The Use of Mind Mapping as a Creativity Tool by Graphic Design Students: A Case Study of Jeddah International College

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استخدام الخرائط الذهنية كأداة للإبداع بواسطة طلاب التصميم الجرافيكي في كلية جدة العالمية

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Abstract

Mind mapping is an effective tool to enhance creativity in graphic design projects. The present study aims to examine the practice of implementing mind mapping during the design process by graphic design students in Jeddah International College, in order to propose a set of guidelines on applying mind mapping in the design process. Data were collected by conducting a literature review and a structured survey. The study findings indicated that there is a lack of student engagement in mind mapping, due to either one or a combination of four factors: to avoid more work, lack of knowledge of its effectiveness, lack of understanding how to engage in it, or a belief that it is time consuming. An additional factor was a belief that it is not applicable to all projects. Though the majority believed that it improves the outcomes of their projects and opens a new path of creativity, their highest motivation to use it depended on the grade assigned by the instructor. Likewise, the majority used mind mapping in the design concepts generation stage more than they did in the project organization, design implementation or design presentation.

Keywords: Creativity, mind mapping, Brainstorming, design process, Graphic Design students.

الملخص

الخرائط الذهنية أداة فعالة لتعزيز الإبداع في مشاريع التصميم الجرافيكي. وتهدف الدراسة الحالية إلى فهم ممارسات تطبيقات الخرائط الذهنية أثناء عملية التصميم من قبل طلاب التصميم الجرافيكي في كلية جدة العالمية، وذلك من أجل اقتراح مجموعة من الإرشادات حول تطبيق استخدام الخرائط الذهنية في عملية التصميم لتعزيز إبداع الطلاب في التصميم الجرافيكي. تم جمع البيانات بالاستناد إلى الدراسات السابقة واستخدام استبيان إلكتروني موجه لطلاب وطالبات التصميم الجرافيكي بكلية جدة العالمية. يتكون الاستبيان من أحد عشر سؤالا مغلقا، تغطي ممارسات استخدام الخرائط الذهنية من قبل الطلاب؛ كما تغطي الدوافع والعقبات التي تحول دون استخدام الخرائط الذهنية أثناء عملية التصميم، وتغطي أيضا وجهة نظر الطلاب والطالبات حول استخدام الخرائط الذهنية. أشارت نتائج الدراسة إلى أن هناك نقصا في استخدام الخرائط الذهنية في المشروعات، وأن استخدامها في عملية التصميم يعتمد على المشروع نفسه، إذ يعتقد البعض أنه لا ينطبق على جميع أنواع المشاريع. وعلى الرغم من اعتقاد الغالبية أنه يحسن نتائج مشاريعهم وأن له تأثيرا في في الإبداع، إلا أن الدافع الأكبر لاستخدامه يعتمد على الدرجة التي يحددها له الأستاذ. علاوة على ذلك، وفي الغالب تستخدم الخرائط الذهنية في مرحلة إنشاء مفاهيم التصميم أكثر من غيرها من المراحل مثل تنظيم المشروع أو تنفيذ التصميم أو العرض التقديمي للتصميم. وكذلك أوضحت الدراسة أن الأسباب وراء تجنب رسم الخرائط الذهنية في عملية التصميم هي إما تجنب المزيد من العمل، أو عدم معرفة فعاليتها، أو عدم معرفة كيفية استخدامها، أو الاعتقاد بأنها تستغرق وقتا طويلا.

الكلمات المفتاحية: الإبداع، الخرائط الذهنية, العصف الذهني, خطوات التصميم, عملية التصميم, طلاب التصميم الجرافيكي.

