusses on your **insights** about your **users** and their **needs**.

A good problem statement should thus have the following traits. It should be:

- **Human-centered.** This requires you to frame your problem statement according to specific users, their needs and the insights that your team has gained in the Empathize phase.
- **Broad enough for creative freedom.** This means that the problem statement should not focus too narrowly on a specific method regarding the implementation of the solution. The problem statement should also not list technical requirements, as this would unnecessarily restrict the team and prevent them from exploring areas that might bring unexpected value and insight to the project.
- **Narrow enough to make it manageable.** On the other hand, a problem statement such as, "Improve the human condition," is too broad and will likely cause team members to easily feel daunted

Summary:

- Using Empathic Design Principles as guide, designer will give new perspectives on the lives of end users-including the challenges they face, the things that keep them tight, and the moments that delight them.
- Empathy can Give the insights need to solve hard, &worthwhile problems
- Empathy helps innovators to understand what is important to users
- Empathy is the foundation for developing solutions that are perceived by designers as relevant and meaningful, as genuinely valuable, easy to understand, and pleasantly satisfying even delightful.
- In the define stage designer accumulate the information, created and gathered during the empathize stage.
- Designers analyze the observations and synthesis to define the core problems that design teams identified
- Designer should always seek to define the problem statement in a human- centered manner.