INTRODUCING DESIGN THINKING TO IDENTIFY TEACHER AND STUDENT NEEDS

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Abstract

In a university setting, teachers noticed that students in an intensive English program had low motivation and commented that they felt that they were still in school. In another instance, teachers showed signs of burnout and complained that the workload was too much and that the students were too demanding of their time. In a third instance, staff were stressed and tired all the time. To address these problems, teachers and administrators worked together and followed the design thinking process to identify the cause of each problem, and to come up with effective solutions. According to Stanford University, "Design thinking is a methodology for creative problem solving." It is a human-centered approach focusing on the needs of the user. Design thinking (DT) has been growing in popularity among educators as an instructional tool to teach students teamwork and problem solving. However, DT can also be used by administrators and educators to solve problems, address needs, and redesign programs and curricula. The five stages of DT are as follows: 1) "Empathize" by conducting interviews and research to gain insights into the specific needs of the people who are experiencing the problem, the users; 2) "Define" the problem and identify the needs. 3) "Ideate" for innovative solutions and select the optimum solution; 4) "Prototype" the solution; and 5) "Test" the solution by getting feedback from the users in order to make modifications. Following this process allows for an in-depth understanding of the needs faced by those experiencing the problem. By using DT, educators and administrators can uncover hidden challenges and feel empowered to discover creative solutions. In this session, the presenter will demonstrate how DT can be used as a framework to identify and address the needs of students, teachers, and staff in educational settings. Examples of the problems, the steps followed, and the solutions reached will be shared. The presenter will share practical recommendations, and engage the audience in a discussion to explore further applications of DT. Participants will gain practical insights into incorporating the DT methodology into their everyday life. Questions from the audience will be welcome.

Keywords: Design thinking, leadership, management, problem-solving.

1. Background

Problem solving is a skill that is necessary in the workplace, and it is essential when dealing with challenges, such as stress and dissatisfaction, whether it be among students, instructors, or staff in an academic setting. This paper will discuss several case studies, such as that of staff who are stressed and dissatisfied with the culture of the department, students with low motivation, and teachers who show signs of burnout. To address each of these problems, teachers and administrators worked together and followed the design thinking process to empathize and identify the causes of each problem, and to come up with effective solutions tailored to the specific needs of the people who were experiencing the problem.

2. Design thinking (DT)

2.1. Design thinking background

According to Stanford d.school (2018), "Design thinking is a methodology for creative problem solving." It is a human-centered approach focusing on the needs of the user. Design thinking (DT) originally started in the business world and is used in many industries and disciplines (IDEO Design Thinking, n.d.) The DT methodology has been growing in popularity among educators as an instructional tool to teach students teamwork and problem solving skills, in addition to creativity and innovation (Bruijnes et al., 2024). However, DT can also be used by administrators and educators to develop more empathy when solving everyday problems, addressing needs, and redesigning programs and curricula, thereby becoming "design-inspired leaders" (Gallagher & Thordarson, 2018).

2.2. Design thinking stages

According to the Stanford d.school, the five stages of DT are as follows:

1. "Empathize" by conducting interviews and research to gain insights into the specific needs of the people who are experiencing the problem, the users.
2. "Define" the problem and identify the specific needs.
3. "Ideate" for innovative solutions and select the optimum solution.
4. "Prototype" the solution by creating a draft.
5. "Test" the solution by getting feedback from the users in order to make modifications.

Following this process allows for an in-depth understanding of the needs faced by those experiencing the problem. By using DT, designers can uncover hidden challenges and feel empowered to discover creative solutions.

3. Design thinking applications

Design thinking can be used by administrators and educators to identify the problems faced by the staff and students and to come up with innovative solutions that address the specific issues.

3.1. Solving staff problems

One such example occurred when staff in an academic department at a university were showing signs of burnout and increased levels of stress and dissatisfaction. The design thinking challenge was initiated by the department administration as they wanted to create a motivating environment for their employees. They believed that motivation impacts the productivity of faculty, staff, and students, and that motivated community members can have a positive effect on others. A sample challenge statement for this situation is as follows: How might we design a human-centered work environment that inspires motivation in a culture where success is highly valued.

The participants in the design challenge were employees from within the department and they were divided into several small groups. Each group was assigned a coach to walk them through the stages of DT to design solutions for this statement. The five stages of DT were followed.