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1. Introduction

Graphic design is a problem-solving discipline that involves manipulation of visual clues such as type, text and pictures. Cheow, (2006) noted that graphic design also involves the application of artistic abilities influenced by external and internal factors. For every graphic designer, it is crucial to be creative. Alhajri (2017) pointed out that creativity encompasses an individual's problem-solving activities. However, as stated by Kowalewska (2016), generating new and creative ideas tends to be a challenging task. Nevertheless, some techniques can be used to improve the quality of the design process. One of those techniques is mind mapping, which is a great way to develop thinking. Mind mapping (or "idea" mapping) has been defined as 'visual, non-linear representations of ideas and their relationships' (Davies, 2011). Thus, attempting to solve a problem with mind mapping can help students to get in the habit of exploring their minds and developing their design process. Throughout the researcher's experience as a graphic designer it has been noticed that the students rarely use mind mapping as a brainstorming tool for their projects. Brainstorming, as defined Osborn (1979), is an individual or group divergent thinking process suitable for generating a large quantity of leads or raw ideas, later to be evaluated and developed into more viable solutions to problems. On the other hand, Davies (2011) proposed that mind mapping can help to provide new creative ideas. Thus, this research aims to investigate the use of mind mapping by graphic design students as a brainstorming tool to boost creative ideas and solutions in the design process.

2. Aim and Objectives

2.1 Aim

This research aims to investigate the use of mind mapping as a tool for enhancing the creative process by graphic design students in Jeddah International College, Saudi Arabia.

2.2 Objectives

In order to achieve the mentioned aim, the research objectives are as follows:

1. To understand the practice of implementing mind mapping during the design process by graphic design students in Jeddah International College;
2. To explore the effectiveness of using mind mapping as a tool to enhance creativity in graphic design projects.

3. Methodology

In order to achieve the aim of this research, the researcher collected secondary data through a literature review. Moreover, primary data were collected using a structured survey, consisting of 11 close-ended questions covering the following:

The practice of using Mind mapping, 2) the motive and obstacles of using Mind mapping during the design process, and 3) the student perspective of the use of the Mind mapping process.

The survey was developed using Google forms and distributed online using WhatsApp and E-mail.

The participants were Graphic Design Students enrolled in Jeddah International College, from September 2016 till September 2019, and included both males and females. The total number of students enrolled in the Graphic Design department is 86; however, only 63 responses were received.

4. Literature Review

4.1 Graphic design education

"Graphic design is a relatively new and evolving discipline in Art and Design which in itself is made up of different interests, traditions and discourses" (Armstrong, 2009; Margolin, 2010). Graphic design is also known as communication design due to its role in

using visuals to communicate a message or concept. Moreover, AIGA (American Institute of Graphic Arts) (2011) defined it as the art and practice of planning and projecting ideas and experience with visual and textual content. Lawson (2006) proposed that in the graphic design education, students are typically introduced to the principles of design through a series of projects, where they learn through the process of creating solutions to introduced design problems. Moreover, AGIA (2011) defined the design process as consisting of the following five steps:

Step 1. Define the Problem: This step helps designers better understand the root of the problem.

Step 2. Learn: This step derives understanding and empathy through research.

Step 3. Generate Ideas, Then concept evolution can start out in the idea generation stage, through tools as brainstorming and mind mapping.

Step 4. Design Development: Design development is typically a student's favorite part of the design process as they get to apply their artistic abilities. This is where aesthetics should be addressed.

Step 5. Implementation: Eventually, a design is chosen and implemented through the last step.

All these steps are essential to developing a successful and creative design or project. AGIA (2011) stated that the design process is not unique, nor is it a new process. Many professionals use this design process because it works. What is unique is the way of seeking creative ideas, as it seeks to express those ideas with visuals, which give them greater power to inform, educate, or persuade a person or audience. Linsey (2008) argued that creativity in the broadest terms is simply the ability to look at the problem in a different way or to restructure the wording of the problem so that new and previously unseen possibilities arise. Desamba, (2010) defined creativity as the use of the imagination or original ideas, especially in the production of an artistic work, through inventiveness, imagination, innovation, innovativeness, originality, individuality, artistry, inspiration, vision; enterprise, initiative, and resourcefulness. On the other hand, Alhajri (2012) stated that creativity is an integrated component of cutting-edge graphic design education, proposing that it is highly linked to graphics practices by default. In addition, creativity is an important issue in education as literacy and should be treated with the same status. Cropley and Cropley, (2005) discussed creativity, arguing that when the product is original, pleasing to look at, goes beyond the mechanical solution, and the solution is elegant and generalizable, then the product is affected by the creative design process.

