INVESTIGATING THE USE OF ONLINE TEAM COLLABORATION PLATFORMS IN IDEATION SESSIONS DURING THE COVID-19 PANDEMIC: AN EXPLORATORY QUALITATIVE STUDY

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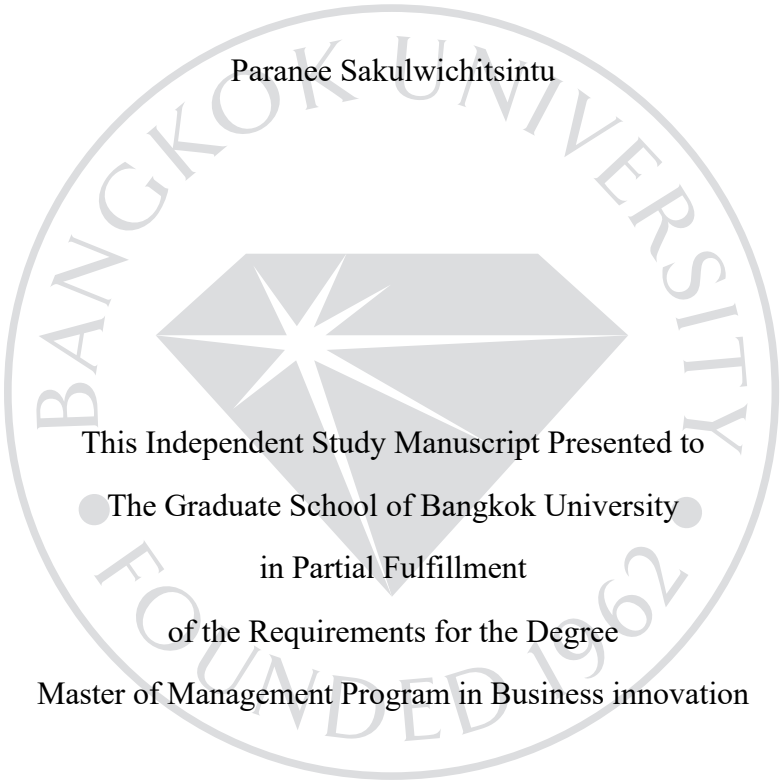
Paranee Sakulwichitsintu



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ABSTRACT

In the current situation, most of everyone has changed their behavior and lifestyle due to COVID-19. People have changed their working style. Some people can work anywhere. Some people work from home to prevent the spread of germs. As for students, learning styles have also changed. Learners study anywhere and learn from home where people can communicate or work together as a medium in a network connection. Most people are learning and collaborating online. Everyone has quick access to resources and can connect to the platform for work. Moreover, everyone can communicate using the meeting platform via video. In addition to talking or chatting on the video conferencing platform, it has been found to be shared with the collaboration platform in case all participants can participate. Therefore, the researcher sees the attractiveness and differences in behavior and lifestyle changes according to the times and situations. I think that access to data sources or information from end-users can be beneficial to those who need to develop the platform or even facilitators who need the information to prepare before starting a session. The situation had changed from the past when everyone was able to carry out the activities face to face. Nowadays, everyone can only look at the screen and talk to others. That is the reason to know the difference between face-to-face idea generation and online ideation on a collaborative platform and to know the advantages and disadvantages of an ideation session. This independent study is an exploratory study that uses a qualitative approach to collect data by directly interviewing end-users and experts involved in the topic. They have experience participating in an ideation session both

offline or face-to-face and online formats using online collaboration and communication platforms. Most ideators share their opinions on the issues and benefits. The Facilitator side has their own opinions on the issues and benefits same as the ideator result. Ultimately, both facilitator and ideator opinions chose to do brainstorming in an offline ideation session as the issue of interaction still mattered.

Keywords: Ideation, Offline ideation, Online ideation, Ideation and brainstorming, Online collaboration & ideation, Organizing creativity session, Online team collaboration platform

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Paranee Sakulwichitsintu

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CHAPTER 1
INTRODUCTION

1.1 Background (Problem Statement | Intention of Study)

The COVID-19 situation occurred during the time the researcher started the study (Adedoyin & Soykan, 2020). Many people had to come back to work from home or even study. It was changed from the original. Most people need to travel to work more flexibly. People have the time to be independent of travel, life, or even work because they can work and learn anywhere and whenever they want, which is relevant to today's technology.

As a student or modern knowledge worker, you need to have the skills to use technology to carry on with your life because today's technology tools help run smoothly and successfully and help facilitate. It is convenient for everyone during this time. In some companies, it is found that online team collaboration platforms such as Zoom, MS Teams, or Google Meet are used for meetings and discussions. However, it was found that in addition to the discussion or implementation of activities or steps in creating results, there are often different methods or formats for each company to help generate ideas or conclusions that can be drawn to develop and solve problems that arise today.

Online collaboration platforms are widely used to facilitate teaching and learning and enable learners to understand how to use the tools and learners can have the additional skills to utilize today's technology effectively (Mačiulienė & Skaržauskienė, 2016). Miro is an example of a widely used platform and practitioners use it to interact during ideation sessions to come up with good ideas and ultimately adapt to the product development of each project with outstanding features and fun to use. It can also interact with others during thought and inspire users more from use, but there are often gaps in thinking during ideation sessions because of the time limit

and the topic. It is sometimes difficult to generate additional ideas for reasons such as feelings or emotions that cannot be stimulated or driven by thinking. It may reduce productivity or even other factors that often occur during ideation sessions and affect the previous activities. However, Adrian et al. (2020) found when meetings were required everyone would be able to attend in the meeting room, comment, and record results by writing ideas on a whiteboard or even jotting down notes on paper and using the post-it and putting it on a whiteboard to illustrate each idea from all participants when discussing. Participants have direct and immediate interactions with distinct differences from the online collaboration platform because the experience and the preliminary information are already known and available today. This study's subject is to study and collect information for further development and the benefit of people. Everyone can use this information to develop their platform within the organization or even in the classroom or for the benefit of individuals by conducting an exploratory qualitative study by interviewing end-users both ideators and facilitators who use online collaboration platforms and tools for online ideation sessions. A platform to help in teamwork that is not much literature or studies related to this topic in Thailand but might be beneficial to the public.

1.2 Research Objective

This research study was inspired by hands-on experiences gained from using the online team collaboration platform in a Thai university of master's degree classroom in an ideation session for idea generation. Various and valuable ideas to solve a project and implement it in order to come up with an effective product. Therefore, choosing the tools, ideas, techniques, and methods that can help facilitate online ideation sessions given the current situation where teaching and learning are already online and seeing the appeal of adopting an existing online collaboration platform. It is currently adapted to project work during the ideation process, so it is

interesting to study more facts and insights on the benefits and problems of using this type of platform and discuss the issues or factors that affect the production of practical ideas. The number of ideas gathered is reduced since there are not many other studies on this subject to be studied at present and interested in taking it as inspiration for research to get it into the information for the manufacturers or users to use and study the facts of the existing data or documents and insights from real users to come to clear conclusions. Other reasons for the study's data were also inspired by seeing and being cognizant of the rough benefits of using the platform to interact with others or between people during the activity can also talk and exchange ideas, decorate and create information or documents or tasks, save additional information or documents automatically and help create more creative ideas; that is why the author of this study got interested in this topic.

Consequently, the author has researched the many different types and forms of online team collaboration platforms available today for all the above reasons. Some genres that people talk about are well-known, but others that exist are not very popular. In the preliminary data, the researchers note the use or fundamentals of an online team collaboration platform called Miro, which is often used for group work or to work on specific projects that require brainstorming or collecting ideas from everyone to achieve the best result and to apply the opinions or ideas of all participants to create a piece of the project. When it comes to brainstorming or expressing ideas during the current times of the pandemic, it has been difficult compared to traditional brainstorming, which can manage or bring good and bad ideas to develop and implement. Therefore, the researchers speculate that the platform will benefit other users and it’s interested in collecting data for the benefit of others in the future.

1.3 Research Questions

1. What are the critical differences between face-to-face ideation versus online ideation (on a collaborative platform)?
2. What are the main advantages and disadvantages of doing ideation on collaborative online platforms compared to face-to-face interaction?
3. How does the shift from face-to-face ideation to online ideation platforms affect the following users?
    1. Facilitators of ideation sessions?
    2. Ideators (participants in an ideation session)?

1.4 Scope of Study

The scope of this study is related to online collaboration platforms that can be used for online Ideation. This study also examines the scope of the research involved in both face-to-face and platform-based idea generation. A tool to facilitate online ideation sessions in this work-from-home era and include relevant, practical data from both online collaboration platforms and offline ideation. People think traditionally within a group, either in class or by conducting ideation sessions on projects from current literature and other available sources to collect additional information from real users or experienced users of the use of or conducting ideation sessions in the modern era, this study provides preliminary information on the key variables that will be important to the change in the amount of production. The idea of this session's information helps define the scope of the variables to be studied and initial research on the situation by collecting user and data. A review of the relevant literature to determine the main variables occurring in it directly impacts online and offline collaboration. The comprehensive study of information is to obtain facts that can be referenced and valuable to those who wish to develop a platform with similar characteristics or benefit both users and creators. Even facilitators of activities during

ideation sessions adapt and develop for more effective results, which can benefit those developing a platform similar to platforms discussed in this research. This will recognize the problems that arise during ideation sessions in the form of insights. It is not easy to collect information or find information from public sources and know the advantages and disadvantages. This leads to developing further those tools to facilitate teaching and learning in the current era that has changed and discusses the differences during ideation sessions where all participants working together in the same place can see face to face and get to know each other in an offline collaboration. After COVID-19 emerged, the situation changed. Online team collaboration platforms are getting more and more popular, and people are starting to adopt them in their daily lives to collaborate with others. Developers will be able to find differences or valuable information to improve and modify. Users can get more ideas and lead further implementation and developments in the future.

CHAPTER 2

LITERATURE REVIEW

2.1 Innovation Process Methods for Ideation Sessions in Innovation Projects

The paper dealing with transcending conventional ideas in innovation projects discusses how most innovation projects end with conventional ideas. Innovation teams think it is a waste of time to do innovation projects. Furthermore, He misses the opportunity to develop meaningful and different ideas. The real reason may be the inefficient selection of innovative process methods with a single creative process step. The innovative process of structured creative thinking emphasizes the need for a systematic but distinctly different process. (Reis, 2016) For example, the Creative Problem Solving (CPS) Model from Osborn (1963 [1953]) and Parnes (1963) has six steps: 1) Objective finding, 2) Fact-Finding, 3) Problem finding, 4) Idea finding, 5) Solution finding. 6) Acceptance finding is just one creative step. Other examples of frameworks that use a single creative step include IDEO, an industrial design company, and an innovation firm that uses a three-step "Design Thinking" process: inspiration, ideation, and implementation. Design Thinking also proposes a one-stage conceptualization phase, and the Swiss innovation company Idea Machine aligns with other innovation processes. There are four steps: 1) Amassing, 2) Extraction, 3) Selection, and 4) Preparation. The document focuses on the first two steps, "Amassing," focusing on creating insights and ideas. There is a creative workshop as the main creative activity, and the second step is "Extraction." There are three sub-stages: Idea, Idea Bank, and Concept Design. and the last example is X-IDEA's innovative approach to innovation has a five-step process: 1) Xploration, 2) Ideation, 3) Development, 4) Evaluation, 5) Action, and has two distinct creative steps, in the Ideation and Development stages, and Birch & Clegg (2002) Idea Development Framework consists of four steps: 1) Understand the problem 2)

Generating the ideas 3) Select from the ideas and refine them 4) Prepare for selling and implementing ideas and the Bragg framework. & Bragg (2005) Idea Development Process consists of 1) Seeking and shaping opportunities, 2) Generating new ideas, 3) Evaluating & selecting ideas 4) Planning for implementation. In VanGundy (2007) "Getting to innovation" framework, there are four steps: 1) Innovation framing, 2) Idea generation, 3) Evaluation and selection, and 4) Implementation. All the above, it can be seen that, overall, the innovation process method focuses primarily on examining and framing innovation challenges, followed by the creative phase in which ideas are generated and, in all respects, the innovation process. They have one step in common: the process of conceptualization or directly related to the idea. Using a single creative process step in an innovative approach made it difficult for participants to adhere to the law of idea generation. The fundamental rule of non-judgment and thought is destroyed, and as the number of ideas increases, gives it quality and can come up with ideas that include weird and funny ideas and bring ideas together and make them better. Furthermore, a common problem that arises when innovation program participants and their facilitators use a one-step innovation process approach: During idea generation, participants were more likely to judge their ideas relative to their actual practice when single nonsense aspired (Diehl & Strobe, 1991), and tended to prefer only "normal" concepts." Safe " and "realistic," also known as "ordinary," and judge unnatural thoughts, reducing the overall number of thoughts. The problem arises if thought generation takes the form of brainstorming, because of the inefficiency of brainstorming over other methods of generating ideas (such as brainwriting). which involves achieving the primary purpose of generating ideas and producing many ideas. (Diehl & Strobe, 1987 [1991]) In addition to brainstorming, it is inferior to other techniques for generating many ideas. Another reason is that brainstormers tend to refrain from suggesting more unusual ideas for fear of being personally judged by other group members, which is a significant negative factor concerning 'disruption.' In addition, the issue of the phenomenon of

comprehension assessment is exaggerated in the collective culture where people fear "losing faces" in front of senior supervisors and co-workers (Kainzbauer, 2013). This is especially problematic against the background where almost all innovation process methods are developed in Western cultures and tend to Ignore the existence of cross-cultural barriers to certain procedural mechanisms, and the last general problem is that all creative techniques are used only for the generation of ideas, without further discrimination (e.g., De Bono, 1992; Michalko, 2001; Clegg & Birch, 2002; Hudson, 2007). However, using creative techniques can work well for generating new ideas. At the same time, others have focused on improving existing ideas (e.g., Osborn (1963 [1953]). After experimenting with the sequence of alternative creative processes, the researchers suggested that the solution to these shortcomings lies in separating two different stages of the creative process.

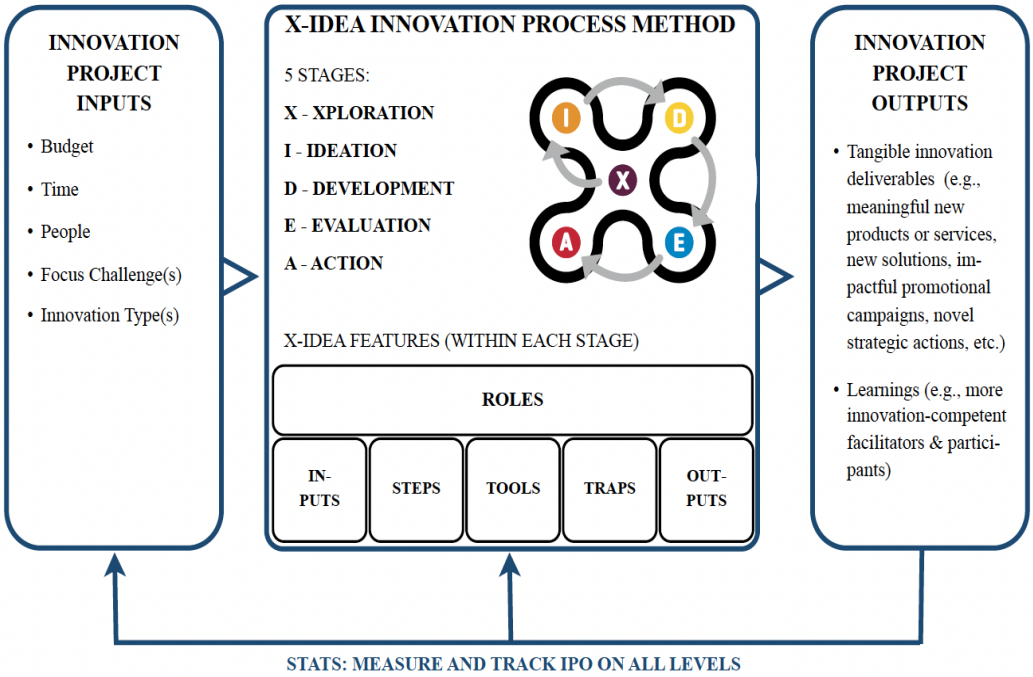
On the other hand, the literature review also found some common deficiencies in other papers on the existing process approaches for innovation and creative problem solving: Many processes suggest using a single core creative step. This is a problem that arises during conceptual attempts. Most of the participants immediately judged their thoughts on practicality. Moreover, it only suggested "normal," "safe," and "realistic" concepts. The concept creation process goes against Osborn (1963 [1953]), which talks about creating the idea that creative appointments should be an opinion or idea. It all comes out as a wild and crazy idea, and in many ways, the methods used in innovation projects tend to neglect and focus solely on the organization of inputs-throughputs-outputs because executing an innovation project at different stages tends to be messy and obscure, facilitators and participants often forget to be aware of the inputs they need to use to initiate a particular step or activity and the outcomes between them. The implementation of an activity or between steps ultimately results in what quantity and quality are required before moving on to the next step of the process, and besides that, there are many shortcomings related to the previous point, i.e., the process innovation. The method has not systematically tracked

and measured the inputs, throughputs, and outputs at different stages of process flows, and failing to measure the IPO correlation systematically misses the opportunity to understand the relationship between input and output in order to help increase the quality of output and system performance over time (Deming, 1964), and the next point is the incomprehensibility when it comes to the sequential tooling of the process of using the cognitive toolkit to achieve objectives and results and what happens next. Some popular innovation process methods support only one type of innovation or a limited number of innovations. This particular focus prevents those methods from turning to other types of innovation within the various types of modern innovation described by (Keeley et. al., 2013). The next point discusses how innovation processes work well in Western cultures, but it also neglects the existence of cross-cultural barriers to specific procedural mechanisms in the framework, particularly on Asian cultural fear of losing face (Kainzbauer, 2013). I think Asian participants were reluctant to present the sensational ideas for fear of losing their faces, and, finally, the vast majority of innovation process methods were not considered systematically and prevented general cognitive bias (Kahneman, 2012) and process traps. (Osborn, 1963 [1953]) has resulted in misinterpretation and ineffective results. Based on all the above shortcomings (Reis, 2014), X-IDEA's process flow is introduced with a total of five main stages of the process of generating ideas in innovative projects and showing special methodological design features. This tool is used in conjunction with facilitators to guide the work of the innovation project team with a focus on inputs.

Procedures and activities, traps, tools, and outputs will be very useful in producing innovations to achieve better and larger productivity as defined in the scope of each project and focus on the innovation outputs. From issues on cultural topics, The Facilitator invites participants to perform each role while working on one of the steps in the X-IDEA process, and with this form of the tool, the facilitator is ready before Participants will go through one of the stages of X-IDEA. The X-IDEA method input features are ready to work in the next step. The X-IDEA process and

activities will lead participants to engage in different thinking or convergence and broad or narrow thinking, and facilitators can be informed of the journey of innovation projects. X-IDEA Tools include today's analytical thinking and creative tools. However, at the same time, X-IDEA also has traps to keep participants wary of cognitive biases and the familiar process traps that await innovation teams in the final stages. The resulting outputs of X-IDEA are by assessing the results of identifying, monitoring, and measuring in which X-IDEA innovation process methods are implemented by IPO principles such as input-process-output factors. I have provided an example of the X-IDEA framework to describe IPO-based innovation project planning (Reis, 2014):

Figure 2.1: The Five Process Stages of X-IDEA



Source: Reis, D. (2014). X-IDEA: The structured magic of systematic innovation. *ISPIM Asia-Pacific Innovation Forum*.

