Qaiwan International University

Design Thinking

Software Engineering Department

Technology and information system (TIS)

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Introduction:

In today's rapidly changing world, education is shifting focus from rote memorization to developing skills for navigating complexity. Among the many approaches to problem-solving, design thinking stands out as one that puts an emphasis on adaptability, empathy, and curiosity. It fosters teamwork, innovation, and prepares students for real-world challenges. Beyond traditional classrooms, it encourages exploration, embracing failure as a path to growth. Employers seek these soft skills alongside technical proficiency, making design thinking essential in education. Educators must integrate it into the curriculum to cultivate lifelong learning and creativity, preparing students for success in an uncertain future. This paper explores the transformative power of design thinking in education, offering insights into its application and evaluation.

Figure 1

Detail step and descriptions in design thinking:

Empathy: This stage entails figuring out what the end users' needs, wants, and difficulties are. Students learn about the user experience through doing things like observations, interviews, and empathy mapping. Video recordings of interviews, pictures of empathy maps, and diary logs with important observations and insights are examples of evidence for this phase.

Define: Students use the knowledge they gained from the empathy phase to clarify the problem statement they are trying to solve in this phase. They pinpoint the main problems that users have and present them as solvable problem statements. Written explanations of problem statements backed by information gathered during the empathy phase serve as evidence for this phase.

Ideate: During this stage of brainstorming, students come up with a broad range of possible answers to the given challenge. They research a range of topics using techniques including mind mapping, role-playing, and sketching.

Prototype: In this stage, students take a few concepts and turn them into workable prototypes that can be evaluated and improved. Depending on the sort of challenge, prototypes might be anything from crude drawings to intricate models.

Test: To assess the efficacy of the prototypes, user feedback is gathered throughout the testing phase. Students watch how people engage with the prototypes, conduct interviews or surveys to get feedback, and then refine their designs in light of the results.
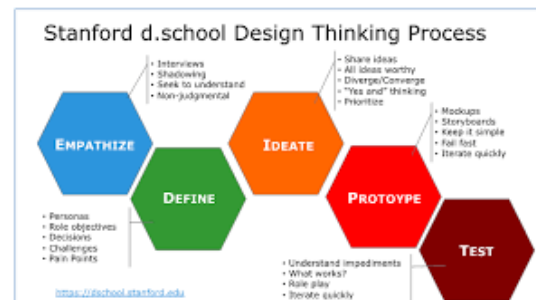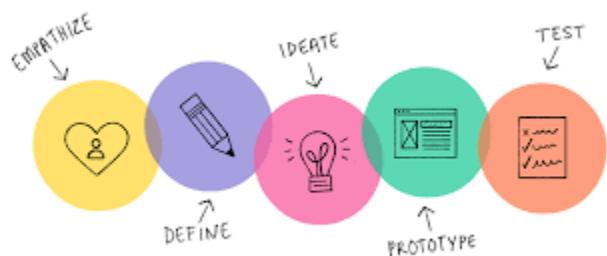

Figure2

Detailed Descriptions of Problem, Solution, and Team Working:

In the complex field of design thinking, productive collaboration becomes the foundation upon which creative ideas are painstakingly built. Teams go on an eye-opening journey of understanding inside this complex process, exploring the fine details of user experiences and viewpoints. By means of a harmonious and compassionate involvement, they reduce the clamor of intricacies encompassing a particular predicament to brief and feasible problem formulations, setting the stage for imaginative pursuits.

Then, cooperative brainstorming sessions serve as the furnace where a multitude of viable solutions are formed from the raw materials of creativity and inventiveness. Here, ideas are developed, honed, and transformed through iterative cycles of discovery, and the synergy of many viewpoints and unbridled imagination ignites a true firestorm of creation.

The transforming impact of prototyping and testing emerges as the ideas start to take shape, helping ideas go from abstract concepts to concrete examples of inventiveness. Prototypes are meticulously created, improved, and iterated upon under the direction of the team's combined creativity and intelligence. Each iteration takes the prototypes one step closer to realization.

But even with the ups and downs of the design thinking process, problems are bound to come up—they could take the kind of miscommunication, divergent opinions, or unanticipated roadblocks. The real core of good cooperation emerges during these times of hardship when teams come together with unflinching resolution, encouraging candid communication, the development of trust, and a firm commitment to respect for one another.