3.1.1. Empathize. This stage of the process allows the participants (designers) to gain a common and deep understanding of the problem by analyzing the challenge statement. This is achieved by identifying the keywords from the challenge statement and discussing the deep meaning of these words and concepts.

Example 1. Word analysis of the challenge statement.

How might we design a <u>human-centered</u> work environment that inspires <u>motivation</u> in a <u>culture</u> where <u>success</u> is highly valued.

Words and their meaning as identified by the participants
- human-centered: sense of belonging to a group, diversity, recognizing needs, emotions
- motivation: showing appreciation for one another, team work, community, fulfillment, balance
- culture: clear goals, clear direction, beliefs
- success: result-oriented, competitive, do your best, number 1

The next step is to prepare interview questions that target the concepts expressed in the challenge statement, such as how they feel about the work-life balance, their sense of belonging to the department, the value of their contributions, the extent of appreciation for their efforts, the strength of the relationships, and suggestions for changing or improving the work environment. The participants conducted interviews with people working in the department and took notes on the information they gained.

3.1.2. Define. After the interviews, the designers meet to share their findings, and they take it in turns to tell the rest of their team about the stories they got from their interviewees. This allows all the team members to learn from each other. They "unpack" the interviews by writing short notes on each point that came up in the stories. They compile the notes, reorganize the ideas, and group the related concepts into clusters.

Example 2. Unpacking and organizing information from the interviews into three clusters.

1. Motivating environment	2. Relationships	3. Balance
• Good boss (friend, helps retain employees) • Has the sense of "we" • Feeling appreciated • Motivating environment impacts own happiness • Good manager: encouraging, not critical; values development of staff • Feeling heard	• Fewer opportunities to meet have impacted relationships • Desire staff appreciation initiatives • Want the return of monthly meetings • Want a physical place for informal meetings with co-workers	• Connected all day, every day • Physically exhausted • Wish for more realistic deadlines • More "me" time • Better work-life balance • More attention to physical well-being

Drawing on the insights gathered from the interviews, the participants prepare their problem statement which outlines the main challenges they will focus on. They use the following template: ____ (User) needs a way to _____ (verb) because … (insight: why the problem is important?) (Gibbons, 2019).

Example 3. Problem statement.

Our user needs a way to connect with others, achieve work-life balance, and foster a sense of belonging because she feels isolated and burned out, and desires a motivating work environment that supports personal and professional growth.

Using the ideas from the initial challenge statement word analysis (example 1), the findings from the interviews (example 2), and the details of the specific problem statement (example 3), the participants come up with a series of How Might We questions to generate creative solutions (Rosala, 2021). These questions follow the template: How might we … (find solutions to each problem identified). They should focus on the problems identified, be open-ended and broad enough to allow for a variety of creative solutions, and should not guide the participants towards specific solutions.

Example 4. How Might We statements.

1. How might we enhance the work environment for our user so she can reduce feelings of isolation and connect with others?
2. How might we help our user achieve work-life balance?
3. How might we help our user achieve a sense of belonging?
4. How might we foster a motivating work environment and reduce burn out?
5. How might we achieve a work environment that supports personal and professional growth?

3.1.3. Ideate. The third step in the design thinking process is to brainstorm for creative solutions to each of the How Might We questions. This stage can be challenging as we seek creativity and innovation, and participants are encouraged to come up with as many ideas as possible, to refrain from judging the ideas, and to seek new and unusual ideas. It is advised to begin this brainstorming individually, and then to share suggestions with the group and try to build on the ideas of others to come up with even more ideas. One activity that can facilitate this is putting yourself in the shoes of a different person or a different company. In this activity, participants take on different roles and consider how they would solve the problem if they were … the department chair, a student, a faculty member, the CEO of a company, etc. The solutions the team generate are then compiled.

The team work together to narrow down and select the most impactful solutions. To make it easier to manage all the information, the ideas are clustered into themes.

Example 5. Samples of brainstorming ideas clustered into themes.

Theme: Sharing
Arrange regular activities for staff to bond and develop relationships, such as ice breaker activities, organized discussion groups, activities for different interests and hobbies, time to share feelings and thoughts, weekly informal social gatherings, coffee hours, walk and meet, scheduled breaks.

Theme: Motivating space
Make available suitable areas for staff meetings and activities: open spaces, outdoor working spaces, comfortable office design, lounge area, welcoming space with refreshments.