2.2 Ideation as the Pivotal Creative Stage in Innovation Process Methods

2.2.1 Creativity Techniques and Activities for Ideation

2.2.1.1 Creativity techniques

Leopoldino, K. D. M., et al. (2016) describes the most cited creative techniques in the analysis such as Brainwriting created by Rohrbach (1969), followed by Brainstorming by Osborn (1963), and Synectics by Gordon (1961) are the top three most citations. Moreover, creative techniques can also be distinguished from 6 characteristics: Application, Type of Thinking, Average Session Time, Operating criteria, Material Resources, and Approach. The characteristics of the application are used both individually and in groups. Types of ideas in brainstorming sessions that use different creative techniques have both different results as convergent and divergent. The average session time refers to the time spent in each creative session. Principally, creative techniques will take a long time until the work is done but some techniques only use approximately 30-60 minutes. The Operating Criteria describe how the idea works in the creative session followed by exploration, combination, transformation, and validation. Material resources are the materials used for the creative process. This method refers to the classification of creative techniques of Couger (1995) and Schlicksupp (1999). The conclusion of the technical analysis is revealed that the main objective is to apply creative techniques in group work. In these 9 creativity techniques, there are techniques that cannot be used for personal use including Storyboarding (Vance, 1982), Synectics (Gordon, 1961), Brainwriting (Rohrbach, 1969), and Lateral Thinking (De Bono, 1970). As for convergent thinking, only Lateral Thinking (De Bono, 1970) was not used. Three techniques were not used for the different types of thinking such as Morphological Analysis (Zwicky, 1969), TRIZ (Altshuller, 1984), and Force Field Analysis (Lewin, 1947). In addition, the mean time of using creative techniques. Five techniques have no time limits for their

use: Synectics (Gordon, 1961), Morphological Analysis (Zwicky, 1969), TRIZ (Altshuller, 1984), Lateral Thinking (De Bono, E., 1970), and Force Field Analysis (Lewin, 1947). For other techniques, application time varies from 10 minutes to 60 minutes, according to Amabile (2012). Time is a critical factor for creative efficiency. As a rule, it is recommended that this factor be stressful. Little or moderate, but sometimes there should be moments that evoke a sense of urgency for the participant in the creative process. Moreover, creative techniques have four criteria for assessing their performance: exploration, integration, validation, and transformation. The four available techniques, the Six Thinking Hats (De Bono, 1970) and the Synectics technique (Gordon, 1961), use three criteria and one or two other criteria between them, and material resources are generally easily accessible, such as Cards, slates, sheets of paper, as the resources required for the application of the technique must be readily available daily.

Table 2.1: Most Cited Creativity Techniques

CREATIVITY TECHNIQUES	AUTHOR	NUMBER OF CITATIONS
Storyboarding	Vance (1982)	2
Morphological Analysis	Zwicky (1969)	3
Lateral Thinking	De Bono (1970)	4
TRIZ	Altshuller (1984)	5
Six Thinking Hats	De Bono (1970)	5
Force field analysis	Lewin (1947)	5
Synectics	Gordon (1961)	13
Brainstorming	Osborn (1963)	23
Brainwriting	Rohrbach (1969)	28

Source: Leopoldino, K. D. M., González, M. O. A., de Oliveira Ferreira, P., Pereira, J. R., & Souto, M. E. C. (2016). Creativity techniques: a systematic literature review. *Product: Management and Development, 14*(2), 95-100.

Table 2.2: Analysis of Creativity Techniques

Creativity Techniques / Characteristics	Storyboarding Vance (1982)	Synetics Gordon (1961)	Morphological Analysis Zwicky (1969)	TRIZ Altshuller (1984)	Brainwriting Rohrbach (1969)	Six Thinking Hats De Bono (1970)	Lateral Thinking De Bono (1970)	Force Field Analysis Lewin (1947)	Brainstorming Osborn (1963)
Application	Collective	Collective	Individual and Collective	Individual and Collective	Collective	Individual and Collective	Collective	Individual and Collective	Individual and Collective
Type of Thinking	Divergent and Convergent	Divergent and Convergent	Convergent	Convergent	Divergent and Convergent	Divergent and Convergent	Divergent	Convergent	Divergent and Convergent
Average Session Time	30-45 min.	Until task completion	Until task completion	Until task completion	30 min.	60 min.	Until task completion	Until task completion	10-60 min.
Operating Criteria	Exploration and validation	Exploration, combination and validation	Exploration and transformation	Exploration and validation	Exploration	Exploration, combination, transformation and validation	Combination and transformation	Exploration and transformation	Exploration and combination
Material Resources	Cards	No material	No material	No material	Blank sheets	6 colorful hats	No material	Blackboard	No material
Approach	Analytical Technique	Associative Technique	Analytical Technique	Analytical Technique	Associative Technique	Analytical Technique	Provocation Technique	Analytical Technique	Provocation Technique

Source: Leopoldino, K. D. M., González, M. O. A., de Oliveira Ferreira, P., Pereira, J. R., & Souto, M. E. C. (2016). Creativity techniques: a systematic literature review. *Product: Management and Development, 14*(2), 95-100.

2.2.1.2 Types of idea generation activities

There are two types of idea generation activities: 1) Individual idea generation forms, such as asking friends for ideas. Look for both relevant and unrelated stimuli, such as pictures, words, or objects, or even mix and match the individual elements of the problem. In addition, exaggerating or relying on each of the previous concepts also produces other ideas. Thinking back on some aspects of the problem creates a different perspective; It depends on the brainstorming method or the brainwriting method. Brainstorming is the generation of traditional verbal ideas in groups, and brainwriting is quiet and written thoughts. (VanGundy, A. B, 2005). VanGundy also demonstrates basic idea generation activities, most of which are in a mix between groups and individuals. Alternatively, one that is only suitable for group collaboration involves brainstorming and brainwriting. Most of the collaborative brainstorming activities are intended to help participants learn how to generate ideas for the event and develop creative ideas as creatively as possible. There are small groups of 4-7 people, and in some cases, six people. It takes about 20-90 minutes, with some periods including time to prepare before starting the activity. In addition, the materials used in the activities include 4x6 Post-it, Masking tape, markers, flip

chart, pen or pencil, music, books, newspapers, magazines, dictionaries, pictures, balloons, rooms with various items, prizes for the Winner, notebook, foam ball, chair, rope, paper, cardboard, water bottles and in the last section where VanGundy discussed after the event. There was a section on the participants' motivation, perspective, Time constraints, emotions and feelings during activities, insufficient knowledge of activities, fear of judgment, discrimination, and ridicule in expressing opinions or sharing ideas.

2.2.2 Factors Affecting Facilitation During Ideation

2.2.2.1 Facilitator techniques

VanGundy discussed that doing group activities requires understanding and knowledge of working with others on the team to develop ideas. The techniques used by the facilitator are: 1) Determine the number of groups that should be five people in the event, which is the size of a group of people to create a common idea that is most suitable for solving everyday problems. Nevertheless, if doing activities together, four people are suitable for working together in a training style or working in groups that work with skilled facilitators. Alternatively, even doing activities together for 6-7 people often have to work under the exact requirements. 2) Make it clear that all groups understand how to work together with the basic rules of deferral. To create an environment where everyone has fun and fosters playfulness and humor. The nature of humor and laughter often allows for more ideas to be generated. 3) Organize as many activities during the collaboration as possible in the available time. Different activities may produce different ideas as well. Nevertheless, it depends on the experience and personality of the individual on the team.

Meanwhile, there is a platform called Triggers, a modern teamwork tool to explore all the physical and digital workshop tools recommended for facilitators within the platform. A facilitator can accomplish a team or tasks in progress, so a

good facilitator must lead a team efficiently and organize meetings well. They should also increase awareness and focus on the main points. Also, since each meeting or session needs to be organized systematically, having aids such as tangible tools to organize events and techniques you can do when designing a session. Traditional physical facilities often use whiteboards, paper, and post-its, but other objects such as balloons and blocks can also be used to get creative with these materials. It has been transformed into a virtual session where it is now essential to showcase some of the tools to manage an online workshop. The basic physical materials required to set up these are a computer or laptop and a camera. In addition, other educational tools that facilitate the conduct of the session include tools that help in meetings or tools that help in organizing activities. However, the facilitator can choose to use equipment or tools for organizing physical and digital activities or can be combined. In addition, the skills facilitators should possess are listening, asking, problem-solving ability, conflict resolution ability, participatory style, neutral point of view, and empathy.

2.2.3 Factors Affecting Productivity Loss During Ideation

Diehl & Stroebe (1991) conducted four experiments to identify factors affecting the productivity and efficiency of creative group work to test the preparation process of things that can reduce the negative impact. His experiments in all four trials were as follows: 1) In the first experiment, they compared working hours from the given group and the whole group for different periods with the average number of thoughts and good thoughts. To present the key factors that affect the brainstorming block. 2) The second experiment compared average thought from the given group and the entire group under different speaking time constraints and assessment expectations. 3) The third experiment tested average thinking with a brainstorming group under different communication and waiting conditions. 4) The fourth experiment tested the average number of ideas of the brainstorming groups compared with note-taking and non-note taking. They concluded that the efficiency in the

brainstorming group was lower. Group members had less time to speak than the individual brainstorming subjects because the group members were less productive than the participants. In each session, because each member would interfere with each other's ideas, this effect would likely decrease over time as the participants in each session became thoughtless. In Experiment 1, there were indications that the thought production of the group and individual brainstormers over the same period compared to the same hours of work, there was no difference in the duration of the available speech. For each person, compared to groups, there was no effect on the difference in productivity, and experiment 2 supported the results of experiment 1 that the difference in duration of speech did not result in a decrease in productivity or a difference. However, the key difference between the actual situation and the identified group is that the individual brainstorming or discussion content can present their ideas, but when brainstorming in a group, one must wait for the participants to end it first. The time it takes to wait for one's opinion to be presented is a detriment to the loss of productivity within the brainstorming group. Bouchard & Hare (1970) supported the conclusion that the loss of productivity is due to a lack of inspiration or loss of motivation, and when compared to the productivity of a brainstorming group, it appears that working with 5-9 additional team members tends to lose more productivity than larger team members. increased by 3-4 people. Based on the hypothesis of the factors contributing to the loss of productivity in this group, the authors think that most thought generation delays during conception and waiting for the conversation to an end reduces group work efficiency. Previously, the reason that being prevented from expressing one's thoughts at the time of the thought may cause a reduction in thought formation for some reasons like, when after hearing the thoughts of others, the group members may suppress some ideas they wish to present as they may be less relevant or less innovative in terms of the ideas other members reveal during the mobilization this idea. In the third experiment, it was concluded that the negative impact of communication was due to its distracting quality rather than

allowing the reassessment of one's thoughts when the personal highs from the get other people's ideas. Therefore, they cannot cope with the increased stress and cannot use that opportunity to record information during the brainstorming session effectively. Even if they did not hold back their thoughts while waiting for the conversation, they might have forgotten the thought. In order to avoid forgetting those thoughts, they had to rehearse their thoughts, thus blocking any other thoughts that would arise and being unable to generate additional ideas during the wait. Because waiting time cannot be left because the time for brainstorming is limited. Waiting to present or report one's ideas and rehearse prevents one from generating new ideas, so the research suggests that journaling may be an alternative to liberating their thoughts. However, research suggests that journaling is not an effective alternative to storing thoughts in short-term memory, especially in group conditions, because it is slow and time-consuming. It is also possible to develop a more efficient capturing of external ideas through computer communication. Furthermore, as mentioned above, it confirms that group discussions affect the quality of thought. Finally, the researchers commented that we generally think of group work as an effective tool for generating ideas. This statement is because people enjoy working in groups more than alone or individually. The researchers compared that if the motivation was a problem and time costs were not the primary focus of the idea generation, group work was well suited to this idea. Because the motivation received from working in groups can be harvested in small groups. However, there is also a downside: as the number of group members increases, the process of brainstorming increases as well. Other reasons for this are people's beliefs that having more people at work is better and that working with more people is more productive and thought-provoking than a smaller group. Moreover, I think that it will be successful. This is the same name for the idea that two heads are often better than one.

2.3 Modern Communication and Collaboration Platforms

2.3.1 Collaboration during Ideation and Brainstorming

people tend to express their opinions during ideation sessions in the collaboration part. In the meantime, good collaboration usually comes from many people having good ideas and creativity (Hatcher et al., 2018). The most widely used method for generating creative ideas in groups is brainstorming. According to one study, there are four types of brainstorming rules applied to concept sessions, based on Osborn's approach that focuses on the volume of ideas. Avoid criticizing whether the idea is good or bad. In addition, it must come from unique ideas and accept unusual and new ideas. Thus, group concept formation is effective (Van, Daalhuizen, & Van, 2013). However, some factors affect the thought formation process: fear of making decisions. Others judge their thinking (Isaksen & Gaulin, 2005; Paulus, 2000) and inequality. For example, agreeing with different opinions or are some people more entitled to their opinions than others (Paulus, 2000; Stroebe, Nijstad, & Rietzschel, 2010). The next factor that influences creativity is rejection or fear of rejection. Listening to the opinions of others or not allowing creating or raising some issues that could be developed or solved. It also includes making decisions to discriminate against one idea too quickly and blocking others from immediately expressing their opinions or having to take turns preventing them from expressing their opinions at that moment (Diehl & Stroebe, 1991; Nijstad & Stroebe, 2006).

To work together, each person must express their opinions or have their opinions shared. Creative ideas often come from many people or more than one person. However, organizational creativity is directly involved as it requires cooperation from many parties. One person cannot have enough knowledge to solve all problems. Therefore, it is imperative to work with experts to acquire knowledge or methods that can be quickly and easily solved for their intended purpose (Sorli & Stokic, 2009). Collaboration comes in two forms: 1) traditional settlement

collaboration where all participants are in the same place simultaneously, and 2) remote collaboration. This means working as a virtual team where members rarely interact with each other due to distance or time discrepancies. Therefore, participants will only be able to communicate with each other through information and communication technologies (Nemiro, 2004; Wilson, Scalise, & Gochyyev, 2015).

In one study, it was described that Physical and geographical separation between teams. Social and cultural differences between people Differences in time zones affect communication and collaboration, problem-solving, trust, and among other factors that influence project success (Da Silva, Costa, Franca, & Prikladinicki, 2010), which is also tied to a remote collaboration model that uses a virtual platform that is essential for communication between team members. It usually has a form similar to communicating with others but only requires an internet connection and simultaneously joining the platform. Moreover, this kind of communication that must be done through asynchronous communication causes a delay between data transmission and data reception. It is similar to the form of sending and receiving emails.

In summary, no matter the form of communication, communication processing methods significantly influence the success of the collaboration. The challenge of different collaborations is creating the necessary atmosphere for the creative process. This challenge is even more critical than in the case of remote collaboration because an atmosphere of collaboration should be created through a digital environment (Sorli & Stokic, 2009), communication styles or methods are crucial to collaboration success. This will lead to creative collaboration. Other factors addressed in other studies included study preferences (Nemiro, 2004), creative styles (Ray & Romano, 2013), and workflow characteristics.

Some systems help support collaboration, known as Group Support Systems (GSS), Computer-Supported Cooperative Work (CSCW), or Single Display Groupware (SDG). The collaboration support process is divided into two parts: 1)

communication is divided into clear communication and information gathering 2) coordination consists of sharing, access, and transfer (Gutwein, 2013). It has encouraged creativity. However, these tools are also essential for remote collaboration. This is because each participant needs to communicate with one another to exchange ideas and lead to creative ideas, and work method is a factor that influences outcomes (Nemiro, 2004). Work to progress and achieve creative techniques, such as using different digital devices from wall displays. Interactive table, interactive whiteboard cameras, or even mobile devices. In order to facilitate the individual group members (Sundholm et al., 2004 & Gutwein, 2013), the form of collaboration in the form of interactive tables helps team members work together to the fullest. Various conversations were going on. It also reveals other concepts or this form of exploration of other people's perspectives. Moreover, information is shared equally among group members (Jones et al., 2011).

2.3.2 Brainstorming and Brainwriting for Ideation

2.3.2.1 Brainstorming

In group Brainstorming, four or five people may be generating ideas simultaneously, with some brainstorming activities structured to minimize some of the negative consequences that will lead to failure (VanGundy, A. B, 2005). Osborn (1957) also referred to brainstorming as a group solution. This will significantly increase the quality and quantity of ideas generated by group members. However, brainstorming has a translator that reduces productivity, or the number of ideas generated even then. Taylor and Faust (1952) concluded from one gaming test that Group brainstorming is better than individual, but even man-minutes are necessary for problem-solving. The efficiency of individual work is superior to that of a group. However, on the other hand, they think that if hours, weeks, or months have passed, the group should deal with the problem. Because there are many types of problems that groups can resolve more quickly than individuals, Diehl, M., & Stroebe, W.

(1987) conducted four experiments to test different types of brainstorming. It concluded that the type of session had a profound effect on brainstorming in production. Their assessment is not only based on the three interpretations of productivity loss. It is not just answering how evaluation apprehension, free riding, and blocking effect brainstorming in production. However, it cannot be concluded these processes are the leading cause of loss of productivity because, in this study, the model has not been tested to combine all three in the design. At the end of the study, three processes were summarized as follows: 1) To find the impact of cognitive assessment on productivity brainstorming, it was found that the knowledge of a colleague or judge assessed one's performance. One in a group reduces the number of ideas produced in individual brainstorming sessions, but our efforts to encourage understanding of individual and group assessments did not reduce differences in performance between sessions. Nevertheless, they found more from the following experiment when looking for answers. Assessment comprehension was not the brainstorming group's leading cause of performance loss. There is little difference in hearing each other's ideas in brainstorming in production. However, because the adopted brainstorming model was intended to free the group members from the effect of suppressing criticism from other group members, this led to the conclusion that brainstorming group members were not effective at suppressing energy efficiency and social exclusion. 2) The cost of personal assistance (e.g., effort, money, time) was an important determinant of motivation. In free ride and others to be equal 3,) blocking slows down the generation of ideas in groups. Periods of delay due to blocking prevent them from developing new ideas. Ultimately, short-term memory storage is quite limited, and a person can only retain a small number of ideas at any given time, Diehl, M., & Stroebe, W. (1987). Working in a group brainstorming group would improve if group members were allowed to write their ideas, and there were also factors where the blocking effect could be a difference in duration. That can suggest ideas. There was little indication that group members did not have enough time to

express their thoughts. Even in group sessions, the volunteers often had no idea at the end of the specified period. Time limits affect brainstorming. When speaking in terms of interpretation of the blocking of situational needs, if an individual is given a moment when they need to pitch an idea on a particular topic, they tend to feel the need to continue the activity for the most part. Furthermore, doing such tasks is less complicated for group members than for participants in individual sessions. While group members can relax and allow others to speak on the topics they want to talk about, if the time runs out, people have to add time by themself, or if it is quiet when no one talks, it may make you feel more embarrassed in individual sessions, where subjects are less self-blame than group sessions where responsibility is shared.

2.3.2.2 Brainwriting

Group brainwriting can generate more ideas than brainstorming. Because when we respond verbally. We often do not get the results we are supposed to. We judge an idea when we think it is wrong, and thoughts are suppressed when we think about what others will think of our thoughts; we are deprived of issues. Moreover, in brainwriting in a group model, only one person can speak in the brainstorming group (Diehl & Stroeb, 1991; Vangundy, 1993).

2.3.3 Communication and Collaboration Platforms in General and for Ideation

Employee collaboration as a team within an organization is associated with tertiary student collaboration due to the consistent communication style of collaborative software most often used. In bringing communication and collaboration applications into the education of schoolchildren, it has been found that the advantage of the application or platform is that it can integrate and enhance learning and increase the opportunity to create mutual knowledge. Meanwhile, online communication and collaboration are must-have skills. Both skills will improve team project management and open the door to creativity in collaboration.

A collaborative innovation network (CoIN) is a type of collaborative innovation practice that makes use of the internet platforms such as email, chat, social networks, blogs, and wikis to support communication and innovation within self-organizing virtual teams. Another benefit of this study is that communication-assisted collaboration also includes creating knowledge of computer-based collaboration that goes beyond the boundaries of personal cognition (Stahl, 2006).

In one study, gender differences were a factor in technology adoption or accessibility as attitudes towards computers differed between women and men. For example, men were more likely to be interested in technology. Moreover, they are more confident in their technical skills and are keen on using technology than women (Anderson, Lankshear, Timms, & Courtney, 2008; Broos, 2005).

In education, collaborative technology can create a wider community. Anyone or all parties can share various experiences. To exchange knowledge with each other, which will meet the needs and satisfaction of learners more. In addition, the use of technology for collaboration helps inspire innovation. and increase educational leadership.