Creativity can be enhanced through the use of different tools such as mind mapping, sketching, etc… Mind mapping is an effective tool for enhancing learning capacities and understanding of the links amongst the diverse elements of a complex framework. Moreover, as Desamba (2010) pointed out, mind mapping is a tool for solving problems by using words, names, images, and colors, all of which refer to a central idea or word as diagrams. The role of the mind map is to liberate creativity and lead to the proposal of creative solutions to a problem. Many extraordinary graphic designers start their design process by mind mapping. As Chen (2008) suggests mind mapping is a technique that involves comprehensive whole-brain thinking rather than traditional modes of thinking. On the other hand, Buzan (2006) argues that humans are born with special “brain-programs” that enable them to learn and compose everything they experience over their lifetimes. Humans have one “brain-program” to remember special occasions, one program that remembers pictures, one that remembers structures, etc. The marvelous aspect of mind mapping is that it utilizes these existing “brain-programs” and activates

them. Mind mapping enhances a power that already exists within an individual's brain, and allows him or her to utilize them to improve creativity and memory.

With reference to the effectiveness of implementing mind mapping during the design process, Buzan (2006) mentioned that the effectiveness is not limited to brainstorming and the laying out of ideas; it is also useful for recording ideas, giving an overview of large subject or area, encouraging problem solving by allowing designers to see new creative pathways and enabling them to plan routes or to make choices, and letting them know their roadmap. Moreover, Michako (2001) proposes that the use of mind mapping clears the mind of mental clutter, activates the whole brain, gives a clear picture of both the details and big picture, allows the designer to focus on the subject, and helps demonstrate the connection between isolated pieces of information.

As noted by Joao and Silva (2014), mind maps consist of an imaginative way to register ideas and are an effective method of note-taking and are useful in the generation of ideas by association. They argued that their motivation to develop the mind map stemmed from the inefficient use of the brain when engaging in the normal linear methods of taking notes and recording ideas. Godwin (2019) proposed that mind mapping in education is an effective tool for students seeking to maximize the learning experience and generate creative ideas. In addition, students can better understand and retain the knowledge that is relevant to their specific needs when using mind mapping. Moreover, Mind mapping is an effective solution for compiling information into one space. The visual platform allows students to better comprehend the topics at hand because of mind mapping's visual nature. Mind maps are also useful at a post-secondary level, where more in-depth research and information analysis are considered integral to the learning process. Research can be complex, messy, and difficult to organize comprehensively. When the research is ready to be transformed into a presentation or lesson plan, the user only needs to re-organize their existing mind map. Then, they can either present their outcomes directly from the mind map, or export it to a digital platform like Word or PowerPoint.

Joao and Silva (2014) considered the creative process of mind mapping. They argued that the mind map highlights the use of artistic and textual prompts to help with the organization of the ideas. As mentioned by Joao and Silva (2014) the main steps to follow in order to create a mind map are:

Step 1: Start in the center of a blank page with a main idea to give freedom to spread in all directions in a free and natural way.

Step 2: Use words, images or pictures for the central idea. A central image is, however, more interesting and gives the brain more buzz.

Step 3: Use colors in order to excite the brain, because colors add extra vibrancy and life to the mind map and energy to the creative thinking process.

Step 4: Connect the main branches to the central idea and connect the second and third level branches to the method.

4.2 The implementation of mind mapping implementation practices by design students

Yamamoto and Nakakoji (2005) discussed the idea generation steps in the design process, indicating that a designer usually sits over a blank sheet of paper and pursues an idea for the project. However, it can be quite difficult to get one, as one can be 'blocked' and need help to proceed with the design. Therefore, AGIA (2011) suggests that designers use mind mapping to solve that problem. During the design process, a designer begins by defining the problem and possible directions to the solution. The goals of the problem are vague, and commonly, there is no clear definition of when the design task is complete and whether the design is progressing in an acceptable direction. This issue is the motivation behind creating many designs and ideation methods such as mind mapping. Unfortunately, as noted by Otto and Wood (2001), many designers choose not

to use idea generating tools such as mind mapping because it adds extra time to the process leading to loss of motivation and project abandonment.