> Theme: Communication
> Organize regular surveys to gauge motivation levels, share experiences, get input on future plans, exchange feedback, conduct colleague evaluations, plan occasions to express gratitude and appreciation to colleagues.
>
> Theme: Social gatherings
> Extend the relationships outside the office by organizing trips, sports competitions, family gatherings, visits to concerts, retreats, celebrations of special occasions.

Participants then select the solutions they wish to take to the next stage. To determine the most widely supported ideas, they can vote for their top 2-3 solutions using stickers. The ideas that receive the highest number of votes are chosen to move forward to the prototyping phase. If resources are limited, priority can be given to solutions that are both impactful and relatively easy to implement.

3.1.4. Prototype. This stage requires the designers to create a draft of the solutions that they want to implement. This could include a physical or digital prototype, a video, a sketch of a space, a schedule of events, a poster or flyer advertising an event, etc. The participants chose to create a list of activities to implement immediately, and it was agreed that the ideas will be revisited in two months to assess their success and make any additions or modifications as necessary.

Example 6. Draft plan of activities.

> Theme: Sharing
> Arrange weekly informal social gatherings: every Thursday from 1-2 pm.
> Every week, two staff members will organize a topic for discussion or an activity. A signup sheet will be created to document the names of the organizers and the planned activity.
>
> Theme: Motivating space
> Reserve the department meeting room every Thursday from 1-2 pm. Put in a request for colorful cushions and several additional chairs, in addition to tea and coffee supplies.
>
> Theme: Communication
> Create a message board to encourage the sharing of ideas and suggestions.
>
> Theme: Social gatherings
> Schedule a monthly outing to celebrate special occasions on the third Saturday of each month. Reminders will be posted on the newly created message board.

3.1.5. Test. The final stage of the DT process is to present the solution to different people from the user base to get feedback on what they like and elicit suggestions for modifications. The team shared the draft plan of activities with their department and collected feedback to answer the following questions: What worked well and should be kept in the plan? What new ideas should be added? The suggestions were then evaluated by the team and they agreed on the modifications to be made. The plan was updated accordingly.

3.2. Reflections

It was interesting to note that, in this example, the majority of the solutions generated focused on social interaction and the work environment. There was little focus on the work load or the type of tasks required, which was surprising. This served as a significant reminder of the value of a positive environment where employees feel supported and valued. The proposed solutions were relatively easy to execute as many of them simply required some reorganization and time investment. This example shows the value of following the DT process and spending time empathizing with the user to ensure the correct problems are identified. The following two examples also support this concept.

3.3. Solving Student Problems

In the above example, DT was used to solve problems faced by staff. The DT process can also be used to solve problems faced by students. In a university setting, teachers noticed that students in an intensive English program had low motivation and often commented that the program made them feel that they were still in school. The students were together for five classes per day, and, initially, administrators

made assumptions that the students would want to attend classes with different groups of students in order to feel more like university students. This schedule redesign had been attempted in previous years but had proved to be logistically challenging. After following the DT process explained above, it became clear from the empathy interviews that the students cherished the friendships they made when they attended all their classes with the same group of students. They did, however, want class timings that matched those of their friends in other programs, more opportunity to meet other students so they felt less isolated, and a schedule involving changing classroom which allowed them to feel they were entering a new environment.

3.4. Solving Instructor Problems

DT is also useful in solving instructor challenges. In a language program, teachers showed signs of burnout and complained that the workload was too much and the students were very weak and needed a great deal of individual attention. Assumptions were made that the teachers would want to reduce the number of assessments, discuss the cut off scores for accepting students into the program, or teach different subjects. After following the DT process, it turned out that they really wanted more opportunities to share ideas with colleagues and discuss creative ways to solve problems. They also wanted to reduce the number of program-wide deadlines so they could have more freedom in pacing and setting their own deadlines so they could better address the weaknesses of their students.

4. Conclusion

The DT framework offers a structured, yet flexible framework that can be used to tackle any problem in any context. Examples of problem statements include everyday problems faced in the classroom, such as How might we improve student engagement, or improve team communication skills. The problems can also be broader, involving a whole department or school, such as How might we modify teaching techniques to adapt to the age of AI. Following the steps of design thinking can make it easier to make sense of complex problems.

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