According to studies and research such as Maican, C. I., Cazan, A. M., Lixandroiu, R. C., & Dovleac, L. (2019), there are 12 categories of online collaboration and communication application usage, with the most popular being Google Drive, Mendeley, Office 365, Dropbox, etc. These applications can be grouped by key features into categories such as:

1. Email,
2. Online Document Management Google drive/Office 365/Dropbox
3. Project Management Application Asana/Trello/Basecamp. /Samepage
4. Communication / Chat application with file management: Slack/Mattermost/HipChat/grove
5. Video collaboration: Zoom/MS Teams/Google Hangouts/Skype

6. Social networking application Organizations / Organizations: Yammer/Podio/eXo Platform
7. Brainstorming, Mind Mapping Whiteboards, and online notes are Miro/Mural/IdeaFlip/Mindmeister/Nuclio/XWiki/Evernote/Google Keep
8. Source code management applications are Github/Phabricator
9. Social networks for research and education are ResearchGate/Academia.edu/Mendeley
10. Common social networks: Facebook/Twitter/Google
11. Professional social networks: Linkedln/HR.com
12. E-learning applications: Moodle/ATutor

In addition, Maican, C. I., Cazan, A. M., Lixandroiu, R. C., & Dovleac, L. (2019) concluded that collaborative platforms in education are most often used to access information or knowledge. In the future, it will be developed to focus on experiences and conversation styles, which reduces theories and facts less. It increases opportunities for expanding communication channels to deliver digital education. The challenge is to have specific skills. Its function is to provide an immersive experience through multiple channels enabling knowledge management in terms of problem solving and innovation. In the future, everyone will be able to understand the work and learn more in small groups. The opportunity to lead a small group comes together more efficiently. New business models will be born. The challenge depends on the increased workload pressure from smaller groups. Its function is to enable a meeting environment for deep exploration and collaboration. Facilitate content creation and project and student management Employment is likely to focus on skills needed for future employment, including networking, presentation, adaptive thinking, professionalism, and increased communication opportunities. Being aware of the collaboration platform will be a requirement. However, the point is to have a one-on-one live experience. The function of this collaborative platform is to help open a wide range of employment paths and situations with follow-up and mentoring

opportunities. In the self-improvement section, students will seek or make an impact through leadership in the future teamwork and social skills within an ethical framework. Moreover, there have the opportunity to have more privacy which is usually obtained "on the job" through participation and in an environment where "Less control" is its duty in self-improvement.

Provides a virtual learning experience with more social interaction. Part of the location and sense of belonging Students continue to look for life-stage experiences that come from unity and everyday culture in cities and regions and encompass future international students. Moreover, there will be opportunities for better regional services and brilliant campus delivery of international students. In integrated experience the challenge is to create a brand differentiation point. The collaboration platform serves as a bridge of distance and provides access to high-quality education everywhere. It provides an opportunity to differentiate and create an online university culture of ownership. In addition, research and development will play a more significant role in collaborative networks in places and fields. More innovation and integration of automation in research and development are required. Everyone will have access to complex information and networks. It is overcoming the distance and dealing with managing team dynamics, discipline, and project management. The platform helps to facilitate team coordination, collaboration, and project management expanding connections and networking relationships. Data integration and analysis of industrial participation in the industry focuses on priorities for collaboration in a "true" industry, rather than just partnerships and opportunities to integrate different perspectives and ideas facilitating academic independence difficulty is the accurate integrated/expanded way of working. The platform tool will help manage the time of knowledge sharing to be up to date.

The use of platforms and applications to work as a framework for different purposes. They are mainly divided into six categories: 1) Writing and Presentation Tools, 2) Surfing and Communication Tools, 3) Course Management and

Assessment Tools, 4) Learning and Sharing Tools, 5) related applications, and 6) Audio-visual Document Development Tools.

An overview of popular online collaboration platforms and tools for communicating ideas during online Ideation sessions is offered in Appendix B of this study.

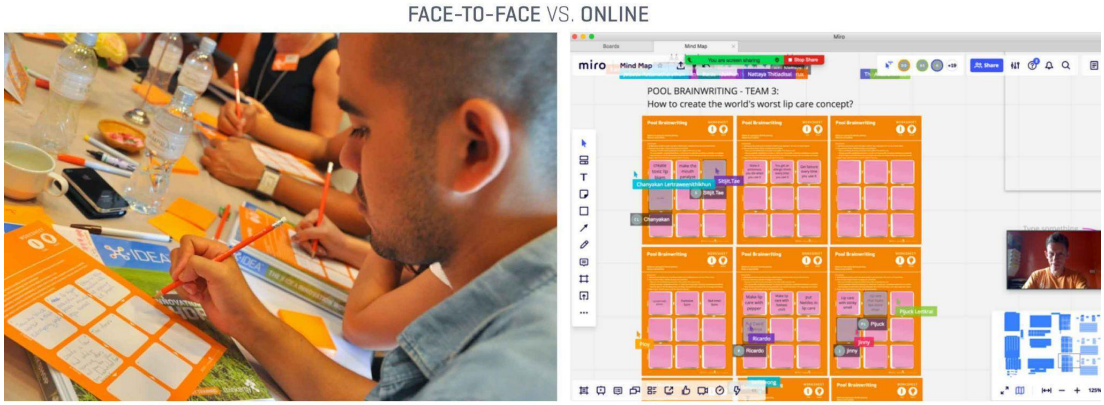
2.4 Online vs. Offline Ideation

2.4.1 What's the Difference When Doing the Ideation Session Online or Face-to-Face

In an article published by an Asian innovation and ideation company, Reis (2021) discusses the difference between online and face-to-face collaboration, which discusses different working styles after COVID-19. The form of working in companies has been modified to be more flexible and less restrictive of needs for work within a company. You can work from home and anywhere, which has impacted teaching and learning from where students can talk face-to-face. It has been converted to online learning. He found that there are tools to make online sessions less boring and fun to learn online and facilitate students and learners to be creative in completing the ideation sessions. In the article, Reis gives an example of sharing ideas online and face-to-face with others that we typically use post-it in real life to help lead the media or information we receive come out in the form of concrete, but when you have to work remotely or have to work online, we, therefore, needed alternatives to facilitate more intelligent management. He gave an example of the existing online collaboration platform such as Google Slides, which allows presentations or reports that everyone involved can collaborate on at the same time. There are also more sophisticated online collaboration platforms such as Mural.com or Miro.com, where online collaboration can be complex if users are distracted and waste time from having to go in and out of the virtual sub-group room or useless discussions about what to do and how to do it,

resulting in teams not being productive enough. In addition to making Ideation sessions online, it is necessary to map out the purpose of the session to produce the idea, and the amount of thought needed or expected must be determined in advance to collect everyone's thoughts effectively. In addition, Reis' article describes both the Ideation session experiments and outlines the findings of this comparison trial. This compares the total number of fundamental ideas generated, and this article discusses tips or methods for making practical ideation sessions and the number of fundamental ideas generated. Reis also takes the time factor into account that was set up to be used to test the production of ideas as well. In conclusion, it was found that time, participants, and the tools chosen affected generating ideas.

Figure 2.2 Face-to-Face VS Online



Source: Reis, D. (2021). How to run inspiring ideation sessions online. Retrieved from http://www.thinkergy.com/2021/07/15/how-to-run-inspiring-ideation-sessions-online/

2.4.2 Face-to-Face Ideation VS Online Collaboration Platform

Christoph (2016) of HYPE explains the basics of online and offline idea generation in a workshop that offline ideas workshops usually have 5-25 people. Spend 2-8 hours doing activities outside the company or in the idea lab and a relaxed

atmosphere. Overall, offline activities allow for fun and interaction with the audience. Another easy one where most techniques are used is Brainstorming, Brainwriting, and Innovation Digging, which is the dedication of the participants' time and the number of ideas in a short period, but of a limited size while requiring effort in organizing and in group activities. The Offline is full of unique and different people and often ends abruptly, where the conclusion of the offline generation of ideas comes out in the form of Sticky use notes, whiteboards, and paper. He also gave an example of Brainwriting as generating ideas in small groups specific to a given topic on a piece of paper and with limited time rounds for individual brainstorming. After the first round, the other participants' ideas are often given as inspiration. For example, the 6-3-5 method is six people, three ideas, 5 minutes, and 108 ideas in 30 minutes. Most online thought generation involves broadcasting a specific challenge or business opportunity to a large group of people who provide an online platform for users to participate in within 2-4 weeks. Community empowers and revitalizes ideas by generating ideas online with a scalable group format. There is a wide variety of participants, and many ideas and parallel participation ideas remain in the archive. In addition, creating ideas online allows participants to interact with others less and less time-consuming.

The online collaborative tool for ideas has a creative process categorized primarily as a problem, concept, and corrective action. In terms of the idea of the creative process, Typically, different and coherent works work together to create and evaluate ideas across six criteria: 1) idea-collection is the use of creative techniques' templates and functions; 2) organization. Conceptualization is the rearrangement of ideas into relationships, types, and hierarchies; 3) Concept development is the collection of existing ideas and identifying details; 4) Concept evaluation is the evaluation of ideas to find the most promising ideas. The tools needed to enable the following two tasks to link the virtual world to the real world; 5) Saving the result is creating a file for archiving and 6) Communication is the use of a voice communication channel. Direct /video for group interactions during concept sessions.

(Deckert, C.,Mohya, A., & Suntharalingam, 2021). Based on the above description, Deckert presents a comparison table of ten tools and assesses them according to their functions required to support online collaboration, as illustrated in (Figure 2.3), which concludes that there are simple tools such as Ideaboardz or Mindmeister with less functionality. which can be used as an introduction to the field and vice versa. There are comprehensive tools such as Miro, Conceptboard, or multi-functional murals, which can meet the advanced needs but need more control skills. In the above research, an experiment was conducted in 5 groups of 25 students to brainstorm ideas on a self-selected problem to design everyday objects and to have students present a solution. With the fundamentals of creative problem solving and creative techniques, Students showed familiarity with easy-to-understand creative techniques, and three-quarters of them had already participated in brainstorming sessions, which was reflected in various self-assessments. The result was that students liked easy-to-understand techniques such as Brainstorming and often used these techniques to generate ideas. The students used two tools chosen by the teacher: Simple tools (Ideaboardz) to collect ideas and more complex tools (Miro) to facilitate other processes such as sorting and assessment. After the brainstorming session, explore further to find out which form of brainstorming, either traditional or online, students prefer. Based on the assessment results of 25 students who participated in the program, 19 The questionnaire found that most students preferred traditional brainstorming over electronic brainstorming. 48% of students thought they were creative when generating ideas alone, and 54% thought they were creative when brainstorming in groups when using electronic brainstorming. Individual and group brainstormings were 32% and 12%, respectively, compared to offline brainstorming. They also found that an electronic brainstorming session was 55% more fun and achievable. It was easier in 66% and promoted creative comprehension in 40%, which is better than traditional brainstorming (32%, 20%, and 32%, respectively). The same, but they still know the advantages of online tools. Nevertheless, students may

generally continue to assess brainstorming based on their habits and the need to gain more experience with new tools for meaningful assessment (Figure 2.4).

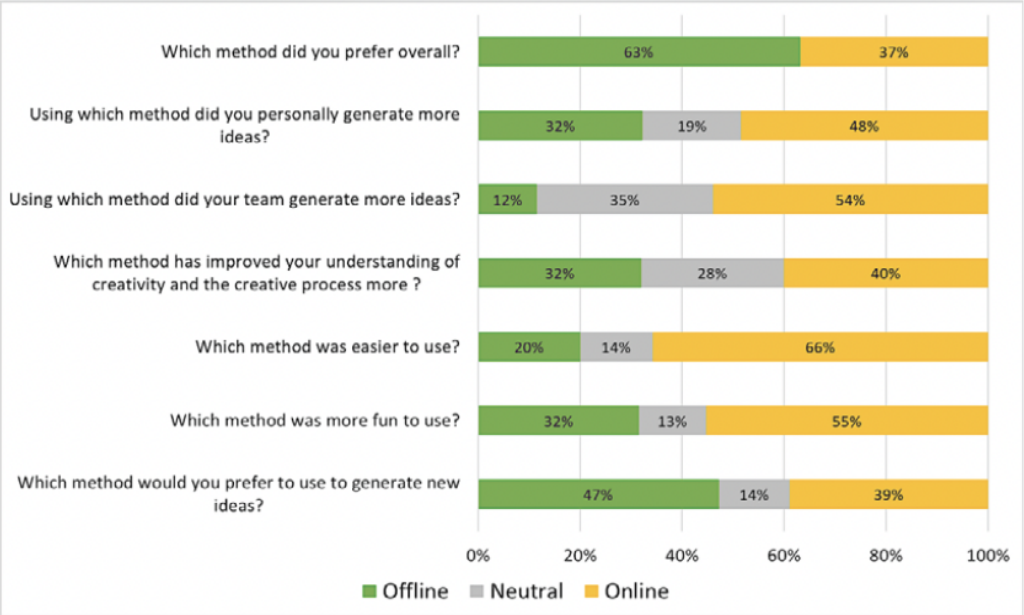
Figure 2.3 Digital Whiteboard

Process	Functions/Templates	Digital Whiteboards									
		Collarboard	Conceptboard	Ideaboardz	Limnu	Lucidspark	Mindmeister	Miro	Mural	Padlet	Stormboard
Capturing ideas	Brainstorming	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Brainwriting	✗	✓	✗	✗	✓	✗	✓	✓	✗	✗
	Mindmap	✓	✓	✗	✗	✓	✓	✓	✓	✗	✓
	Six Thinking Hats	✗	✓	✓	✗	✗	✗	✗	✗	✗	✓
	Synectics	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
	Visual Synectics	✓	✗	✗	✗	✗	✗	✓	✓	✓	✗
	Morphological Box/Matrix	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
	TIPS (Contradiction Matrix)	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
	Business Model Canvas	✓	✓	✗	✗	✓	✗	✓	✓	✗	✓
Sorting ideas	Relocate/Shift Notes	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓
	Arrows/Connecting Lines	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
	Clustering/Grouping	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓
Developing ideas	Sketches	✓	✓	✗	✓	✓	✗	✓	✓	✗	✓
	Pictures/Fotos	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
	Additional Files/Media	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
Evaluating ideas	Points/Emojies/Thumbs up/Like	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓
Documenting results	File Types	PNG	PNG, PDF	PDF,CSV	PNG	PDF, PNG, jpeg, SVG, CSV	Text	PDF, JPG, CSV	PDF, PNG, ZIP-file	PDF, PNG, CSV	DOCX, PPTX, PNG, PDF, CSV
Communicating	Chat	✗	✓	✗	✓	✓	✗	✓	✓	✓	✓
	Audio	✗	✓	✗	✓	✗	✗	✓	✗	✗	✗
	Videoconference	✗	✗	✗	✓	✗	✗	✓	✗	✗	✗

✓ *available* ✗ *not available*

Source: Deckert, C., Mohya, A., & Suntharalingam, S. VIRTUAL WHITEBOARDS & DIGITAL POST-ITS–INCORPORATING INTERNET-BASED TOOLS FOR IDEATION INTO ENGINEERING COURSES.

Figure 2.4 Comparison between Online and Offline Brainstorming

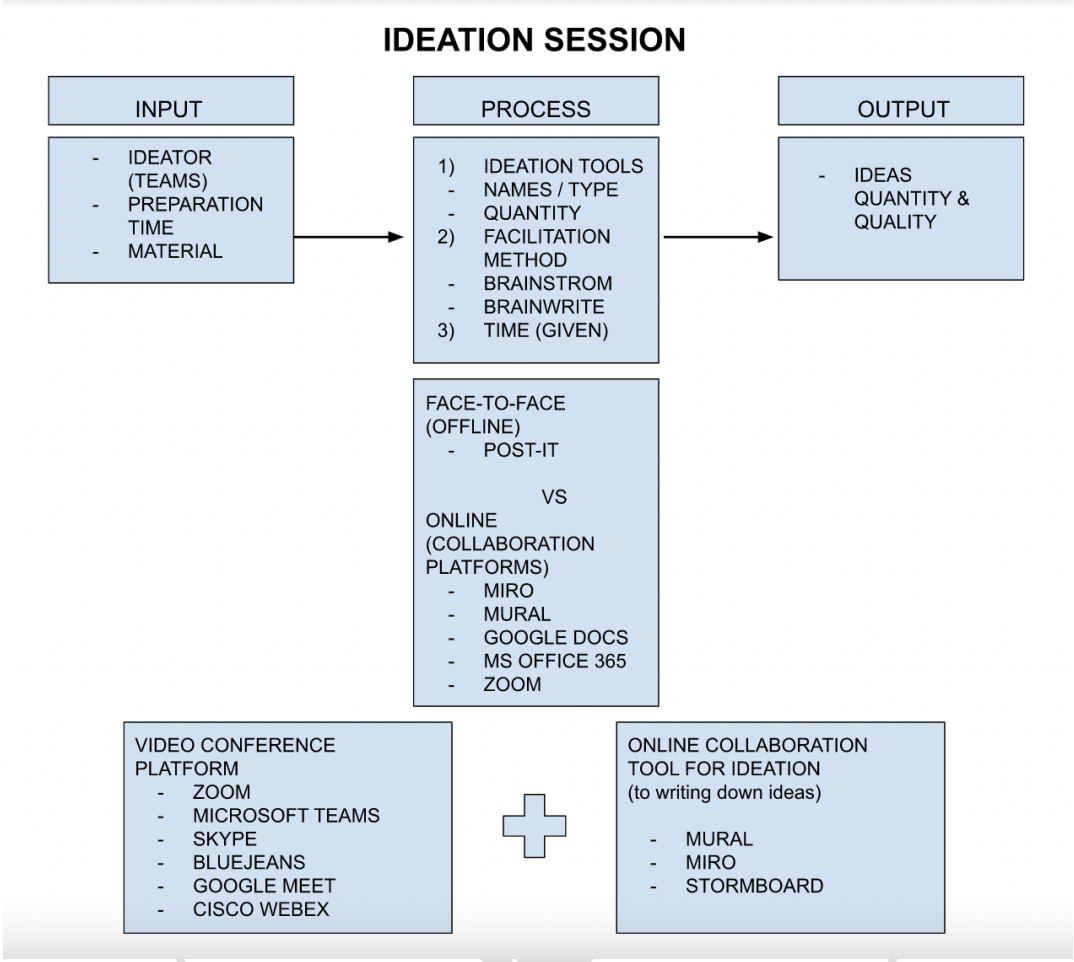


Source: Deckert, C., Mohya, A., & Suntharalingam, S. VIRTUAL WHITEBOARDS & DIGITAL POST-ITS–INCORPORATING INTERNET-BASED TOOLS FOR IDEATION INTO ENGINEERING COURSES.

2.5 Research-Guiding Framework

Based on the discussion of the pertinent literature on the topics of collaboration and Ideation during an innovation project as one stage of a structured innovation process method, the author of this study developed the following research-guiding framework to investigate factors related to online vs. offline Ideation (see Figure 2.5).

Figure 2.5 Research-Guiding Framework for this Study



Based on this framework, the author developed a corresponding IPO (input-process-output) overview that was used to structure the interview guideline based on the discussion of the relevant literature.

