

# Students' Perceptions on Mentoring Experience for Design Thinking Course

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**Abstract** – This article explores the perceptions of 84 bachelor students who are enrolled in a Design Thinking course at a private university towards the involvement of mentors from the industry. Data was acquired via online survey that was distributed to the students at the end of the course to investigate the effectiveness and the impacts of mentoring sessions in assisting their Design Thinking course. The findings suggest that students have positive perceptions towards the mentoring process. This is evident through the positive means from the survey. The students also mentioned that they learned communication skills, business vision, analytical and problem solving skills as well as self-confidence from their respective mentors. The findings reflect the effectiveness use of experts from the industry to guide novice learners as part of learning process.

**Keywords** – Mentoring, Design Thinking, Teaching and Learning, Creative and Critical Thinking, Problem Solving Skills.

## I. INTRODUCTION

The issue of unemployment in Malaysia is not a foreign debate as the society continues to exchange views on this predicament. In today's vast advancement in technology and competitive world, it is imperative that graduates today develop skills that weren't required before (Shute and Becker, 2010). A news article published by News Straits Times in June 2019 scrutinises on several reasons why Malaysian graduates find it's difficult to find a job. One dominant aspect is the lack of creativity and problem solving skills among the graduates. According to NST Education (2019), the lack of opportunities for students to develop their critical and problem solving skills can be attributed to university's subjects and courses that do not encourage creative thinking. To counter this, several tertiary institutions have introduced Design Thinking course as part of the curriculum to foster students' creative and critical thinking. Design Thinking is a course that encourages students to provide new innovations based on existing problems. A Forbes article written by Ursrey (2014) highlights on the benefits of enrolling in Design Thinking courses particularly the organised steps in providing solutions which are crucial and greatly beneficial in work force.

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## Design Thinking

Design thinking is defined as “analytic and creative process that engages a person in opportunities to experiment, create and prototype models, gather feedback and redesign” (Razzouk and Shute, 2012, p.330). Design thinking is often used in different domains such as engineering, business and most recently, education. Evans, McNeill and Beakley (1990) mentioned that design is often regarded as the most important component in engineering and graduate engineers should be able to design solutions that meet social needs. Design thinking is also important in business setting that it is becoming a priority to for business companies to have design leaders (Dunne & Martin, 2006). As mentioned by Razzouk and Shute (2012), design thinking is bringing positive effect to the education domain in different fields of study as the students not only have to read materials critically, but they also have to reason and solve problems. These skills are enforced through design thinking course.

There are five main steps in Design Thinking which are discover, define, develop, deliver and iterate.



Figure 1.0: Five Steps in Design Thinking Course

These steps illustrate the process of Design Thinking course throughout the semester. For the first step, discover, the students are required to brainstorm on some of the existing problems. To help the students to brainstorm these problems, the Sustainable Developmental Goals (SDG) is used. After finalising the problem, the students have to provide substantial research and reading regarding the problem. This includes both primary and secondary research. Define is referring to the stage which the students are asked to define the problem statement. During this stage, students will have to provide a Design Challenge proposal and present it to the instructor. Develop is the stage which mentors from the industry will be appointed to assist students with their ideas. The next stage is deliver which the students will have to make prototypes to aid their delivery. Lastly, for iterate stage, the students have to present their ideas with the aid of the prototype and collect feedback from the audience using Feedback Grid. This allows the students to revisit and rethink on their idea with the objective to improve on their current solution. Through these five steps, the students are able to foster critical and problem solving skills at the same time, improving their presentation skills as they have to go through a few series of presentations to convince their ideas.

## II. PROBLEM STATEMENT

To assist with the students' idea, students are paired with a mentor with the industry to help them building and

visualising the idea. The main objective of this mentoring experience is to have a different perspective from the industry and help improving the applicability of the idea according to current existing solution available. At the same time, from the involvement of the students with the mentor, it is expected for the students to practice essential communication skills and professionalism when communicating with the mentor. Therefore, to evaluate the effectiveness of mentoring experience, the following research questions are formulated:

1. What are students' perceptions towards mentoring sessions for Design Thinking?
2. What are the areas in which the students benefited the most from the mentors for Design Thinking?