Innovation flourishes in this dynamic interplay of personalities, viewpoints, and abilities, turning abstract ideas into concrete effects and inspiring teams to reach new heights in creativity. The seeds of possibility germinate in the furnace of productive teamwork, sprouting into solutions that not only meet end-user needs but also encourage good change in the surrounding environment.
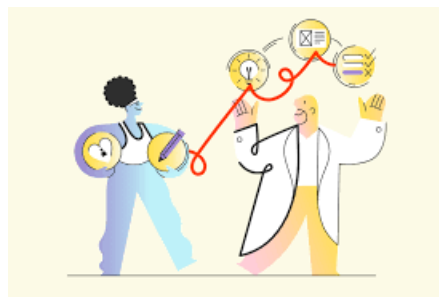

Figure 3

Design Thinking Assessment Points:

Assessment acts as a compass in the dynamic process of design thinking, pointing students in the direction of a greater comprehension and mastery of the underlying principles. It serves as more than just a checkpoint; rather, it is a growth-promoting catalyst that appears at critical junctures in the project to assess advancement and highlight opportunities for development.

The End of Project Demonstration, which is the pinnacle of students' work and when they present their finished answers to the specified challenge, is one significant assessment point. Here, the emphasis is on the inventiveness and innovation of their ideas as well as how well they meet end users' needs. Furthermore, the coherence and clarity of the design process are examined closely, offering insights on how well students can traverse the iterative process of design thinking.

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Figure 4

Reflections (Individual):

(Awa)

a. In terms of my course or program, I want to get a thorough comprehension of the material and useful abilities that will help me succeed in my chosen industry. My goal is to become an accomplished professional who can positively influence the industry and make a meaningful contribution.

b. In terms of my program, design thinking has a significant influence on my aim or aspiration. It gives me a flexible framework for problem-solving that improves my analytical skills while simultaneously encouraging creativity and innovation. I can approach problems with empathy, define them more precisely, come up with creative solutions, and then iteratively improve them in response to feedback if I adopt design thinking ideas.

c. I understand that to reach my full potential in the field, I must always study and develop. I intend to actively participate in extracurricular activities, such as seminars, workshops, and internships, to broaden my skill, set and obtain practical experience. To expand my professional network and acquire insightful knowledge.

(Almaha)

a. I want to get information from this course/program, but I also want to get useful skills that will help me contribute to my area in a meaningful way. My aspiration is to become a flexible professional who can apply creativity and ingenuity to tackle challenging problems.

b. The way that design thinking has been included into our curriculum has greatly affected my objectives for this program. It has given me a mindset that emphasizes adaptation, sensitivity, and curiosity while tackling problems. I've learned how to approach problems from a human-centered viewpoint thanks to design thinking, which has improved my capacity to recognize and successfully meet the needs of others.

c. I understand the value of developing both my technical knowledge and soft skills in order to maximize my potential in the field. I intend to actively look for opportunities for practical experience and the implementation of design thinking principles outside of the classroom when I've mastered the course material.

Task for each member:

(Awa)

- To understand user wants and pain areas, thoroughly investigate the problem domain.
- Work together as a team to generate original ideas for solutions and add fresh perspectives to the brainstorming process.
- Take the initiative in prototyping and use your imagination and technical know-how to create concrete versions of suggested ideas.
- To improve team performance and inform future projects, document the whole design thinking process, including reflections on lessons learned, problems addressed, and opportunities for development.

(Almaha)

- Take the initiative to conduct user observations and interviews to obtain in-depth knowledge about the demands and habits of users.
- Lead brainstorming sessions, enticing team members to participate, and creating a cooperative atmosphere to produce creative ideas.
- Prototype solutions using innovative problem-solving strategies, combining technical know-how with creative ideation to make notions a reality.
- To support the team's overall learning and development, keep thorough records of the design thinking process, including reflections on difficulties encountered, accomplishments attained, and lessons gained.

References:

- Barker, J., & Liedtka, J. (2018, September). Why Design Thinking Works. Harvard Business Review. https://hbr.org/2018/09/why-design-thinking-works

- Nielsen Norman Group. (n.d.). Design Thinking: Get Started with Empathy. Retrieved from https://www.nngroup.com/articles/design-thinking/

- MIT Sloan School of Management. (n.d.). Design Thinking Explained. Retrieved from https://mitsloan.mit.edu/ideas-made-to-matter/design-thinking-explained

- Think with Google. (n.d.). Design Thinking Principles. Retrieved from https://www.thinkwithgoogle.com/intl/en-emea/future-of-marketing/creativity/design-thinking-principles/

- Hotjar. (n.d.). Design Thinking: The Ultimate Guide. Retrieved from https://www.hotjar.com/design-thinking/