Table 2.3: Analysis of IPO (input-process-output) for an Ideation Session

IDEATION SESSION	OFFLINE	ONLINE	FACTOR	GROUP	INDIVIDUAL
INPUT	- Material (Post-It/Paper/sticky note/whiteboard/marker) - Place/room - Time - Ideation - Facilitator - Effort	- Effort - Ideator - Money - Time - Facilitator - Material (virtual whiteboard)	- Criticizing (good/bad ideas) - Fear of making decision - Judging - Blocking ideas by make the decision quickly - Not have enough knowledge to solve the problem - Cross-Cultural - Fear of losing face - Internet connection - Communication - Gender (technology-accessibility) - Motivation - Fear of presenting unusual idea - Limitation times of presenting the idea and session - Judge own thought because that's idea is unusual and not normal / not safe / not realistic (Wild & crazy idea)	- Brainstorming - Brainwriting - 4-7 peoples / 6 peoples - 20-90 minute including preparation time - It is necessary to wait for other participants to complete their presentations before they can present their ideas - Able to generate more ideas and be more creative than an individual - Everyone enjoys working as a team rather than working alone - The larger the number of people on the team, the lower the number of ideas because it takes time and effort to generate more ideas - The larger the number of people, the more steps to Brainstroming - Time limitation	- Ask friends for ideas - Able to presenting thier idea anytime - Confident - Generate more ideas than a group in some cases
PROCESS	- There is immediate interaction in group brainstorming. - There are approximately 5-25 participants. - Engaging sessions with internal and external activities or generating ideas in an idea lab - There is a relaxed atmosphere of group brainstorming. - It takes approximately 2-8 hours. - Use techniques like Brainstroming and Brainwriting and Innovation digging. - Use materials in the form of Stickynote/paper/whiteboard/post-it(4x6) - The offline form of brainstorming often ends abruptly. - Use paper to help Sketch ideas or sketches of current ideas or to write a summary of brainstorming notes. - It is a gathering of diverse and different participants. - Participants put a lot of time and effort into brainstorming. - Make an effort to organize the session. - Flexible, unlimited time for each session - Everyone works in the same place and for the same amount of time. - The purpose and goals of the group are clearly defined.	- collect ideas - Sort ideas - develop ideas - Evaluate the idea - Save results - Communicate other ideas using audio or video communication tools for group interaction during concept sessions, such as ZOOM/GOOGLE MEET. - Use tools to create ideas such as Miro/Mural in the form of Stickynote/virtual whiteboard/textbox. - Use other platforms to help note-taking tasks such as Google Doc / Google sheet. - Use skills and knowledge to use tools - Set a topic for group brainstorming. - Set goals or purposes for brainstorming - During the ideation session, there is often time spent thinking and no immediate response. - There are 4-7 participants. - It takes approximately 20-90 minutes including preparation time or sometimes 2-4 weeks. - It takes time to connect to the Internet to join the virtual room group both in and out. - Keep ideas throughout the brainstorming session in the archive. - Group size is scalable according to the situation and flexibility in the situation. - Everyone works together in parallel. - Have limited time to do activities and present ideas for each person. - Brainstroming and Brainwriting - Use the amount of time to wait for all participants to enter and then start the session. - Everyone works at the same time but in different places.			
OUTPUT	- Everyone interacts together throughout the brainstorming session. - Get a large number of ideas within a short period of time. - At the end of the brainstorming session, it will take some time before starting the next step. - Participants understand the point of the problem and are able to access feelings and atmosphere while brainstorming. - When in doubt, participants were able to get answers immediately and participants were focused on the topic and focused or concentrated on brainstorming. - The conceptual model may not be very creative and can sometimes stall at times.	- Have a better understanding of the use of tools - Promote understanding of creativity - Participants have fun and enjoy during the activity. - get a large number of ideas - It fosters a creative environment and allows for rethinking. - Once done in one step, the results will be realized and the ideas can be developed and implemented and can proceed to the next step immediately.			

As shown in Table 2.3, Based on (Figure 2.5) discussion about the issue of collaboration and Ideation during an innovation project. The author divided it into five categories based on the IPO overview to explain the situation that always happens when doing the ideation session according to the following: 1) Offline ideation session 2) Online ideation session 3) Factors that affect brainstorming in an ideation session 4) Collaboration as a team 5) Generate ideas by an individual.

CHAPTER 3
METHODOLOGY

This chapter presents data collection and analysis methods to examine the information collected from literature and information sources that support this research.

3.1 Research Method

This exploratory study uses a qualitative research approach to collect information by directly interviewing end-users and experts involved in the topic. The research subjects of this study were ideators and facilitators who have experience in participating respectively running the Ideation sessions both offline and online (using online collaboration and communication platforms). The author of this study divided the interviews into two target groups: one from the perspective of participants (ideators) as end-users and another from the facilitator's perspective of facilitating an Ideation session in the form of expert interviews. In addition, data is collected to know accurate ideator and facilitator's impressions and recommendations for further analysis including feelings, experiences, expected values , and attitudes. The main objective of the finding from the research methodology was to get a factual understanding of the platforms' good and bad aspects. The other thing this study aims to know is the general problem. Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013) asserts that the process of collecting qualitative research data starts with choosing a method for collecting data. Preliminary analysis of the data using qualitative methods based on observation, interviews, and focus groups. Collected findings are recorded from audio and video recordings which the author can be reviewed and analyzed after the interview data is converted to text in a digital

document. In addition, the author can retrieve the data or go back to the data for further reading and evaluation.

In most cases, interviews are conducted using face-to-face online meetings to gather information and discuss because the interview environment and atmosphere will help the interviewee feel better. It was relaxed and friendly and made the interviewee feel that feeling. This study chose to collect data from ideators and facilitators who have experience in both online (using online collaboration platforms) and offline ideation sessions. After collecting all the information, the content is analyzed and reflected on concluding. In addition, in the current situation during the COVID-19 pandemic, everyone worked in different locations. This was the reason for choosing the interview methodology in this research study. The data in this format will provide evidence for analysis and consideration of this research in a textual way and the data can be collected for further use.

3.2 Data Collection & Analysis Process

The data collection process of this research is divided into two types: pre-existing data and actual data directly from end-users by collecting the data. The researchers used qualitative data collection methods in direct interviews with a group of end-users to arrive at the insights necessary to obtain information about their feelings or experiences. Recordings and observations from the perspective of participants (ideators) as end-users and the facilitator's perspective during interviews lead to their understanding and perception of their feelings. In order to be reliable and able to analyze the data accurately. The data must be recorded in both audio and video formats to facilitate review and have digital documents for further analysis and qualitative research in the form of the relevant subject matter is essential concerning and relevant to other documentary works in the study of the existing literature. Therefore, the analyzed data is data in the form of content and text, not computation,

and therefore the researcher chose to use interviews as the primary source of data collection for the research objectives. The researcher chose to interview the group of relevant members. Two groups of people were directly associated with collaborative platforms. These two group targets were related to the researcher and foresees that use of the collaboration platform was found in both studies. There are different opinions according to each person's background and they have different types of gender and age range. The data collection part has 6 ideators which have experience in both online and offline and 4 facilitators that have experience from facilitating the ideation session. A total number of 10 interviewees would provide a wide variety of comprehensive information. Moreover, broadly covering the analysis and will be a sentence for further evaluation and study with the number of 10 participants will be a fair and suitable number for collecting qualitative data by the researcher can see various perspectives and the differences based on each person's background are as follows:

Table 3.1: Interviewee Background (Ideators)

Ideator A (male, Thai, late Gen Y, 2nd year graduate student)	He has experience using the online team collaboration platforms in innovation projects for ideation sessions during the COVID-19 pandemic, both in his studies and on projects at his company. Usually, he brainstorms as a hybrid of both online and offline using a video conference platform in combination with an online team collaboration platform.

(Continued)

Table 3.1 (Continued): Interviewee Background (Ideators)

Ideator B (female, Chinese, late Gen Y, 2nd year graduate student)	She has experience using the online team collaboration platforms in innovation projects for ideation sessions during the COVID-19 pandemic, both in class and on projects at her company. At the same time, she has both experiences and perspectives as a participant and an Ideation facilitator in this project. Usually, she uses a video conference platform with an online team collaboration platform together.
Ideator C (male, Chinese, late Gen Y, 2nd year graduate student)	He has experience using the online team collaboration platforms in innovation projects for ideation sessions during the COVID-19 pandemic only in class. Usually, he uses a video conference platform only with his colleague in his company but uses an online team collaboration platform for ideation only in a master class.
Ideator D (female, Thai, late Gen Y, 2nd year graduate student)	She has experience using the online team collaboration platforms in innovation projects for ideation sessions during the COVID-19 pandemic only in class. Usually, she uses a video conference platform and some Google suits for working purposes. She did not use miro for her job.

(Continued)

Table 3.1 (Continued): Interviewee Background (Ideators)

Ideator E (female, Thai, Gen Y, 2nd year graduate student)	She has experience using the online team collaboration platforms in innovation projects for ideation sessions during the COVID-19 pandemic only in class. Usually, she uses a video conference platform and some Google suits for working purposes. She did not use miro for her job.
Ideator F (female, Filipina, Gen Y, 2nd year graduate student)	She has experience using the online team collaboration platforms in innovation projects for ideation sessions during the COVID-19 pandemic both in class and on projects at her company, but at the same time, she has both experiences and perspectives as both a participant and a facilitator for the project.

Table 3.2: Intereviewee Background (Facilitators)

Facilitator 1 (male, French, Gen X, Ph.D.)	He is the Managing Director and Co-Founder of academic research and consulting institute for knowledge and innovation management at a university in Thailand. He is also the Program Director of a Ph.D. program and master's in business innovation program at this university. He has substantial experience facilitating innovation and ideation sessions face-to-face and, since the outbreak of the COVID-19 pandemic, also online ideation sessions.

(Continued)

Table 3.2 (Continued): Intereviewee Background (Facilitators)

Facilitator 2 (male, German, Gen X, Ph.D.)	For almost two decades, he has been the Founder and Chief Ideator of a leading Asian innovation and ideation company in Asia-Pacific with bases in Hong Kong and Bangkok. During the same time, he has also been a faculty at various universities in Thailand and Hong Kong specializing in teaching and researching for business creativity, innovation management, and creative leadership. He is also the creator of a proprietary innovation process method and related thinking toolbox.
Facilitator 3 (male, Thai, early Gen Y, Ph.D,)	He is a skillful educator, designer, and entrepreneur. He has more than ten years of experience as a corporate trainer and university lecturer. His teaching style, which blends creativity and a sense of humor, is unique and well-accepted by various audiences amongst both scholars and practitioners. He offers training in both English and Thai.
Facilitator 4 (male, Singaporean, Gen X, master's degree)	He is the Principal Consultant of his enterprise, a multidisciplinary education, and training consultancy that supports and promotes the development of creativity, design thinking, and innovation, and a Training Consultant for Creativity, Design Thinking, and Innovation professional development courses

Due to different backgrounds and experiences, opinions and information collected are also different. The researcher asked questions for use in the interview, with the students using the same questions. All on the teacher's or session facilitator's side is a different type of question. During the interview, I collected data from both groups of interviewees in video and audio recordings. After that, I transcribed these files from Microsoft Word with a transcription function. Audio tapes to get accurate

information and content with some modifications, and after that, I encoded them in the Qda lite version of the program to find critical points, keywords, or the subject matter of the interviewer to make it easy.

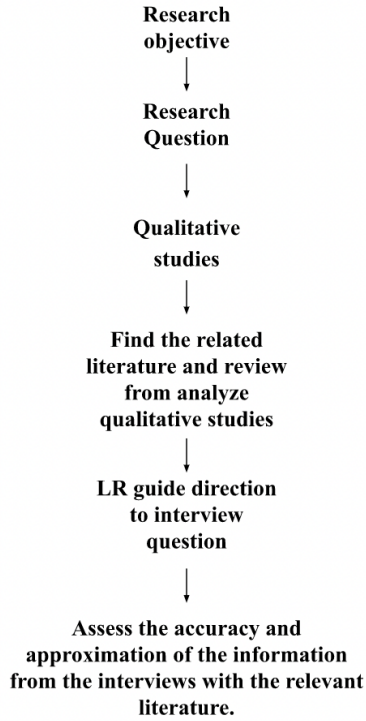
With further analysis and more understandable research, I found that some content or recommendations can be grouped into individual issues that I ask the right people most of the main questions. Interviews are open-ended questions where the interviewee can answer broad and in-depth questions about the issues, and at times I have guided questions for the interviewees to think about or reflect on the times. Experienced and during interviews, I was able to perceive sensations from both facial expressions and the gestures that convey the feelings that all the questions were related to both online and offline applications to be aware of the information on both sides and can be analyzed and compared. The information obtained will provide this research with clear and reliable evidence as the respondents are directly involved in this research topic and have experience using online team collaboration platforms on the project. Innovations in thought sessions during the COVID-19 pandemic, and aspects from both sides, from students and professors or session facilitators, will complement the insights explored in this research because the relevant literature is scarce, and the topic I choose to research is the latest, recently emerging and not yet widely used among Thai people or Thai education. The researcher interesting to do this valuable research for website or platform developers or other researchers who want to use the data or even session facilitators planning a session and conduct a session that may be helpful, but the researcher think it would be nice to have the information and valuable evidence for further use and continued information to be communicated correctly.

3.3 Reliability and Validity

Based on the data collection, the researcher chose to collect it in a group of users directly involved in this research, collecting data from university professors and session facilitators to get their perceptions. Moreover, comments were obtained from the control and execution of past sessions. Ten ideators who participated in brainstorming sessions for a project or in a university class in Thai University Master's Degree that provide a piece of broad and multi-faceted information and including the information from the literature review will help to complement and support the information from the interview because, From the studies and research data, there is minor and not much information that is currently available. However, it is very relevant and valuable because of the relevant literature review and the information from the interviews. Some inconsistencies and contradictions allow me to raise the issue for discussion for readers or researchers or those interested in applying the information to a broader and comprehensive perspective. Due to many factors that have to be considered, these data are reliable because they are factual data, and the researcher analyzes and understands every point to provide a deeper understanding to prevent errors and inaccuracies. We also clarified the factors that could cause the information to be inaccurate or different from what it should be. I assessed the interviewee's credibility based on their perception of facts, impartiality, and non-bias. The material contained herein is up-to-date and up to date, is new and fresh, clearly written, and discussed concerning previous documents, which, from the preceding, define the interpretation of quality of the opinions and feelings that the researcher from the opinions trust the website that the researcher uses to find information that there is a standard and that the organization or person who created the website is reliable and can be checked. In addition, the interviewees' feelings or related literature or even corporate websites have a form of writing that can recognize the expertise and perceive it as the knowledge that has been distilled from experience.

In order to come up with clear, accurate, and reliable facts and conclusions, I think that the steps I have planned can make the data collection process efficient and sequentially directed to the following:

Figure 3.1: Data Collection Process Flowchart



In conducting this in-depth survey research, I defined the scope of the objectives for which the data was sought or the research rationale in order to guide the research in the right direction of research to narrow the width of the data and be more specific so that I can focus and find information accurately and honestly understand the situation or group of people involved in or affect the conduct of the thought session. After that, I found relevant literature for my case study and other information from the Internet. It is a minority and in order to supplement the literature that does not currently have much relevant information on my topic, after finding the relevant literature I analyzed and reviewed the situation or probabilities or the possibilities of

the data, where I find many referenced or even related, but not directly related data and are mere assumptions, which I find interesting to lead used in the analysis in the future or in writing a conclusion. In addition, all the information obtained from the review allows us to enter a situation or predict specific answers or ask questions to collect information with the interviewees because the information has been screened and surveyed before and making it highly probable and accurate to occur and may be a factor affecting data collection after collecting data from the interviewees. Both the relevant literature and the data from end-users' interviews are compared to find differences and similarities to assess the factors or occurrences and assess their validity and credibility. If the information collected from the interviews is close to the literature. The interview data is reliable and likely not deviating from facts. Often, information is accurately and reliably referenced because it has been surveyed and assessed for credibility beforehand.

The advantages and disadvantages of data collection type can be summarized as follows:

Table 3.3: Advantages and Disadvantages of the Type of Data Collection

Type of data collection	Advantages	Disadvantages
Literature review & company website	- It is accurate, factual, and rational information. It can be trusted because the data is referenced and screened, and its reliability and validity are assessed and can be used. - The resulting content can cover situations or events occurring in a qualitative study and the information is broad which allows one to see and perceive various and different aspects. It helps guide the research to be studied more to the point	- Access to specific information is also limited. Some information that may affect education is not accessible due to certain factors, both in terms of having to pay extra in exchange for access and therefore may be passed on to Ideators. Research with a small budget or a small capital.
Interview	- The target group selected to be interviewed in this research is a direct target group or an end-user and it's related to the research topic. Therefore, the information obtained will be helpful in data analysis and collecting data effectively and in the right direction. At the same time, interviews allow information to be kept up to date because it is fresh, up-to-date, and opinions or current feelings.	- Interviews are simply collecting information from questions that the researcher speculates, and thinks can collect information for the research. Interview questions may cause some errors or deviations because they are questions that arise from one person and a one-sided perspective.

(Continued)

Table 3.3 (Continued): Advantages and Disadvantages of the Type of Data Collection

Observation during the interview	Emotion and feeling - I found that in interviews, the respondents expressed their attitudes or reactions towards the experience through either the brainstorming model or the conduct of the online and offline ideation sessions. Some different aspects and issues have arisen and are unresolved, which is why I think I can reach out or acknowledge the feelings or opinions of the interviewees.	- Observations are speculations from the researcher's side, which may not be accurate or precise from the data, or may contain some speculations, and with the observable length of time, it may not be possible. All interviewees' perspectives are accessible, and some interviewees may express opinions or gestures that may be contrary to reality or may avoid clarifying certain information or issues.

To summarize the positive and negative aspects, I have summarized them in tabular form to clarify each method of collecting data and that some factors have a positive and negative impact on the research or data obtained, which I have broken down into three:

1. Collect preliminary information from Internet research on credible and relevant organizations' websites and include a review of the relevant literature that found both advantages and disadvantages during the study. I have discussed the reliability and correctness of the information and its accessibility concerning the methods of collecting information from literature reviews and on the Internet.

2. Methods of collecting information from interviews. It is a qualitative data collection method that helps obtain information in the form of content for use in text

or text analysis, which may be beneficial to the viewer because it is easy to understand due to the selected qualitative study. A qualitative study and a specific audience allow for direct and pertinent information collection, but there can be inaccuracies as the question is merely a guessing question. The researcher's answer alone may contain errors or result in content that may not be clear or ambiguous.

3. Observational data collection is only the data collected during the interview, not the data used to directly observe the actual behavior in that situation, even though the researcher has had experience with it. I think that in the present situation, it would be difficult to do face-to-face or even attend online activities and collect data; there may be discrepancies due to feelings or situational assessments. Researchers unilaterally, not from interviewees or direct users, may be subject to distortions of subjectivity, so the advantage that I think is derived from observational data during the interview is that after obtaining comments that come directly from the user's words from both the tone of the voice, the weight of speech, reactions, gestures, and behaviors during the exposition of one's opinion leads to the information obtained that is to enable direct perception of feelings, but at the same time, the information collected from observations may remain. This is not entirely correct because besides listening to the speaker's opinion on the gesture, the researcher is the one who judges and analyzes the meaning of that gesture in that situation. All that is just the researcher's opinions may have different opinions from other research or maybe more or less the same as other researchers, but I think that the information or opinions on collecting this data help researchers or viewers to analyze and make decisions and apply them.

CHAPTER 4

FINDINGS

This chapter will present information and opinions obtained from interviews with an end-user group of six ideators, two facilitators, and two guests who have experience conducting offline and online ideation sessions. I will categorize my conclusions based on my findings without the researcher's personal opinions. The data were summarized as the results of asking set questions using different questions from the two groups by explaining a detail obtained after analyzing the various data.

4.1 Offline Ideation

4.1.1 Findings of Ideator’s Aspect

In collecting data from the interviews with the six ideators, it was found that by attending an ideation session. Most of them were able to talk to the other participants or others could talk and discuss both in-class and off-site ideation sessions. They are inspired by the opinions or ideas of others that enable them to come up with new ideas through innovating and mixing and developing other people's opinions for better and more places that allow them to come up with more ideas that are different.

Discussing and brainstorming in a room or place, someone will help to note the conclusions or note the latest decisions in the meeting and attend the session offline. One facilitator who assists in controlling and implementing the activities assists in guiding students in creating new ideas and facilitating equipment to assist in implementing the activities. They make it more fun. All Ideators interact with others using Post-it, Markers, paper, pictures, or even personal accessories that everyone already has such as a phone, iPad, or even a notebook.

Everyone can jot down their ideas while others present their ideas or opinions while brainstorming offline. They feel it's easier to get to know the other person's opinions or feelings, which is a great way to brainstorm and feel free to speak. Communicating with each other in offline sessions is easier than communicating online and being able to touch other people's bodies and exchange ideas. Ideators can also get experience from other people's feelings, emotions, and opinions on their thoughts. They can also use different feelings depending on the context of the conversation. They feel that this kind of brainstorming will help them feel more comfortable sharing their opinions. They feel more and more energized when doing an ideation session. Offline sessions allow them to have a positive response to others. They can also draw or show some pictures that help explain what they want others to understand and save time.

Moreover, the information they will get from their session mates will be complete and clear. At the same time, if they cannot develop more ideas, they can stand, walk or move. Which helps them think less and reduce the stress that arises. It’s also making ideas more efficient and allowing more ideas to be produced. They have a sense of fun and enjoy doing activities with their classmates in an offline ideation session.