### III. LITERATURE REVIEW

Ever since Design Thinking has gained reputation in 21<sup>st</sup> century education, much academic research is centred around the processes in Design Thinking and its essence (Liu, 1996; Stempfle and Badke-Schaube, 2002; Owen, 2007). There is very little published research on one particular stage of Design Thinking and its effectiveness. In this section, the essence of Design Thinking will firstly be introduced based on previous literature. Then, a short discussion regarding mentoring which is done in one of the stages in Design Thinking will be explored.

#### *Essence of Design Thinking*

As briefly mentioned before, Design Thinking comprises of certain processes. These processes can be defined and applied differently according to different scholars. However, the essence of the processes is the same. Instead of the five steps used in the private university as illustrated in Figure 1.0, Razzouk and Shute (2012) categorised Design Thinking processes into three: 1) preparation, 2) assimilation and 3) strategic control. During the preparation stage, students need to think on the solutions by focusing on the problem. Throughout this stage, the skills of situation assessment and elaboration are used. The second stage is assimilation which students are rationalising their solution by collecting data and getting feedback from experts. Lastly, the final stage which is the strategic control which students are required to evaluate feedback, adapt and improve their designs. In both of opinions, Design Thinking processes have almost the same essence. In the middle of the processes, getting an expert opinion is crucial for Design Thinking.

#### *Mentoring in Design Thinking*

Mentoring is not a foreign concept in education. It is often used in workplace or internships (Ehrich and Hansford, 1999) regardless for any kinds of field. It allows the mentor who is an expert to guide the younger protégé or sometimes referred as mentee. Similarly, the same concept applies in this Design Thinking course. Cross (2004) defines expert as a result of dedicated time and work in certain field. The main difference between the expert (mentor) and protégé (mentee) as mentioned by Razzouk and Shute (2012) is that experts have years of experience that include different

problems and solutions in that specific field. Hence, theoretically, mentoring allows the exchange of knowledge through guidance. Razzouk and Shute also argue that expert (mentor) and protégé (mentee) think differently; therefore, the exchange of knowledge between both mentor and mentee would greatly benefit both parties.

### IV. METHOD

#### *Participants*

This study involves 84 students from Design Thinking course at a private university in Nilai. These students are bachelor's degree from different programs such as Bachelor of Accountancy, Bachelor of Business and Bachelor of Engineering. This course is a compulsory subject under the Mata Pelajaran Umum (MPU) Department. Hence, students from all fields of study have to enrol in this subject as a graduation requirement.

#### *Survey*

At the end of the course, the students were required to answer an online survey that investigates their covert perception towards the mentoring sessions for this course. The survey consists of three sections. The first section consists of 16 statements which the students have respond using five-point Likert Scale with 1 as strongly disagree and 5 as strongly agree. The second section provides 4 checkboxes which the students have to answer their medium of communication and areas which they benefited and would like to learn from their mentors. The last section provides an open-ended question which the students are able to provide feedback about their mentoring sessions.

#### *Cut-off Point*

Considering that a five-point Likert Scale was used in this study, the cut-off point is 3.000. This means that values higher than 3.000 were considered as more positive perception, whereas any values less than 3.000 were considered as less positive perception.

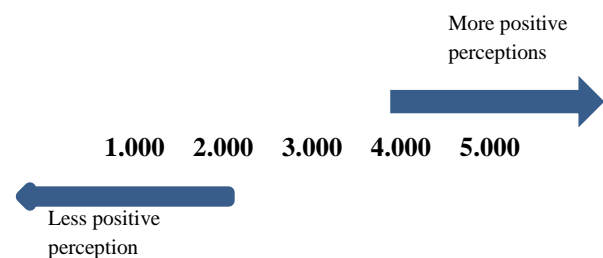


Figure 2.0: Cut-off Point for the Survey Questions

### V. FINDINGS & DISCUSSION

To answer the first research question, the means and standard deviation from the online survey are calculated and tabulated in Table 1.0 below.