They discussed the rules for cooperation with others that the session moderators themselves would explain or perhaps even understand the participants themselves. However, they also agree that sometimes offline ideation sessions are not enough as some tasks require more time to be effective and complete. Some projects are large and have a lot of complex processes causing the period to be extended. They think that the scheduled time can sometimes be completed on time, and it may not be sufficient for some tasks. They think that offline ideation sessions may be more likely for others to judge other people's ideas but that is not a problem for them as most of the time, they are open-minded.

Furthermore, listening to other people's opinions is a better idea because some of them have more knowledge of that idea. It may be a better way to improve the idea that they have at that moment. They also think that listening to negative opinions from others is not a bad thing, but it will have an impact on generating new ideas. On the other hand, they think it will improve their idea at that moment. They usually get all their ideas in half the offline ideation session. When everyone comes together and talks face-to-face, it raises the point of waiting. If one person is presenting or speaking, the other person cannot intervene, so sometimes, when ideas pop up during an ideation session, they may forget or ignore some of the ideas. It is not an issue because there are people to help them collect data and information, and they have ways to make life easier for themself through technology. This increases the waiting time for each person to present their ideas and sometimes they must wait for the speaker to finish their presentation which can lead to the flow of conversation. It does not go very well when many people come together. There may be conflicts or arguments within the group. Sometimes factors such as culture, environment, the topic of discussion, and language affect the production of ideas and it also affects offline ideation sessions.

The Ideators also explained that face-to-face ideation sessions could be inconvenient because they cannot move. They need to go to school or work to talk to others. For some ideators, the fact that information is written on their paper sometimes must be written again on computers. When they are talking, they find it difficult to share. Sometimes they think that they are not afraid to comment because they think their ideas are not good enough. It's like someone judging their own ideas before others judge them or setting a limit on themself. However, in the end, everyone said the same thing if they had a choice, they would choose to generate ideas face-to-face.

However, there is some data that the author discovered that students have different opinions, and most students don't mention some of the data from offline

ideation sessions. Some students who are experienced in an ideation session at work. Thai people often have the problem of misunderstanding the sound, tone, and accent that are different. Thai people in each region, such as northern people. They will pronounce the picture as one type and the people of another province will pronounce it differently, which is different and not the same. It's causing misunderstandings.

Some ideators think offline ideation is ineffective at getting good ideas and it often takes a long time to get the idea due to the lengthy process depending on the format and size. In addition, taking notes during ideation sessions is often followed up with others. In offline ideation sessions, some say that all participants will have all their post-it pictures stored in the room. Some ideators say offline ideation sessions are effective because they can brainstorm all day. They can play games and have ice-breaking activities if possible. The other ideators say it's more useful when someone presents an idea where they can link it with existing data. They have unlimited time to continue the activity, and no one can approach them from the outside and distract them.

Each person's experience participating in an offline ideation session has different steps and sequences due to work style, position, and responsibilities. Some people work in companies where most of their employees are foreigners and some ideators work directly with Thai people or even work with both Thais and foreigners. Some people use offline ideation sessions to develop solutions. Others use brainstorming to develop different marketing strategies. Some people want to brainstorm without coming up with new ideas.

Some ideas have to be real ideas because in some cases weird ideas or wild ideas can't be applied. Therefore, only ideas can be used that can be factual. Some say generating ideas is quick and easy, but others feel less uncomfortable and less involved in the session besides being fun and happy. An offline ideation session sometimes gets boring because when they do brainstorm, they are often attended by seniors or people of higher rank. It is difficult to express opinions and comments.

Someone spokes first and waited until they had finished speaking before, they could speak in the next queue. It might seem like a waste of time because there are so many ideas out there to brainstorm but they must be cut down and deleted to choose one as good and feasible as possible to move on to the next step.

Sometimes, they think that some of their ideas are irrelevant in the conversation if it was presented, it would ruin the conversation and be redirected to another direction and it would waste more time, so they did not comment during that time. Sometimes they cannot share ideas clearly because some parts have been forgotten. They also said that if someone took notes on what they discussed at the meeting. There might be some mistakes in understanding or misunderstandings and not matching what the speakers said in the consultation. At that moment the meaning will change.

Saving on paper issues is sometimes it's waste of resources because when they are done, they will throw it away at the end of the day. Some of them said that other participants or other ideators did not participate in helping them generate the idea during the offline ideation sessions. That participant did not inspire them as much. People who must participate in an ideation session may require a bit of knowledge and skills. offline ideation sessions require soft skills. There are social skills used to interact with people including the habits, personality, attitudes, and mindset needed to live with others in society. Offline ideation is more formal than most online ones. It has different expectations from those around them who expect the ideation to be successful and they can be concluded and resolved. They also say that this kind of ideation doesn't require preparation unless they are a facilitator.

Some of them use specific ideation techniques such as SCAMPER. It allows them to interact in a multidimensional manner and foster thinking and imagination in addition to helping the ideation process to flow more smoothly and even more, cases help unlock weird ideas. In some ideation session cases, it can be discussed to conclude and decide what ideas to take in the next step. Some ideators think it can

take less time to brainstorm in an offline ideation session. At the same time, some argue that having many people in a face-to-face ideation session has a negative effect, but they still think it's better to do ideation in an offline session. There are more members in offline ideation than online. They said that in some cases the participants did not follow the agenda during the session and did not follow the basic rules of participation.

Sometimes, distance is a problem because the company or organization does not have the expense or budget to afford its employees and attend the ideation session if there are many people. An employee or a group of people will not be able to sit in the meeting room and not see all the ideas or post-its attached to the wall, rendering them unable to read them all. In addition, other ideators shared that they use a variety of techniques to help other participants or collaborators come up with ideas by using the design thinking tool, 5 Whys, "How might we," and 5 block user journeys.

4.1.2 Findings of Facilitator’s Aspect

All facilitators have a total offline session experience of 50-300 sessions or more. They define themselves for facilitating an offline session as experts, but their definitions of experts are of different levels. Some may be Masters, or some are ultimate experts. It depends on the amount and experience accumulated in the execution of each session. They typically run the session approximately 2-3.5 hours in length and they run the session by inviting participants to participate in classroom activities and providing materials for them to be used for activities such as post-its and flipcharts.

They are prepared for distribution to each team after groups have been divided if the number of participants is large and some facilitators lead unique techniques that are used in activities with participants to allow participants to generate more ideas. They use ideation tools such as ideation worksheets, and idea stimulus

cards in the methods section of the X-IDEA innovative toolbox. Other facilitators took about 15-30 minutes to complete the session with the participants separated around the corner and brainstorming together. Each group stands at their tables and discusses just one main issue or just one topic.

In addition to that, they use conceptual design tools to run the sessions and teach the participants. Another facilitator said they run the session by giving the ideator to think about the problem or understand the need for a solution or find a solution and build on it and create their ideas then choose an idea by voting. The facilitator will distribute stickers for participants to attach the stickers to their favorite ideas on the wall where they can use the ideation techniques and design thinking tools to help ideators think and create ideas at each stage of the thinking process.

In addition to that, initiating pre-session preparation is required. Participants and facilitators have their way of preparing for the session. The Offline session is not much different. They must make sure that there are enough copies of the worksheets available for their cognitive activity that will be relevant to the techniques they use. Post-its and flip charts or even regular paper are enough for everyone, and some facilitators need to print out the documentation accompanying the session for the participants to learn about the session. The facilitator may be concerned with the course of action at that time and the facilitator may have to think about the session if there have too many participants it must be grouped. In order to reduce the number of people and distribute people so that they can work together universally. They need to think about how they can be grouped and how to move the ideators to work together as a team and also, they need to understand while knowing about topics participants will be working on. They must learn about that topic prior to the initiation of the session and conducting a face-to-face session.

The facilitator can immediately guide or assist the participants if they encounter any problem with the activity. The other thing is they can perceive the feelings and interactions between them and the other participants as the facilitator

stands in front of the room and can see the overall surroundings thoroughly. They will easily know the participants' feedback or flow of feedback. It allows them to know which activities are working well and which cannot be more effective to facilitate or operate a session in offline ideation.

They think it has the advantage of taking an offline session because they don't have to scroll around or switch screens from one screen to another to read or research and everything is already shown there. It's all in their hands and they can write whatever they can think of on paper with their writing. They think it's easier and less tiring. They can use a variety of ideation tools in each period, and it leads to good results. It's straightforward to fuel the Ideator with music and they also can use activities. It's physically possible to run a face-to-face session because it makes them feel more playful and leads to better ideas that are both creative and productive.

Time is more efficient and productive as 3 hours can receive 8-10 ideation stations, and 10-12 tools can be used to generate more ideas. There is a higher volume of ideas compared to online sessions. The energy level for an offline ideation session is better than online. The ideators can interact face-to-face and they will feel more interactive than online and feel less exhausted and connected face-to-face. Similarly, some say it can feel boring to perform an offline session just sitting in a chair and not moving.

As a session facilitator, there is a distinct view that joining an offline session can improve several sensations. Especially the physical component of touch that they can replicate offline, and they have a better peripheral vision as they can see everything that is going on and write. They can work on flipchart paper or worksheets, and they can have a post-it in front of them and use physical devices like incentive cards that are easy to give out and read. It helps them to feel or perceive touch more and more physical sensations. It is more efficient to do things offline.

In addition, some facilitators said that the differences in the ideator's activity in both offline and online sessions were not much different. The offline ideation

session activities have similar or the same online results because the results are good in generating ideas, which will vary depending on the age range of the participants may be a factor in the discrepancy of the results due to their different abilities and experiences. If the participants are older, they are likely to be able to participate in offline activities. The offline session is better than online with varying session skills and not much familiarity with technology. Offline sessions may also be a good option. At the same time, other facilitators viewed face-to-face work as taking quite a long time for people to interact with each other and each participant had his or her personality. Therefore, different behaviors in the session with others will also differ with different surroundings. Brainstorming or generating ideas in an offline session, participants will be able to copy or imitate the ideas of others easily and they will not be able to come up with ideas because they collaborate with others, and they will have the opportunity to hear other people's ideas rather than online. They don't have to think about ideas that come directly from them.

As for the results generated in an offline ideation session, the facilitator thinks that ideas in post-it or worksheets are generally sometimes on a paper plane or flipchart. They can be easily moved around and easily cut off. For handwriting, others can read it especially easily and need to copy it as a digital format, but it's not always necessary because sometimes people want to have a digital format to do this to get work done.

If they do offline ideation sessions often have pictures or simple sketches to help them explain ideas because images can speak more than a thousand words. Some ideas come out of ideas offline by sketches or images and it's easy to find post-it consequences. Most facilitators look at the results and taking the session offline or online produces the same results, but only in different directions.

Overall, the facilitators agreed that they had to choose to facilitate a particular session. They preferred executing the session in an offline format as part of it, but one of them said it can be done and there is no point in choosing one bad side.

They see it as having different pros and cons. They can take it which he doesn't see. There is an option that they like the most. They argue that both sides are the same. From the facilitator's point of view, they can do both offline and online. Neither side likes the other and it depends on the situation. The ideators said that offline sessions they see as suitable for those who want to build relationships with others and expand their connections. It's the same voice that taking offline sessions is best for them because they see that they can use more techniques and allow them to be creative with a variety of ideas and make sure the ideas are there and generate many ideas as 30-40% more ideas than online sessions and more powerful, fun, and practical.

Offline sessions tend to be more playful and active. Overall, they can get better and more creative. Moreover, they feel that face-to-face meetings are better suited for elderly facilitators who may not want to do it online because they feel more comfortable doing it offline and prefer to be as face-to-face as they can. Human interactions are felt to facilitate but in turn, require more effort. Another reason is that they have less difficulty engaging with participants or learners. Furthermore, they can also feel socially free between them, and they can see how the participants interact in the class. They can ask them directly and immediately tell the participants if someone is stuck in some part of the process. They think that for the designer, the type of session they prefer to attend depends on the situation or the organization's budget. No one can tell what the real answer is, but it will change and vary according to the situation and time. It could be offline or online, depending on the different types of participants. If the participants are introverted, they might prefer online but if they are extroverts and expressive, they may prefer face-to-face.

Other aspects of the facilitator are Those ideators who have offline and online experience. They will work more fully in offline ideation sessions than online because it's much more experiential and more sense, more social and communicative experience, and much more fun and energetic offline ideation than must do it online. They can be physical. lively energy and good atmosphere and more tiring at the same

time. It gives the ideator a higher sense of satisfaction and a feeling of accomplishment. Meanwhile, another reason one facilitator agrees with the other facilitator is that it's relevant if they're sociable and don't talk a lot. They may prefer working online rather than offline. Nevertheless, if they like to talk and confront others and are outgoing and want someone to help them inspire their ideas. They may choose to work more online depending on their personality and their kind of person.

4.2 Online Ideation

4.2.1 Findings of Ideator's Aspect

In the current situation with COVID-19, some of them still must travel to work at their company and some work from home. They had the experience of online ideation sessions with their classmates after the outbreak of COVID-19. On top of that, they had the experience of online ideation sessions with their colleagues. They often share two platforms such as a video conferencing platform used to communicate with others and an online team collaboration platform, which they thought was difficult at first because they had to learn and know how to use that platform. It might be worth doing some research on their own as they work from home. Usually, when they attend an online ideation session, they tend to be alone in front of a screen or even some may not be working from home, but they can join the platform anywhere or even in a coffee shop whenever they want to access it.

The number of participants in the online classroom ideation sessions was 6-12 people and was reduced or increased by class type or depending on their work. The groups were divided into 2 to 3 groups, and each group could consist of 3-4 students. The estimated time they spent in the classroom ideation session was 1-2 hours. They think their work may be longer than that according to their agenda and to-do list activities. They think it's functional and can get a lot of ideas quickly or produce many ideas in a short time by communicating with each other through the online platform.

They can chat with other friends far away to access the platform anywhere and share whatever they want. There is no need to wait for others if someone is busy or inconvenient to attend the ideation session. They can return to the platform and modify or add messages when they have free time but at the same time, a bit of tech-savvy may be necessary because some people might find it difficult.

After all, they are not familiar with the platform or are not very tech-savvy and need to know some skill. They use post-it to share ideas on the boards of an online collaboration platform where they drop and drag a piece of colored paper. The experiences of the six ideators were quite different and varied. Some ideators use Zoom with Miro. The other ideators use Sharepoint, Microsoft teams, Google Docs, Google slide, Line Application, Discord, Gather, Figma, Notion, Slack, and Google meet. They did not need to travel and did not have to pay a lot. The online team collaboration platform and video conferencing platform is an accessible platforms that anyone can access and generate ideas online with others. They can come up with new ideas and share crazy ideas and feel free to do whatever they want. Working online, they don't have to talk face-to-face, and work is relatively side-by-side in the form of individual or self-employed tasks, making judging others rarely and without a brainstorming leader, but often a facilitator of that session that helps to clarify and carry out activities.

However, working alone often has the problem of being stuck with yourself and finding it challenging to feel groupthink and at those times they find it difficult to connect with others. It's hard to come up with ideas if they are working alone in online ideation sessions. It's sometimes impossible to feel the sensation of not interacting with others in real life. They also say that working from home can sometimes be a bit sluggish and they see that using an online collaboration platform is not a waste of time. It's enjoyable to use and it's very interactive with an attractive platform interface and a wide range of playable features. They can use multiple post-it colors which is another fun platform to use. It felt comfortable when it was fun and

comfortable to use and led to the massive number of ideas generated and more than half of the offline ideation session.

On the other hand, there is some information or detail that a minority of ideators talk about in connection with online collaboration platforms that they fear data loss and that it is not as secure as it could be. The possibility of hacking and amongst some ideators experiencing internet connection problems if a slow internet system makes them feel dissatisfied and if their patience is low, they will ignore it and some participants from different countries like China may need to connect to a VPN which may make it difficult to access the platform or system.

They view the topic of discussion as an issue that can reduce the creativity of the idea and feel that it is not very effective in online ideation sessions. If there are people who don't have the talent or writing skills, it can be difficult for them to come up with ideas. Some ideators think they can express their opinions in the form of in-depth details. They join an online ideation session on a video conferencing platform, and it is possible to have more participants than offline. Anyone can participate and the number is greater than 20 but if there is a small number of members or participants, they think it will be difficult to come up with new ideas or difficult to think. On the other hand, some people think that having a small number of participants makes it more flexible than a large number of people. At the same time, the duration of an online session can be flexible which means the longer it is, the more tired the brain is.

Sometimes, their work requires physical goods to be used for testing so sometimes working online can be unresponsive and doesn't work as well while paperwork is difficult. This is done online thus preventing them from completing certain tasks. In addition to that, some of them have also encountered a problem sometimes that can lead to conflicts with teammates. Namely, they cannot share their screens or share certain documents on video conferencing platforms. At the same time, working online they think that sometimes they can have other people interfere

with them during their work hours. Some of them did not understand each other in some of the different language problems.

Working online sometimes also involves taking notes on paper, which requires them to copy the document onto a computer or import it again. Working with others online is more fluid than offline because no one will ask them questions, and no one needs further explanation on each comment or idea. Conversations can be fast and compact. Working together to generate ideas online, they can use symbols or signs to make others understand and recognize their needs. They can hear and see others in real-time and search directly for more information online or on the website if they want to study or find out more or even search for images to provide context or the sentences they want to explain to others so that other participants can better understand what they want to communicate and it's easy to record with most platforms today having an auto-save system when available uploading or editing or adding information to the document. Some view it as writing down information online on a computer as faster than writing it on paper, which contradicts the opinion of other students who sometimes find it difficult to do. When they describe pictures or images of the thoughts or ideas they have in their brains and taking notes or drawings in the program is difficult and takes longer either from the program launching process or the amount of time it takes to wait.

The platform can work or have access to the board that will be used to draw the picture, and they think that just drawing on paper takes a little time but has the same results as drawing in the program and they can take pictures and upload it to the platform or even show it to others directly on the video conferencing platform. Sometimes, when presenting ideas, people don't pay much attention to them because they can play on their phones or do other things behind a computer monitor and resulting in less focus and missed performance. Some information goes and working online is often less likely than offline to hear opinions or ideas from other people and not feel the presence of other participants.

Working on some online documents is easy to copy and paste because it's easy for others to see your idea as soon as they add it or put it on the idea board. Thus, they make it easy to copy and imitate. They can insert images or put geometric shapes on the board during ideation session activities. they can create ideas and drag them around as needed, Enter the text as needed. At the same time, some ideators' comments say that sometimes the input to the post-it can be seen differently. For example, in Google slide and Miro, they can see the text and recycle. It's clearer than Figma. Some ideators say that communicating helps to understand each other and helps them feel the same connections and interactions offline while others say working online does not need a lot of talk or communication. They just work on their own or work individually in their assigned duties and working online doesn't need or doesn't require much effort and it is not necessary to focus much. They can have time to rest and stand up or walk away from the screen to do other activities and rejoin again. Even if they are in a rush, they can leave that session and come back to follow up on activities or information that they missed at some point and can come back to comment or add their ideas later. They can set a schedule or plan their work hours. Sometimes, video conferencing platforms and online team collaboration platforms have limitations in the part of the program that is limited in terms of time or number of people attending is reduced and sometimes there may be situations where the conclusion is not yet completed, or the ongoing activities are unsuccessful, and the platform is suspended and suddenly stopped. If they need more time, they may incur additional costs to purchase a higher version or premium package.

In terms of working on an online platform, it can be difficult to develop a quality idea or the best solution even if it is short. Some people say that if someone doesn't have enough expertise or knowledge in graphics, it can be difficult to get the job done in the presentation. It's not pretty and doesn't look as good as it should. Sometimes the idea that everyone presents may not be the final idea and they still need to screen and evaluate it to get the best idea that it could be used. A certain

amount of time means that to share opinions, we may not be able to pick one idea right away and it may take longer to join the session 1 or 2 times.

In addition, one student talked about techniques used for working online. They said that it could be used both online and offline and that it is effective and helps to think of a better design thinking tool, 5 Whys, "How. might we", five-block user journey. Some people say they need time to prepare in advance and they need more time because some of their co-workers have difficulty in communication and linguistic communication, so it is necessary to help wounds and messages. Thus, taking a lot of time and sometimes the time is running out without being able to talk or agree with the other party clearly or unable to conclude.

4.2.2 Findings of Facilitator's Aspect

The experience of most facilitators with running online sessions ranges from 10 to 100 sessions or more. They define themselves as level session facilitators, from practitioners to masters and experts, two-quarters of facilitators view themselves as experts with considerable experience in online sessions and the remaining two see themselves as still in the grandmaster and practitioner hierarchy because of the fewer facilitated sessions that the vast majority of online sessions take at least 1-3.5 hours approximately, and the participants are divided into 2-3 teams and each team is divided into 5-6 and 8-10 people.

They use creativity techniques that are less than the offline maximum of 6-9 tools and they can't have the same power as offline and no physical creative tools. They said the ideators can get 500-600 raw ideas. Each team is less than offline and most of them are active in Zoom platform is mainly a channel to communicate and it has breakout rooms so that participants can be distributed to each room but can talk to other participants more widely and communicate ideas on Miro.com and Google. The facilitators also had to design a digital template to be used repeatedly and they said it would make the session faster and easier for team members or participants to take

notes or write down ideas to save time and allow participants to write down ideas using the principles of thinking techniques provided by the facilitator and it makes it more straightforward for ideator to implement this tool online.

In addition, the facilitator has set the course of the session by having the number of people that shouldn't be too many. It really shouldn't be six people because if there are more than that they won't be involved in teamwork and to focus only on one topic during the 20 minutes of each session and they disperse into each room online and talk to one another and return to the main room to share their ideas. The need to set goals is for participants to focus on what's in front of them and not think about anything else or think out of the box. Otherwise, they will chat on other matters or even do other things during that time, and they feel that running the session is easy as participants can easily copy & paste or find information from different websites. Online facilitation is easier than simply collecting or sharing information between participants and requires familiarity with the issues or topics the participant will have to work on. Some of them can start generating ideas or use different creative techniques if they understand the issue or topic. The facilitator had them look up some information on the internet. If they work online, they can use post-it online, and they can easily collaborate with others and see everything on the collaboration board.

Most ideators use Miro for capturing ideas and voting and being able to scroll through the task board and add stickers as needed to share the idea is the only thing they like. After selecting an idea, the participants grouped similar ideas that could be grouped and were able to drag and drop and type out the ideas that worked and it was much faster and easier than offline. Besides that, picking an idea they still must prototype it. However, it is unnecessary to prototype every time depending on the project. After that, screenshots were taken on the app and discussed with the facilitator team sharing how they used all three tools in each session: Miro, Mural, and Jamboard by Google depending on the context in which it is happening.

In addition, before the start of the session, the facilitator must provide a slide template for each presentation. They also think it's easy to type ideas on their computer. It's saved automatically and it's easy to share ideas. Another advantage of working online is that when they are done, they can export everything they do on that platform to another site because it's already in digital format. They can save and export files. It's much more convenient and saves the earth from using less paper. In order to print documents and use fewer stickers and markers. They will not kill trees and it's easier for facilitators to go online because it takes less time and faster. There are no wasting time inviting people to an event or meeting and waiting for them to sit in the room. It takes at least 5 minutes before starting the offline session, but if it is online, the participant will click the link or join the event within 10 seconds.

Before starting the online session, they will prepare slides for the tutorial and plan each step of the session such as planning the length of time for the participants to disperse group brainstorms ideas in each room and provide templates on Miro.com and Google slides to make it easier for participants and save time so participants can jump right in and put their ideas into it. The facilitators also need to consider the participant's access to the platform. Some people don't have access to the platform depending on the situation or country they are in. They may need a VPN to connect to the internet and to be able to connect and access the platform or the facilitators must think about which platform is suitable for participants, which facilitates have to make sure all ideators can access the platform and they have enough post-its or worksheets.

Conducting a session online is better than offline as pre-session preparation requires facilitators not to purchase the equipment, they will need to perform physical activities and save their time. To put that time into other things, they do not need to go outside or travel to attend events or meet people. There is something that the facilitator will need to prepare is a question or quiz given to a participant or learner so that they can know how well the learner or participant understands the content. In

conducting an online session, some participants may turn off their cameras. Thus, the facilitator cannot perceive how much interaction the participants are having, and it is difficult for the facilitator to switch screens or participate in activities in every breakout room.

Each facilitator can't see how they are working or chatting with others on the participants' phones or computers. Besides that, it's a matter of limitations that not all facilitators are able to have full control of the participant's work or seeing everyone in a divided cubicle and online emphasizes focus and they do not allow participants to talk in a very informal style. The indirect interactions between groups are different and the energy of the participant spent working online is so dry. One facilitator said that working online was plentiful when COVID hadn't happened. The energy was high and intense as the participants were just starting to learn something new and they had fun and the interaction between the other participants was high. Being familiar with and getting used to working online then, they get bored, and it gradually becomes harder for the facilitator. It is difficult or improper for the facilitator to tell participants to turn on the camera or be more involved. Thus, less energy to work online until now and beyond. Working online doesn't require a physical tool or material to perform any physical activity because everything is available on the platform. They just type in their ideas and save time and use less paper. They can do something else that is good for the environment but sometimes it gets messy and intense.

Sometimes, executing a session requires scrolling through the platform to find information and see other ideas on the screen or looking for other people's ideas or position of ideas they put in. They must work and scroll in order to be able to type information or put their ideas. Working online on the platform may have some limitations as they cannot do everything for free and bring 60-70% idea session tools to play due to the cost of switching between different platforms and using the platform longer time to explain and demonstrate techniques and mental effort, e.g.,

One needs to be switched from one to another, more advanced and different platforms must be switched and some physical tools may not be able to be used to run an online session.

Running an online ideation session is faster and more achievable than offline, or it can yield a lot of ideas in a short amount of time. It's easy to collect all the ideas and information, and it's easy to store and capture because they are all digital, so they don't need any paper. The other advantage of online that all session facilitators agree on is that they save the earth, trees, and paper.

Conducting an online session is easy to motivate and engage because they are a facilitator and they can share their energy with the participants then they allow people to stand up, warm up, exercise, and move and people feel more energized than sitting in a chair. In terms of more efficient online facilitation, it is much more efficient than face-to-face only in some perspectives. Offline Ideation produces 30-50% more ideas in the same amount of time, so it is much more productive and output-efficient, but in terms of online facilitation, the power level is much lower than offline. From the facilitator's perspective, the facilitators thought that the outcomes the participants achieved in the online sessions did not differ significantly compared to offline but still some aspects. Something different in terms of direction and form. Some of the differences are in digital competence. For example, when teaching a bachelor's degree or someone under 30, they are not much different online or offline but if people are over 40-50, they have a lower ability in thinking sessions and slow and take time to learn to program or new equipment and things. It will be time-consuming and more concerned about how to use the program and the facilitator will have to allow sometime to teach them how to use the platform such as copy and paste or how to use the tool and if it is inappropriate to use the tool. Once they broke into an online ideation session in the room. They misunderstood the tool that would directly affect the session itself. Peripheral visibility is limited to the size of the screen of the device being used and basically, they must scroll up and down to write loose concepts

at times and waste time and mind more taxing for ideators. If the facilitator runs the session for a few hours, it will make the participants feel more tired than the offline session.

Sometimes, the participants did something other than focusing on the activities the facilitator was going through. Some of them just check their emails or do other tasks simultaneously. Besides, they may be disturbed by the people around them when online. In online sessions, participants were treated differently depending on their background and personality, when done online had less sense of the social environment.

Collaboration in an online session may allow participants to come up with ideas for themselves and not copy others because they will have time to work individually. Thus, allowing them to have time to think and analyze the problem or topic on their own. As for the outcome of the online session, no sketching occurred in the session as it was found on most of the participants' devices. The idea yield is noticeably lower, it's 30-40% lower than offline and no matter how many ideas they come up with. There will always be one best idea as a result of that thinking, only one idea will be used, and the other ideas will be eliminated. The format of the stored data can be extracted at any time as needed. They do not have to transcribe them into the text to waste more time so it can help them feel more comfortable. They use technology to help them take notes and store them.

Most facilitators didn't want to conduct an online session due to technical capabilities and other unfavorable factors but 1 of 4 facilitators is indifferent regarding running an ideation session offline or online. They don’t have a better choice because both have their pros and cons and because of online facilitating. They do not have to pay for travel and do not have to buy equipment.

On the other hand, online was not the favorite choice among the other three facilitators because they could not use the tools to operate staggered. The workload is versatile, there is no physical interaction with others, and it doesn't feel more fun than

offline, and the resulting ideas are less creative than offline, and facilitators tend to be less creative than offline. There will be occasional issues with participation with the participants and the inability to see the participants thoroughly. They cannot help the participants resolve problems immediately during the session.

However, the implementation of online sessions is more efficient and easier. Ultimately, the facilitator thinks that the type of session they prefer to attend for the ideators depends on the situation or the organization's budget. They tend to change and vary according to situations and times. It could be offline or online, depending on the different types of participants. If the participants are an introvert they might prefer online, but if they are extroverts and expressive, they may prefer face-to-face. Other aspects of the facilitator are different. Those ideators who have offline and online experience. They will work more fully in offline ideation sessions than online because it's much more experiential, more sense, more social and communicative experience, and much more fun and energetic offline ideation than having to do it online. They can be physical as lively energy and good atmosphere and more tiring at the same time. It gives the ideator a higher sense of satisfaction and a feeling of accomplishment. Meanwhile, another reason one facilitator agrees with the other facilitator is that it is relevant if they are sociable and don't talk a lot. They may prefer working online rather than offline but if they like to talk and confront others and they are outgoing and want someone to help them inspire their ideas. They may choose to work more offline depending on their personality and their kind of person.

4.3 Opinion from both Facilitators and Ideators

In the opinion of students collaborating for offline brainstorming, they view that having many people brainstorming offline is not a problem because they have a technique known as double pizza. It's about splitting up into smaller groups so that the numbers are smaller, and everyone can work together more efficiently. As for the

time limit, they agree with the amount of time available for the offline brainstorming and it is enough that if they can't finish it within the time limit, they just set it up and schedule a meeting next time. If they focus too much, they won't be able to develop a good idea, but some people find that time is not enough due to the differences between the types of work. They are all okay if someone judges them because they are open and listen to other opinions. Offline or face-to-face ideation sessions may not be convenient or easy to do in the current situation, and they see it as easy to implement and a good opportunity to get more ideas from the inspiration of your teammates.

Moreover, they view that the main thing to do for ideation sessions is to increase the number of ideas and not to think about the quality. They think the ideas they get from offline ideation sessions are creative and feasible. If there is someone on a team with more excellent knowledge, ability, and expertise in a matter that is being debated or answered, they can easily judge others. Every time they attended an offline brainstorming session in front of them. They often had to wait until their turn to speak but that wasn't a huge problem. They prefer a session facilitator rather than a session leader because the facilitator can control work and duration and provide guidance on activities and help monitor sessions or ask for goals that have been set successfully and don't need time to prepare. They thought that the skill that should be prepared first was a soft skill but more than that they thought that talent was more than skill. Everyone must be open-minded. To come up with some ideas doesn't have to be very intense. Sometimes, the ideas are not new or innovative but just primary or general ideas. Most of them are satisfied with the results of offline ideation and prefer to spend more time offline rather than using both platforms. Offline is better than online ideation sessions. Some say that in their offline ideation, there is no judging others because there is a clear rule that prohibits others from judging the opinions of the other. In addition, they view that if someone is going to be a facilitator, it is

necessary to provide a presentation and it is necessary to provide tools to open the topic such as a product that is a sample in a discussion session and making decisions.

On the other hand, in the ideator's comments section on online collaboration for ideation sessions, they think some platforms have different usability features. For certain groups of people, for example, the size of post-it differs so looking may be difficult for them and not possible because it is small and may be challenging for everyone to carry out activities and achieve the results according to the goals on time or can finish on time. They think that sometimes drawing and showing it directly to others both in Line Application or even in Zoom is relatively easy and faster and they think that if they know how to come up with ideas or activities and generate ideas creatively. It will help them to be creative as much as possible. One ideator believes that in the future, there will be an AI that can help to coordinate many ideas together without us humans having to mix ideas with our brains. It either speeds up the process or AI helps in bringing relevant or similar ideas to group together on the work board. They don't have to waste time working at that stage. Technical skills may be effective in the early stages, but they don't generate ideas or contribute to brainstorming. Thinking of using different platforms to conduct a session, they see it as not a waste of time and they just want to know how to use it effectively and productively.

At the same time, for anyone who is not good at writing, it can be difficult for them to write ideas or explain them to others, and sometimes the topic of discussion has the effect of reducing the number of ideas fall because if they don't have familiar knowledge or experience in that field, they may not be able to come up with ideas or create ideas well. However, collaborating online is still an excellent way for today's situation to be comfortable and work from wherever they want. Some say that the ideas expressed may not be good or profound ideas, and they understand that everyone has a different background and style and different ideas. Another view of ideators is They are not afraid to share crazy and weird ideas but some of them cannot explain how effective and practical it is until they use the platform.

Moreover, they think that using both a video conferencing platform and an online collaboration platform for brainstorming has contributed significantly to communication and conversation using the video conferencing platform. It helps in group work that requires communication. They like that the online collaboration platform for generating ideas is attractive due to the features, a wide range of functionalities, and easy accessibility to everyone. They are free to use which makes them very entertaining and interactive. If there are fewer people in the session, it is more flexible than the crowd and online collaboration is better if everyone can work simultaneously and sometimes work together as a team online. It is not necessary to use both platforms simultaneously, it may use just a telecommunication platform or a video conferencing platform. In sharing their ideas in most online forms of work they tend to share opinions that are not true and weird, but no one keeps asking them to explain it all. Some of them said they felt it was more efficient and effective to produce many ideas in a short time compared to offline. Although we must do it perfectly, there are still problems. They still need face-to-face communication and eye contact during the conversation. They don't think working online would be a good option for brainstorming activities because ideators don't like talking a lot in online conversations and give a good or bad feeling. Sometimes, we need to write or put our idea on the platform and board and it's not the final idea. They felt that they didn't want to share their ideas if they had to brainstorm online.

Moreover, they mention that the person who will be facilitating the session should have knowledge and understanding of technical skills and know-how about the platform or device. That will be brought to ideators to use, and it is necessary to learn how to use that platform first by themself. As for the preparation time, there is more time for the online session and if any activity requires testing or touching a product or material, it may not perform well because of the facilitator's opinion on conducting online and offline sessions. They explain that the only primary or philosophical subject they understand offline or online is that people will focus more on it.

Especially in the Thai context if someone is in an online session, it is challenging to know if they are focusing on content or just opening another window and doing their work, or just turning off the camera. It might be impolite for the speakers to just ask them to turn on the camera if they don't want to or feel uncomfortable doing it.

As an instructor or facilitator, if they are not making eye contact, they will have a connection no matter what they are. They will type or pronounce differently if the speaker does not force the participants to do anything. They will feel flexible and able to do whatever they want, and facilitators will quickly lose their online participants, but offline facilitators have to force people to attend classes with any of their participants or employees and have organizational training. After that, the performance gets better and better out of a particular environment. They can have a short time doing something relaxed and not related to technology but their content, even the instructor's effectiveness after two years, people start to get tired of using the platform and They are not like great actors. People can't control themselves and it's easy for them. If someone shows them and brings them into the room, they will concentrate more.

In addition, the facilitators shared the techniques used to conduct the session, saying it should be fewer but more workshops with people nowadays having less attention and focus or less focusing on something and to have a session that lasts longer than two hours can be tedious and depressing. They choose not to focus on it but if the facilitator can complete the session within 30-40 minutes of teaching and sharing ideas, it might be good for them. Sometimes, going online may require bringing their computer and it may not be convenient for them. It is suitable for innovative thinking facilitators who can run both formats to run experiences and have dynamic energy, offline physical thinking, and specialize in online ideation sessions. It gives the thought facilitator flexibility, and it helps to know which cases work with ideators and know that they can work in offline sessions for online audiences which are different countries and audiences are different countries and they can also work

with their audience in different locations and times may vary. Other things are facilitators thought that it should be both fun and experiential offline ideation and a practical online ideation session and other facilitators agree that it's suitable for both online and offline where they are. They could initiate the process offline to get to know each other and then be able to work together online continuously for a few weeks and the hybrid could have benefited. Otherwise, the pair could lead to an unsuccessful approach depending on the constant they have when they brainstorm.

Once they brainstorm online, they can invite everyone to join but only when they are face to face together, they have to find people to attend their events and make it a lower cost to live differently and to make a difference in their choices. Ultimately, when taking an offline session, all participants see the facilitator from head to toe in appearance and feel, but when done online, the participant sees the facilitator only had the head and only saw the face and they had already decided what this facilitator was. It is easy to work in an offline environment but online, it takes a lot of effort and body language conducting an offline session means that if one of the participants performed an example of clapping their hands, there would often be others imitating and following which was not possible online. Conducting an online session is associated with technical limitations for the participant or ideators because they have to constantly switch pages and cannot see others clearly because of the images' format. The screen was too small, and they felt it could help the participants or ideators to think and come up with ideas and work together seamlessly between the participants themselves which was a challenge for them.

4.4 Summary

In this fourth chapter, the information and details from the data collection by interviewing both the ideators and the facilitator's side are described in detail in participating and conducting ideation sessions both online and offline concluded and

discovered that they had some similar opinions, and some had different opinions or some of them had other opinions other than what others had. In terms of different perspectives and various opinions or conclusions that the researcher has when referring to the information obtained. It is known that different opinions depend on factors and backgrounds. The backgrounds and experiences are different as each ideators has a different background from joining the session and the length of time. Some ideators have a lot of experience using the platform and some ideators aren't familiar with today's technology. Some of them have different experiences because of their current job style, their responsibilities, and the position or level of the individual position in their work. They are also different and have a mindset and an eye area. There are different nationalities and there are nationalities and cultures involved. On the facilitator's side, the author had the opportunity to interview them. They also have different backgrounds, ages and ranges, and nationalities, making the information they have obtained both agree and disagree. All these things have resulted in them having different feelings or opinions.

However, in the interview, different questions were used from both the ideators' sides where the author used the first set of questions to ask them, but I used a different set of questions on the facilitator's side. The author going out to make the data collected differently may cause some data to be inaccurate due to some variables. All interviewees may have a different understanding of the questions and answering the question may be in a way that attempts to allow the interviewees to take the question freely and without blocking. Thus, it’s creating a variety.

Each person discussed several aspects. It was found that limited time, interpersonal skills, technical competence, communication issues, perceptions differed from culture and nationality, and accent or tone. The number of members in each session, internet connection issues, the amount of time required to queue to speak, the convenience of sharing ideas freely, platform limitations and limits of time granted, judging by others, platform features, techniques, and tools. These factors have little or

no impact on both online and offline ideation sessions. However, no matter what facilitators and ideators choose to conduct face-to-face ideation sessions or online ideation sessions both have their pros and cons. Ultimately, they also prefer to work offline and consider working online has yet to replace working offline because of the environment and interaction, which is mainly concerning because they still want to interact with other people and interact face-to-face and be able to feel or be perceived about the existence of others and feel the sense of touching and still need to have physical activity.

CHAPTER 5
DISCUSSION AND CONCLUSION

5.1 Discussion

In terms of results and satisfaction, it depends on each individual's background and opinions, perspectives, and attitudes on the use of both online and offline ideation sessions. The experience is different because each person has the preparation, skills, behavior, and methods used to make the experience more effective and each person has different problems that they have due to factors that they have overlooked, which, if they have the complete skills and readiness. It will help their work more efficiently. They may need to do some research before starting the session or research the platform to use so that during the session. It is easier and faster which I am looking at as the steps they have to face are lengthy and time-consuming both online and offline. It requires effort and limitations that they cannot change. The passage of time may cause them to change their feelings from being excited and enjoying learning new things to making them bored and tired. Running the session was challenging and slower. Besides, the cost of either purchasing the equipment or traveling was their consideration and that was the result. On the other hand, looking at the current environment is good for us to preserve the environment or natural resources when they have the idea that they want to reduce the amount of waste by reducing the amount of paper required for writing or recording or whether it is a document that needs to be printed off a computer is a great use. It's only short-term and it's not as helpful as it should be because they just discard it and destroy it and not bring it back. They have different practices and opinions in both directions and various information that give some people fearful and unconvinced opinions while others dare to speak the truth and need to express opinions to bring the issue to be sent out for change or correction. Nowadays people indeed have their ideas, and they are

more assertive. However, there are other types of people who are different in that they are not assertive, and they are not very social. Their personalities may be diverse as they come from different families and upbringings. They can either be introverts or extroverts at the same time. They create the rules or regulations to work together because they think that there are differences, but they can be understood and obeyed. However, it is relevant to the person or age and sometimes it is easy to break the rules or not follow rules making the style of collaboration or session not as it should be. In terms of being able to behave in a session to be effective, they also need to be knowledgeable and competent. Some ideators cannot work well with others and they must seek help or referrals while others do some tasks. In addition to that, there is a connection between online and offline ideation sessions when it comes to the current situation where everyone is depressed, they don't feel energized and don't have passion for work, which sometimes makes it challenging to motivate themself. They may know that they are discouraged from their daily lives or that some ideators are not very happy in their personal lives. Due to situations where everyone is masked and unable to breathe and encounters more difficulty in traveling. Thus, they are more tired from having to use their brains or thinking of brainstorming with others.