TABLE 1. MEANS OF SURVEY QUESTIONS (N=84)

No	Statement	Mean (N=84)	Std. Deviation
1	I really enjoyed my sessions with my mentor.	4.0482	0.9094
2	My mentor helped me throughout the process of Design Thinking.	4.1446	0.9257
3	My mentor is easy to contact with.	4.2771	0.7701
4	I think my mentor is really inspiring.	4.0964	0.8781
5	My mentor possesses knowledge about our solution/project.	4.1084	0.8556
6	I couldn't ask for anyone else to help us with this project.	3.3855	1.2671
7	My team managed to arrange at least two meetings with our mentor.	4.0000	1.1153
8	My mentor is very approachable.	4.1446	0.8283
9	I consider myself to have a good and professional relationship with my mentor.	4.1084	0.8412
10	This mentoring experience allows me to experience the working life in the industry.	4.0121	0.8624
11	My mentor helped our team with our Design Challenge proposal.	4.0241	0.9367
12	My mentor guided our team with the Business Canvas model.	4.0964	0.8354
13	I learn to apply the theories that I learned in class through the mentoring experience.	3.9277	0.8523
14	My mentor is an expert in the solution/project that we're working on.	4.0361	0.8329
15	I agree that our mentor should rate our performance for this Design Thinking course.	4.0000	0.7963
16	I think this mentoring experience is necessary and one of the important elements of this course.	3.9880	0.9304
<b>Overall Mean</b>		<b>4.0249</b>	

As seen from the table above, it is evident that most of the students had positive perceptions towards the mentoring experience. This can be reflected from the high average values (more than 3.000) in all 16 questions in the online survey. The overall mean for all 16 statements is 4.0249 (N=84). This indicates that the students rated highly on the mentoring sessions. Out of the 16 statements, the highest mean is Statement 3, "My mentor is easy to contact with" (Mean= 4.2771). This indicates that the students have no problems communicating with their mentor. In Section 2 of the survey, the students were required to specify the mode of communications that they did with their mentor. The following table summarises the modes of communications between the students and mentor.

TABLE 2.0: PERCENTAGE OF DIFFERENT MODES OF COMMUNICATION (N=84)

No	Mode of Communication	Percentage (%)
1	Email	61.4
2	Whatsapp Group	68.7
3	Face-to-Face Meeting	71.1
4	Skype	7.20
5	Zoom	7.02
6	Others (WeChat)	1.20

For this question, students are allowed to choose more than one answer. It is interesting to note that the highest mode of communication is having face-to-face meeting which is 1.1%. Whereas, the mode of communication that is least used is "others" which is 1.2%. When asked to specify, the respondent responded "WeChat". Both Whatsapp Group (68.7%) and Email (61.4%) interactions are the two quite common ways of communicating between the mentor and students. Not only that, the other two online video conference options which are Skype and Zoom have almost the same percentage, 7.2% and 7.02% respectively. This is an amusing finding as the students would still have face-to-face meetings with the mentor even with the options of having the meetings online via video conferencing tools such as Skype and Zoom.

To answer the second research question, the findings from the second section of the online survey was utilised.

TABLE 3.0: AREAS THAT THE STUDENTS FEEL MOST BENEFITED FROM THE MENTOR (N=84)

No	Area	Percentage (%)
1	Communication Skills	82.9
2	Career Development (Networking and branding myself)	41.5
3	Business Vision	57.3
4	Analytical/Problem Solving Skills	56.1
5	Personal Attitudes towards Learning and Working	43.9
6	Self-confidence	50
7	Professional Development (Being punctual, following dress code, etc.	34.1

From the table above, it can be derived that the students felt that from the mentoring experience, they benefited the most in terms of communication skills. It constitutes of 82.9% which is the highest percentage out of the seven areas. In contrary, the lowest percentage is professional development which constitutes of 34.1%. This align with the findings for open-ended questions in Section 3 of the online survey. The

students mentioned that they gained communicative skills from the mentoring process.

“Improve my communication skills”- Student 31  
“Improve my language”- Student 57  
“Nothing wants to change. My mentor is the best”-  
Student 14

One student also suggested to add more activities with the mentor. This suggests that the students enjoyed the mentoring session with the mentors and would like to spend more time with them. However, one student also suggested to have the mentor to come to the campus. Transportation could be a barrier to this. This should be taken into consideration for future reference.

## VI. CONCLUSION

In conclusion, this study found that most students found mentoring experience positively. This is reflected from the relatively high and positive average scores from the online survey. All of the statements used in the survey scored more than 3.000 which is the cut-off point. From the survey as well, it is found that students still met their mentors to face-to-face meetings even though that the online options such as Skype and Zoom are available. However, the students still have used other online platforms such as email and Whatsapp group for communication. The study also found that students gained communication skills through their interactions with the mentors. Not only that, they also developed their analytical and problem solving skills as well as improved their knowledge in business vision. Not forgetting, the students also expressed that they acquired self-confidence through this mentoring session for Design Thinking course.

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