In the current data collection, it is difficult to collect data during COVID-19 as all interviewees work in different places and must use the internet and a platform to connect or communicate. I can't travel to collect everyone's information due to the cost and safety concerns nowadays, so I choose to arrange a remote meeting. It's hard for me to schedule meetings with people who are currently busy and have quite a lot of work to do, so to schedule an interview with each person, it has to be when they are free and when they can provide information. It will be comfortable and convenient for them. However, I try to do as much research as possible to support my topic and the information I collect can be the answer. The research questions I have set up may help guide the answers to those questions. This independent study intends to explore facts and insights on the benefits and problems of using this platform in this way and to

determine the issues or factors that affect the production of practical ideas or the reason for the decrease in the number of ideas gathered. The information obtained directly satisfies the needs of this research because the information I have researched from the relevant literature mentions some information. It helped me know which interviewees could answer the questions in which direction or what kind of questions would make them the most expressive after collecting data. Once the information is obtained, I can analyze and understand it better as I can keep the video or audio files that the interviewee has permitted me to record. In addition, the data I gathered from the interview was only from a group of 10 people and the data or results may not be complete enough, but I think the people or members I have selected are influential. It's reasonable to collect data from independent studies because I think it's not necessary to collect data from a large group of people. It still can't answer that if it's collecting data from a large group of people. The data will change more or less as the topic I have been studying is relatively new and not much study has been done on this topic. The current data is scarce and negligible so I think that if I study this topic, I think that the information I get can be helpful for discussion on each issue that arises, or at the same time, I think that the information obtained can be extended more widely in terms of diversity or type of persons that may make the information more different and more diverse.

As for the content and information I have collected from both the relevant literature and interviews, it has been found that the subject matter is closely related. Thus, I can guarantee that the content obtained from keeping that information is accurate by working with others as a group or brainstorming with others. I have found that they can come up with creative ideas in groups of more than one person. One person was unable to have sufficient knowledge or ability to solve problems effectively, which was relevant and consistent with the information received from the interviewees. When they collaborate with each other they are more creative and able to generate more ideas and they can get inspired by the ideas of others or at the same

time, they can create ideas that are connected to the ideas of the team members. In addition, data from the relevant literature also addressed the same issues that interviewees commented on how physical activities between teams and social conditions, cultural differences and periods affect teamwork, communication, and collaboration. Remote collaboration requires a platform, and they must be connected to the internet which is another factor that affects the participants because they have to connect to the internet in order to be able to join the platform and if the internet is slow, then it will not be possible to communicate with others. In addition, from one research, I have discovered that they can use the method of asking friends to come up with ideas or using physical devices such as Post-it, Masking tape, flipcharts, pictures, markers, paper, or anything else around them as found in the interviews, the information is consistent. In addition, in terms of personal contributions such as the effort, money, or time required to invest in participating in an activity, they must consider participating in that activity.

Moreover, in the literature, I have found Brainwriting is more effective than Brainstorming in that participants can draw or write as much of their ideas as possible and it allows them to generate ideas rather than verbally using their brainstorming, if they write down all the ideas they have in between, no one can judge them as right or wrong if they wrote down those ideas instead of verbally communicating them directly with others. However, the literature that I found provided information that matched the details provided by interviewees that online collaboration would be complex if users were distracted at that time. They would waste time by having to enter and leave virtual small group rooms or useless discussions about the irrelevant and from learning how to use the platform before joining. The session resulted in the team having unsatisfactory performance and other factors discussed in the literature reached conclusions that matched the interview data on the issue of timing, participants, and the chosen tool influencing the generation of the idea.

5.2 Conclusion

This independent study is exploratory as the topic discussed is new and there is relatively little data to support it, so it was thought that raising this topic would benefit anyone involved. This study focuses on the current situation where the environment changes so that human behavior changes according to the environment to allow oneself to continue living. When the epidemic occurs, collaboration and communication become more difficult. I saw that this study would be a subject of discussion in the future and with my inspiration. I experienced the ideation sessions in the offline master's class offline and online where I can see the difference and want to know other people's opinions in a different direction, and I think I can have the opportunity to collect information from people around me easily. I can get in touch with them, and I think they are a group of people who are very close to me and very close to my topic. Their opinions and feelings will profoundly affect my research and analysis, so I chose to collect data among two types of people closely related in the brainstorming cycle. I also hope that the information I collect will help future applications or platform developers or facilitators, or even the ideators are aware of the situation or information and details and allow different data to be analyzed and developed. The existing platform may meet more user needs and be smoother during use in the future. Nowadays, due to the current situation, brainstorming usually has two approaches: in-person or offline ideation sessions and virtual or online ideation. People can choose to brainstorm according to their situation and needs depending on the activities and conditions of a particular place or person. There are differences between the two forms of brainstorming. The difference is that in my view, there are advantages and disadvantages. In terms of brainstorming in an offline ideation session, the facilitator must provide physical activities such as a flipchart or paper or whatever the participant can write or take notes on documents or slides to present information to others. Participants also had to provide personal equipment, or perhaps

none, but they only had to attend a meeting in a specific room for a specified period or be scheduled. In addition, it takes time because sometimes it is not possible to reach a conclusion or come to an agreement within that time. They may need to schedule a meeting and bring the issue up again. It's going to be much lengthier than online because they are more time-consuming and don't have any oppressive moments or pressure to think. It's quite flexible. In offline ideation sessions, they can also easily touch, smell, feel, and hear something around them and they can interact with others and perceive the presence of other participants and a sense of the social environment. Moreover, in offline ideation sessions, there is a facilitator to help control and guide the participants' participation or can help participants come up with ideas. However, this form of brainstorming sometimes fails to complete the task promptly as some tasks require time. Besides, it may be easier for some to be judged because they have to sit facing each other in the room and when they express their opinions. Therefore, it is easier for others to listen and judge them. Sometimes working with others to brainstorm this kind of brainstorming over long periods can make them feel exhausted and their efficiency in coming up with ideas is reduced because their brains are fatigued from it, thinking for a long time, and there is no rest. They cannot move their bodies or change places. Sometimes, this kind of brainstorming can cause conflict and lead to a fight but if there are more members in the ideation session than the size of the room, participants will be able to see the post-it stuck on the wall thoroughly. Most offline ideation sessions require realistic or plausible and unconventional ideas, but a minority of businesses or organizations are open to innovative ideas. In addition to that, they can draw pictures and share ideas effectively and they can use gestures or verbal communication to communicate with others. Participants can see other people's actions during the event. Brainstorming or collaborating with others offline is more formal than online and most of the work involves taking information written on paper and taking notes on a computer. It may take time and it also wastes resources. Another aspect of online ideation sessions is that they have a virtual meeting room

used for brainstorming with others by bringing a platform to mediate between groups of people. For the most part, it takes a relatively short amount of time and is fast so that a large number of ideas can be obtained in a short time, a conversation can be ended, or a conclusion can be reached within one session. Most of them will have to use two common platforms as an online collaboration platform and a video conferencing platform where they need to have both their communication and idea boards, but some only use one platform to talk, and only verbal is not necessary to note ideas. It's just a general discussion. Working online, they can find information online and find additional images to describe their opinions or ideas better. Besides that, working on a brainstorming board, they can use post-it to write down their ideas and drag them around to place them where they want. More than that, they can plan or link similar ideas and combine them. In addition, they can choose the color or change the color of the paper and can change the letters to different sizes and styles. Moreover, working online, they can access the platform from anywhere and anytime according to their needs and they do not have to pay for travel or purchase equipment to carry out their activities. For the most part, working online doesn't require waiting as they can either get to work in person or if there is a meeting or online ideation session and some of them are busy so they can come back to add ideas or edit information later after they are free, and it will be saved automatically. Most of them would be working alone for the most part, but when they had a pause in thinking due to working alone and couldn't think of an ideation session during that time, they arranged another meeting at an appropriate time, and everyone can participate in ideation session with others will enable them to continue their work and solve problems that arise during the process. Moreover, after they complete brainstorming and noting down on the platform, they can export the information without wasting paper. Besides, connecting or attending an online session is directly related to the internet which may be the main issue. Some of them may experience connection issues due to location issues where the country they are in may not provide or allow

access to that platform. In addition to that, it is difficult to sketch on the program as it takes at least 5 minutes, and it is too much time. They think it's more convenient and faster to write information on paper or origami as for the effort or energy required, working online takes a lot of effort and most participants are bored and unable to engage or have enough energy to focus or focus on the activity. The facilitator who runs the online ideation session must check the equipment and make sure there are enough worksheets or post-its for the participants. Facilitators can apply techniques or develop ideas for participants to use in their ideation sessions to help them be creative or come up with ideas independently. Both online and offline ideation sessions are limited because certain techniques or skills will need to be adapted to suit the current situation. Some techniques or skills are not available offline, but some can be applied online. In terms of ideas or results, offline ideation takes longer and gets more quality ideas, but online ideation takes less time and gets a lot of ideas, but the quality isn't good. However, the two forms of ideation sessions have pros and cons, but they are not much different. I found a balance point for the needs of each person depends on the satisfaction and ability of each person to be able to apply their knowledge or ability both technical and soft skills to be adapted to brainstorming for maximum efficiency but the main difference between brainstorming or collaborating online and offline in the form of interaction with others in terms of communication, eye contact, behavior or gestures, and feelings or touch. Ultimately, what they consider or be aware of or what should be considered in their implementation is usually IPO-related which like the main factor or topic in any job will include input, process, and output. Each step is a matter that should be analyzed to develop better in terms of solving problems and the interest in this study is the idea that writing by hand as a post-it in an ideation session is more creative than using the tool or typing it on the computer.

5.3 Future Challenges

In this exploratory study, not only where the data collection limitations clarify the feasibility and prospects of future research, but I clarified and summarized the benefits of data collection to the extent that I could. My study uses a qualitative data collection method that simply collects data from interviews and observations during the interview session. The qualitative research model is based on direct observations, interviews, questionnaires, group chat participant observation recording in natural environments, documents, case studies, and general non-numerical informational experiences. I also choose a method to focus on specific groups relevant to my topic.

However, the information I received only contained some details which, if in the future there might be some factors or something that were added or changed in the situation and the information might change. I only collected data from a group of 10 people, which is roughly the number of people I think would be acceptable for an independent study but it's also an opportunity for other researchers if they want to analyze more exciting data. They can collect data from more people because it will make the data more diverse and different. The more people they collect the more gender diversity, nationality, communication, job position, and culture. This will make the data heterogeneous and have different data based on their background. Most of the data I collect is purely from a specific group of people.

Most of the respondents were ideators and facilitators and in the future, studies that collect data from individuals using online collaboration platforms or those with offline ideation session experience might have different and promising results. Interest in future comparisons and discussions may be an opportunity for platform analysts or platform developers to see that the user experience varies differently. They can't ignore that the opinions they feel after using it may have the effect of modifying the platform model to meet the needs of users around the world.

In addition to that, our world has now changed to the technology age and people's lifestyles are more comfortable and they are more technologically capable. Apart from that, the techniques or skills they have are cheap. Collecting the present to continue to survive also includes being open to the new or the present that everyone calls "innovation" thinking outside the box or inventing new things to bring about change so I think it is connected to the attitude or personality of the person who might make future research possible to capture the information of the companies who developed or built the current online collaboration platform or even the team who build this kind of platform. There may be a different perspective on analyzing or collecting data or even opening the data for business units to be aware of and consider before choosing to use it. They may get to know and understand the workflow before the platform emerges. It has a history and features that they don't know before or something which should use. Additionally, the user may make better decisions to suit the participant or session to be organized for optimal performance.

5.4 Recommendation

Researchers have revealed that brainstorming or collaboration, both online and most effectively or productively, should be guided by the following recommendations:

1. Facilitators can use Ideation techniques such as Pool Brainwriting, which requires all team participants to write ideas on their sheets and have them swap sheets in the group, and they have their comments on each sheet. They had read at that time. After writing a comment, switch the sheet back to the owner of the sheet so that the owner of the sheet can see or read other people's comments. In addition, they can send the commented sheet to anyone on the team and pass it on in a circle so that they can all be able to know the opinions of others and share ideas with others unless they brainstorm ideas verbally and write ideas down helps them more creative. After all,

Brainwriting is more valuable than just Brainstorming because everyone can read other people's ideas.

2. Ideation facilitators preparing for conducting a session should consider that the cognitive process should be a single process. The objectives required for the session should not be thought of as merely requiring action. It's not only professional idea sessions, but session facilitators are supposed to help people get a lot of ideas or help them come up with creative techniques that they can implement in their future.

3. Regarding the factors that occur during brainstorming or working with others. Facilitators should consider the possibility or how well the participants can participate in which sessions or activities. They can be highly involved in, e.g., If an online session is required, the facilitator should think about whether the platform they will be using is familiar with or how they will be able to use it effectively. The facilitators may need to find a way to facilitate or think more about the participants to make the session go well if the participants are not technically competent. The facilitator will waste time teaching them how to use it, and the facilitator should have the knowledge and ability to understand the content or issues they will be working on or the issues they will discuss. This is because the facilitator must help them generate ideas and provide assistance or advice during the session and they should also be technically knowledgeable. The platform or tool they will use to teach participants well. Besides, the facilitator must plan well in advance of the session as to where or when the participants will be able to participate in terms of internet or connection. Some people might have internet issues, or some countries don't allow access to the platform at that moment so it's difficult for them. Besides, if you are going to have an offline session, they should prepare enough equipment for the number of participants in each session and provide documents or slides to present the event so that participants understand what they will need to follow. Additionally, facilitators need to keep in mind that brainstorming shouldn't take long as this can reduce the effectiveness of brainstorming when participants start to feel tired and unable to come

up with ideas. They won't focus on it, so the facilitator should clearly define the limits or boundaries of the session. For example, the topic that the participants should be thinking about should be a single topic or a single issue. Otherwise, they are either distracted or out of the box or they might just be talking to other people on other subjects. It has nothing to do with the topic at all, and that topic should be interesting, and that topic has to relate to them so they will be able to come up with a lot of ideas. Moreover, if the facilitators have a technique that makes them feel fun or shortens the time by using techniques to help them come up with ideas. It will be easier and faster, and facilitators should limit their time not too long so they can better manage their brainstorming time to get ideas.

4. In terms of participants, I think they should be skilled, knowledgeable, and well prepared before the session because working with others will be a priority once they join the session. It's easier and less problematic and they'll have a better experience. They are advised to study the topic or issues they will be addressed before starting the session if they can get to know the topic from the facilitator and they should explore the tool or platform. They need to be prepared before the start of the session to prevent problems from occurring. They can learn how to use it before getting started because if they can understand how to use it, they will feel more comfortable and work with others more smoothly. In terms of some social or conversational skills, they may need to adjust to fit the situation and they should be a person who is flexible and able to adapt to the situation at that time. It makes collaborating with others more efficient, and since some people are not very tech-savvy, they should spend some time researching it before joining the session so that the session doesn't take too long in vain, and they all should be open and listen to others and not judge others before the speaker can explain and end the conversation. In terms of skills, they should have soft skills such as Emotional Intelligence, Communication skills, Adaptability, Collaboration, Analytical Thinking and Decision-making, Creativity, Time Management, Complex Problem Solving, and

persuasion. These skills are essential for communicating with others and are essential skills of modern leaders and workers that enable participants to work with others more effectively and influence their achievements. Achieve the job as expected and more, if the participant has hard skills such as Computer skills, Management skills, Project management skills, writing skills, accounting skills, Design skills, and Language skills; all these skills, will help them work more efficiently and be more successful.

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APPENDICES

Appendix A

Interview Questions

1) Questions to Facilitators:

1. How many online Ideation sessions have you facilitated so far?

2. How many offline Ideation sessions have you facilitated so far?

3. How experienced an offline/online facilitator do you consider yourself to be? Consider using categories such as Novice, Apprentice, Practitioner, Master, and Expert.

4. How do you typically run:

a) Offline Ideation sessions?

b) Online Ideation sessions?

5. When comparing online vs. offline Ideation sessions, what are the major differences with regards to preparing a session? Possible follow-up questions on: materials needed, the time needed, etc.

6. What are major differences in facilitating / running an online vs. offline Ideation session? Possible follow up questions on: number of tools, communication styles used, energy levels, etc.

7. What are major differences for the Ideators that you noticed as a facilitator of online vs. offline Ideation sessions?

8. What are major differences with regards to the outputs created in an online vs. offline Ideation session according to your views?

9. What session do you prefer to facilitate - an online or an offline Ideation session? Why?

10. What session do you think do ideators prefer to take part in - an online or an offline Ideation session? Why?

11. What other things come to your mind when you reflect on your experiences facilitating Ideation sessions online vs. offline? Any last thoughts you want to share with me?

13. Which platform for online and material for offline

14. As a facilitator do you have the technique or method that you use to facilitate the session?

2) Questions to Ideators:

1. How many tools can you use in the times given?

2. How is it different if you need to do it online?

3. How many people do you evolve with?

4. How many times do you have in each session?

5. What happened regarding session planning?

6. How can you add your idea or any sketch offline and online in a brainstorming session?

7. What's going on or what happens when you brainstorm during the ideation session?

8. How are you going to apply online collaboration platforms as a person or in a group?

9. How many ideas can you get when you do an ideation session in a group?

10. Normally, one person takes notes or everyone writes down the ideas together in an ideation session?

11. Do you think it's more effective when generating ideas in an online ideation session? Make it more productive or not?

12. Do you think that using an online meeting platform to aid communication is necessary for collaboration in an online brainstorming platform?

13. What benefits do you think can be gained from using an online brainstorming platform to generate ideas?

14. How long or how many times do you think the ideation session should be from both offline/online and why?

15. How do you feel when you have to do brainstorming in an online session or brainstorming in an offline session?

16. In offline/online brainstorming, what techniques do you use to think creatively?

17. When you use online brainstorming tools, do you think it helps to be more creative or gives you the inspiration to create ideas?

18. Have you ever done an offline group idea generation session and what did the offline brainstorming look like? What techniques or methods have you used to brainstorm face-to-face?

19. Do you think having a lot of people in brainstorming sessions will affect the generation of ideas both online and offline?

20. Do you think sharing ideas with others or listening to others' ideas gives you the inspiration to create more ideas?

21. In offline brainstorming, have you ever documented ideas, and in what format?

22. Connecting to the Internet during the time of the ideation session, have you had any problems or encountered this problem?

23. How was your brainstorming using an online brainstorming platform?

24. When you want to come up with an idea, are you afraid to come up with a weird or crazy idea?

25. Do you think using a group online brainstorming platform is a waste of time?

26. What methods or techniques do you use for most online brainstorming sessions to generate new ideas?

27. The most common problems you will encounter when doing an online brainstorming session?

28. The most common problems you will encounter when doing an offline brainstorming session?

29. Do you have any Experience before with the offline brainstorming session in your company or master's class?

30. What are the advantages and disadvantages when you do online/offline brainstorming?

31. When you are doing offline/online brainstorming, do you need preparation time before starting the session?

32. What things can reduce your idea when you do offline/online brainstorming?

33. What do you think is the difference between offline and online brainstorming in your opinion?

34. What technique or skill do you think that you should have when you brainstorm in each session?

35. How does online/offline brainstorming affect your job?

36. Which platform do you use the most when you need to do brainstorming online?

37. Do you have any rules when you do online/offline brainstorming?

38. Do you have any people to help you take notes or guide you to do the session or summarize the result of the online/offline session?

Appendix B

Overview of popular online collaboration platforms and tools for communicating during online Ideation sessions

B.1. Online Collaboration Platforms for Communicating Ideation

Google

Google Slide

It is a presentation tool that can share interesting content with others. The main features of this tool are design, animation, slide recording, etc. Slides can be reused by editing, modifying, and updating, making them feel more accessible to use than conventional presentation tools and comfortable.

A workshop participant in one study explained that they would use Google Slides to share their insights with others and to help them express their opinions. Moreover, when everyone has seen the information, if there is any doubt or after evaluating it, everyone can help fix it later. In addition, the research evaluated the effects of observations on the use of Google Slides and found that all participants could participate in commenting and gaining experience.

Google Document

It is a tool that helps to write documents. It has similar features or functionality to the widely used MS Word and is an essential tool for document writing, designing, editing, and formatting, but Google Docs is different in that it can be printed and shared. Voice and can also create documents that everyone can collaborate on.

Google Meet

It is a video conferencing tool used for online learning. Attend virtual meetings, conferences, training, and workshops. Video conferencing tools can easily

organize our classes and meetings in a virtual platform. It has many features such as screen sharing, recording, writing, and file sharing.

Google Form

It is an assessment and survey type of tool that most survey tools are used to collect feedback or suggestions, recommendations, or even assign tasks or participate in activities and evaluation. This platform can set different questions such as short answers and paragraph writing. Multiple-choice and multiple-choice tables communicate with learners and work with friends. The tool can also collect emails and send time by limiting one reply. Moreover, the results are automatically compiled in an easily downloadable format in Excel sheets. Everyone can also ask questions by attaching images, audio, and video files.

Google Sheet

This tool is used for data analysis and visualization. It can be used to find the effectiveness of teaching scientifically and logically basic skills such as calculating frequency, range, mean, and standard deviation. Moreover, relationship with this tool, users can collaborate with others simultaneously.

Microsoft Office 365

Microsoft 365, also known as Office 365, is a suite that helps you connect with people over long distances and work seamlessly. There are formats available for personal, family, or even education. Plus, it will keep you working, learning, organized, connected, and creative with the whole family. Friends or colleagues with Microsoft Teams can meet, chat, call, and collaborate all in one place. Furthermore, in addition to that, OneDrive Cloud can share and access files anytime from Word, Excel, and PowerPoint and secure personal and corporate data.

B.2. Video Conference Platforms for Running the Session

MicrosoftTeams

MicrosoftTeams is an example of a team collaboration platform that is a valuable team collaboration tool for teachers and students that is right for individual and group calling. Including course management and document sharing, almost all functions are similar to video conferencing tools. But these tools have separate username passwords to use in separate groups. Individuals who are not registered in the group cannot participate in the activity. Group and private calls screen sharing messaging virtual whiteboard Assigning tasks or assignments, scheduling, recording, etc., are the main features of this tool.

Facebook

Facebook is in the category of discussion boards. This is a standard tool and is widely used today. Used in communication Chat privately and in groups and used to make calls and send files. Screen sharing is also a vital feature of this tool that allows teachers to use it within the classroom or manage courses. However, this tool has a limitation: it cannot record the screen. Alternatively, control participation This tool can share opinions. Share feelings, problems

Line

LINE is a global communication program or platform to close the distance between people by making voice and video calls and text messages. It can also send stickers to express your feelings and can be Compatible with mobile phones with iOS, Android, and Windows Phone operating systems, and can be used on PC and Mac computers.

Zoom

Zoom is a cloud-based video communication platform. It can be used through a desktop computer or a mobile app. It allows users to connect in real-time.

Used for virtual video and audio conferencing. Webinars, Live Chat, Screen Sharing, and other collaborative abilities

Skype

Skype is the world's leading personal, group, team member, or business community chat software for free face-to-face or group video and audio calls and for sending instant messages and sharing files with others. Skype can be used on mobile, computers, or tablets.

Bluejeans

BlueJeans is a cloud-based service that can connect users across devices and use conferencing solutions such as Google, Microsoft Lync, and Cisco. The platform offers collaborative video, audio, and web conferencing and allows users to host live streams and other interactive activities.

Google Meet

It is a video conferencing tool used for online learning. Attend virtual meetings, conferences, training, and workshops. Video conferencing tools can easily organize our classes and meetings in a virtual platform. It has many features such as screen sharing, recording, writing, and file sharing.

Cisco Webex

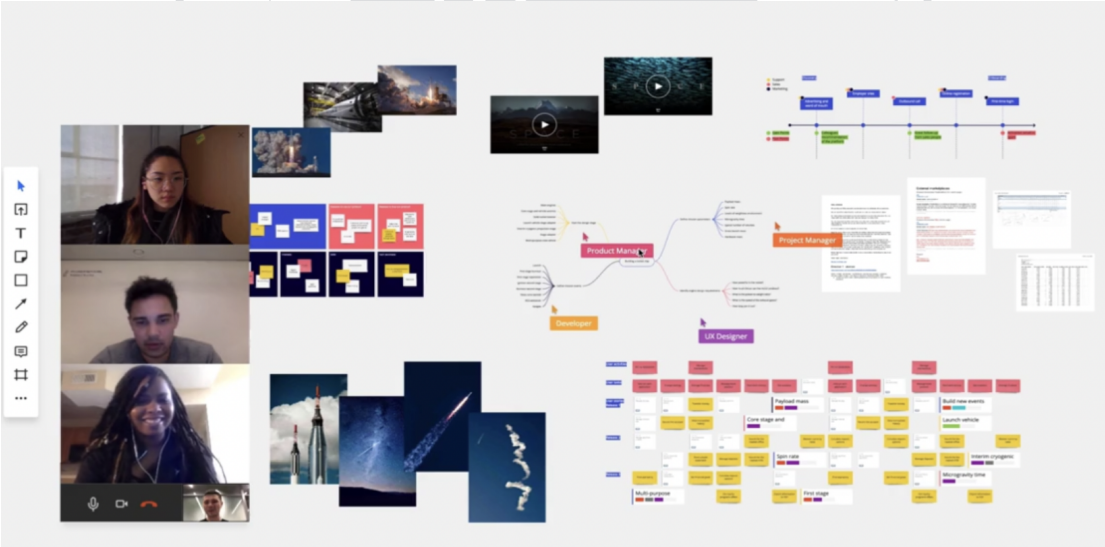
Webex by Cisco is a versatile desktop video/audio conferencing application that enables real-time meetings with anyone, anywhere, from work or home. It can be used either on your computer or a mobile application. Besides that, WebEx can be installed for your iPhone, iPad, Android or Blackberry. The WebEx Meeting Center for Windows and Mac offers HD video and online chat and all the tools you need to share presentations and applications. Desktop to write on an online whiteboard and annotate

B.3. Online Collaboration Tool for Ideation

According to one research study, the definition of ideation is related to the creation, development, and communication of ideas to others. It can be in visual, abstract, and concrete forms. (Jonson, 2005)

Miro

Miro is an online whiteboard for collaboration and ease of use. It can be used anywhere or anytime. It also acts as a boundless canvas for digital brainstorming sessions to produce meeting papers and teach classes. The primary use of this platform can be to organize ideation and brainstorming sessions, strategize and plan, organize retrospective activities or evaluations, conduct research and design, organize classes, meet friends, hold meetings or conduct workshops, and make maps and diagrams to describe complex processes and systems or even to do agile workflows.

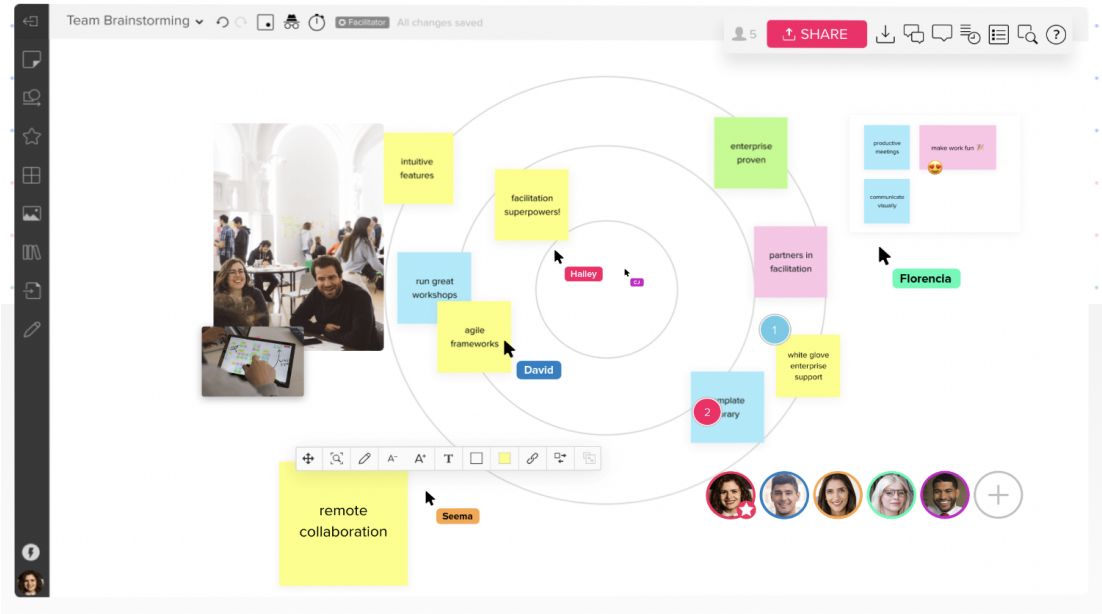


Source: www.miro.com

Mural

The mural is a real-time collaboration digital whiteboard designed to inspire innovation. Users can use murals for brainstorming and thinking, meetings and workshops to strategize and plan, conduct design research and analysis and make

appointments with customers. Users can use the tools in this platform to create their work, such as using sticky notes and text boxes to add ideas, thoughts, and suggestions. Use shapes and connectors to create diagrams. Use icons to create a visual story. Use Frameworks to organize content and ideas to effectively reveal insights, use images and GIFs to enhance collaborative sessions, and lastly, users can draw to boost their creativity by sketching and writing with bare hands and many more new features.

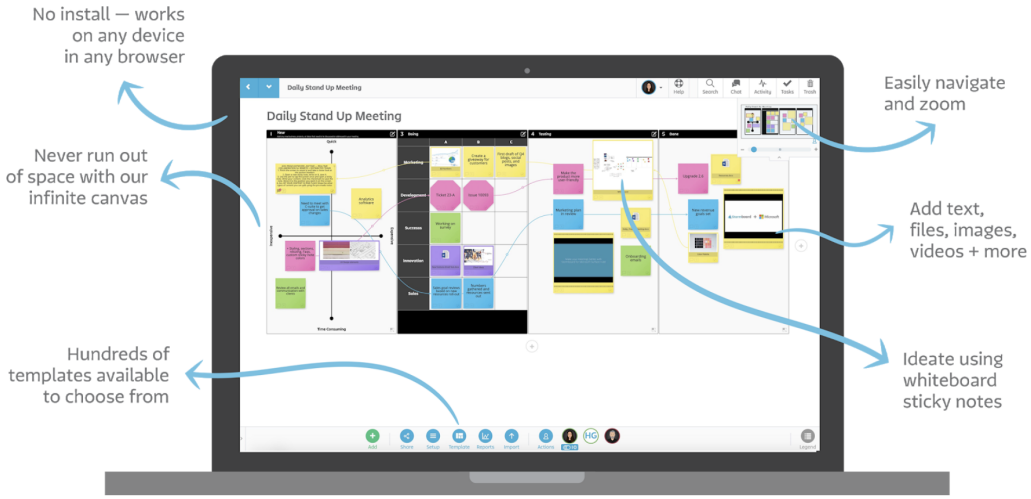


Source: www.mural.co/

Stormboard

Stormboard works differently from other tools in this section because it helps you brainstorm and plan a meeting before it happens. Using Stormboard, you can set up your meeting beforehand, discuss your ideas in real-time, and then assign tasks after the meeting wraps up to keep projects on track. This tool also has built-in templates for project management techniques like agile, and work can be instantly exported using the tool's reporting options for more technical meeting needs. This tool

is a good fit.



Source: https://www.ziflow.com/blog/online-collaboration-tools

Appendix C

18 Idea Generation Techniques Besides Brainstorming

1. Reverse brainstorming

While the process of brainstorming is the generation of ideas to identify problem-solving methods, reverse brainstorming starts with thinking about the causes of that problem. Focusing on the causes of the problem may sometimes be more efficient than focusing on the solution. By finding potential causes, you can work proactively to resolve or prevent the cause of the problem. Often, teams use reverse brainstorming to improve products and services.

2. Brainwriting

A brainwriting activity is typically most effective in a group setting. Start by writing a topic on a piece of paper. Then, pass the paper around the group so that everyone has a turn to write on it and contribute their ideas to the central topic or question. The ideas of one group member can inspire the ideas of another, or someone may choose to improve upon an existing one.

3. Brain netting

Brain netting involves using cloud-based documents or programs for groups to share and collaborate. This form of brainstorming can be interactive with the addition of links, videos, and images to provide visual representations and context. Using an online program also works when working with a team, either live or remotely, which could benefit those collaborating within different time zones.

4. Forced relationships

The forced relationships method introduces two random and seemingly unrelated items and forces you to create a connection between them. This technique encourages innovative thinking to build those relationships and develop a new

product. You can conduct forced relationship activities in group settings or individually.

5. Role-storming

Role-storming is brainstorming with the added element of role-playing. Participants could imagine that they're in a different role in the brainstorming goal to bring out new perspectives and different ideas. They could pretend they're a client or manager assessing the same goal and ask themselves what improvements to implement.

6. Storyboarding

Develop a storyboard by finding pictures, quotes, and other visual information associated with the focus of your brainstorming. Then, you could arrange these items to create a narrative and add notes to help explain the progression of the ideas. Storyboarding can be more interactive when searching for physical items to add to the board. The physical aspect of seeking and building can allow your brain to process visual information faster.

7. Five whys

This method often begins with an actual or hypothetical problem that you could address with your team. You would ask them why a problem happens or is happening. After the initial round of responses and forming an answer, a facilitator repeatedly asks until the fifth time. The reason for asking the same question five times is to find more profound answers, as the first response is typically shallower.

8. Six thinking hats

You can use this technique with groups of at least six people. Each participant represents a "thinking hat," or different thought focuses, such as benefits, emotions, facts, ideas, judgment, and planning. Each person addresses the topic or problem from that standpoint with these mindsets.

9. S.C.A.M.P.E.R.

SCAMPER stands for substitute, combine, adapt, modify, put to another use, eliminate and reverse. This acronym is essentially a question checklist to prompt your ideas. It asks you to consider factors like substituting a variable, combining one with another, or adapting a variable to a different context. This method helps you think critically and consider creative approaches from several angles.

10. SWOT analysis

SWOT is an acronym for strengths, weaknesses, opportunities, and threats. You can usually use this method individually or with a team to assess the worth of proposed projects. You could ask what the strengths, weaknesses, opportunities, and threats are for a particular project to help decide if you should proceed.

11. Group sketching

Each group member passes around a piece of paper to sketch something related to a central concept or sketch the paper. Once the entire group has completed sketching, discuss the images and form connections. Visually thinking and creating can give a form to the group's ideas to interpret a plan or design.

12. Word banking

Word banking is similar to other word association activities but is conducted on a larger scale with the volume of words and phrases involved. While word association relates one word to another, you can form more extensive word sets with word banking. You can associate more than one word with another and group those words to identify patterns and connections. This method can help solidify abstract ideas by finding a common objective or purpose that can initiate the beginning of a project.

13. Wishing

This method asks participants to wish for solutions to a given problem. These solutions can be impractical or unattainable, but your team can still discuss potential ways to make them happen. You could develop the ultimate solution to the

problem by analyzing what aspects of each wish they can use or integrate into the actual solution.

14. Gap filling

Gap filling begins with a statement of your starting point with a project or problem. Then, you'd state your final goal and begin thinking of what you can do to fill the gap between the start and endpoints. Initial responses are often more general, but you can identify specific resolutions through multiple processes of filling gaps.

15. Rapid ideation

With this technique, ask your group to write ideas individually within a time constraint. They would all write as many ideas as possible on their pieces of paper. Once the time is over, they can share their ideas aloud, or the group leader can collect them. When reviewing the responses, some common ideas between the group may provide insight into ideas that they can develop further.

16. Trigger storming

Trigger storming provides more specific prompts or "triggers" for a group to discuss. These prompts can be open-ended sentences for the group to finish or evocative or abstract statements that can inspire or provoke new thoughts. You can do this method aloud or on paper.

17. "What if"

The "what if" method introduces scenarios to encourage creative thinking. When facing a problem, you could reframe it using "what if" questions to analyze the problem from a different perspective. Some examples of these questions could be:

- "What if we gave this problem to an artist rather than an engineer to solve?"
- "What if this problem happened at the end of the fiscal year?"

18. Zero draft

Writers often use zero drafting as a variation of freewriting. Starting with a topic, you'd write everything you know about it, what you want or need to know and

why the topic is essential. You could then add other ideas that come to mind while writing. This method can also be beneficial for those with writer's block to develop thoughts freely, but with a few prompts to guide them.

source: https://www.indeed.com/career-advice/career-development/idea-generation-techniques-besides-brainstorming

Appendix D

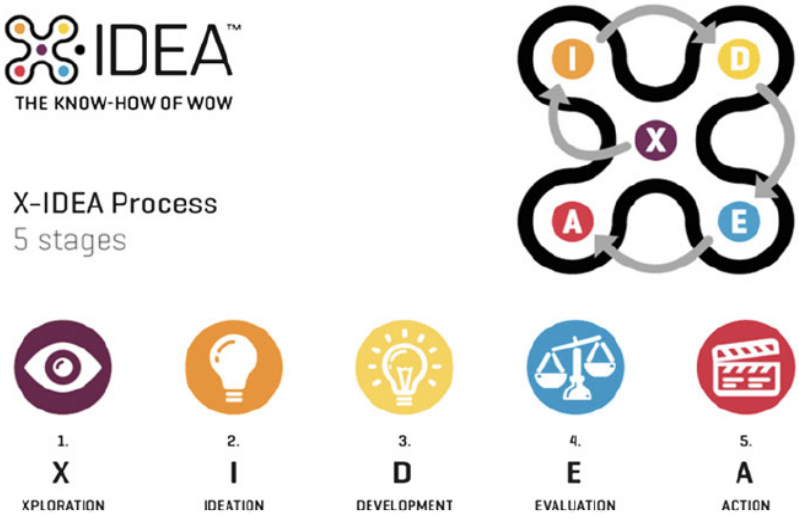
X-IDEA as an example of an Innovation Process Method used by Innovation Facilitators to guide teams through an Innovation Project

Reis (2014) created the innovation process method X-IDEA (and a related thinking toolbox) to help organizations reliably produce meaningful results in innovative projects based on an originality model of creative problem-solving. (Reis & Hunt, 2018) report that the method not only works well with the full spectrum of modern innovation types but also helps organizations in projects focusing on social innovation, Corporate Social Responsibility, and sustainability.

Innovation facilitators can use X-IDEA and similar such as innovation process methods and innovative thinking tools to guide innovation teams through concrete innovation projects. This innovative method or toolbox is an innovative process and a systematic framework to follow while working on innovative projects involving modern innovations. This tool is used in education and at the corporate level. The research paper describes how learners feel that adopting X-IDEA leads to better thinking and outcomes than an unstructured approach (Reis & Hunt, 2016). The top five steps are Xploration, Ideation, Development, Evaluation, and Action. Each step has a different purpose in a different way of thinking and results. The first step, Xploration, is to understand and explore the project's background deeply.

Moreover, the next step, ideation, is the first of two particularly creative steps. It focuses on the amount of thought from out-of-the-box thinking to extract basic ideas at this stage. by innovation, the facilitator will set a goal to reach and depend on the time allocated. The next step is development. The second step aims to turn the quantity of thought into quality when the interesting raw ideas come from working within the group. After that, the existing ideas will be made in both exciting and new ways to develop further. The following fourth step, evaluation, balance the

creativity of the previous two stages with realism and pragmatism by evaluating developed ideas and improving promising ideas. Finally, select ideas 2-3 that can be put into practice. The last step is action, taking the latest selected ideas in the most recent steps and applying them to an upcoming project or project to produce a tangible result.



Source: Reis, D., & Hunt, B. (2018). X-IDEA: How to Use a Systematic Innovation Method for Social Innovation Projects. In *Innovation Management and Corporate Social Responsibility* (pp. 115-131). Springer, Cham.

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