5. Visual Examples

Figure 1 is an example shared by Desamba (2010) of mind mapping by a freelance graphic designer named Damien Horan, who has successfully engaged in projects for international brands, and Insight. Damien Horan showed an interesting process he engaged in while making a logo for a restaurant / bar called Little Avalon. In the process, Damien shows a mind map that he created to get a creative idea for that project.

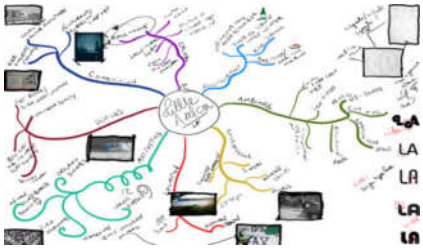

Figure 1: Process of making the logo a restaurant / Little Avalon

Figure 2.a is an example of mind mapping by a graphic design student in Exhibition Design course in Jeddah International College.

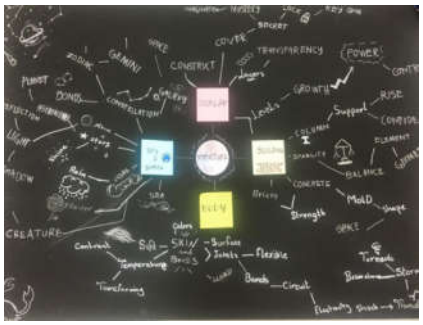

Figure 2.a: Mind mapping by a graphic design student in Jeddah International College

Figure 2.b is a Mind map developed by a Graphic design student in a Portfolio course to organize her ideas about the personality characteristics.

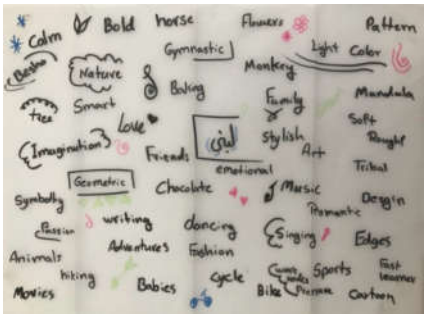

Figure 2.b: Mind mapping by a Graphic Design Student in Jeddah International College

Figure 2.c is a Mind map by the Graphic Design Students to come up with an exhibition concept in an exhibition design course

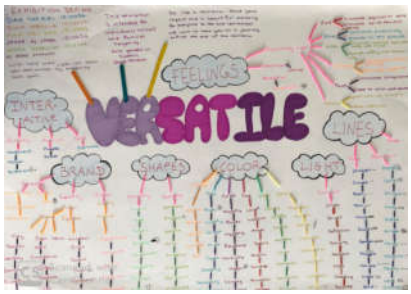

Figure 2.c: Mind mapping by a Graphic Design Student in Jeddah International College

6. Result

In regards to the frequency of using mind mapping for projects by Graphic Design students in Jeddah International College, 42.9% of the students indicated that they sometimes use mind mapping in their projects. 22.2% of the students mentioned that they always use mind mapping in their projects. While 22.2% of the students rarely used mind mapping in their projects, and 12.7% of the students never use mind mapping in their projects. (See Figure 3)

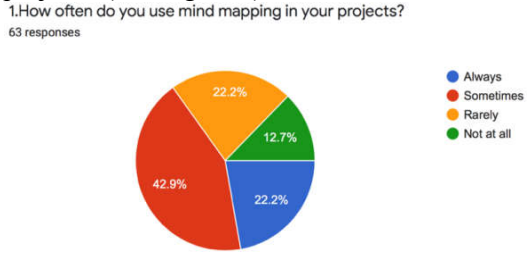

Figure 3. The Frequency of Using Mind Mapping in Projects

With regards to the reason for the graphic design students using mind mapping in the design process, 41.3% answered that their use of mind mapping depends on the project itself. On the other hand, 30.2% of the respondents believed that the use of mind mapping is applicable to all projects, while 19% of the students only used mind mapping upon request of their instructor, and 9.5% of the students rarely used mind mapping in their design process. (See Figure 4)

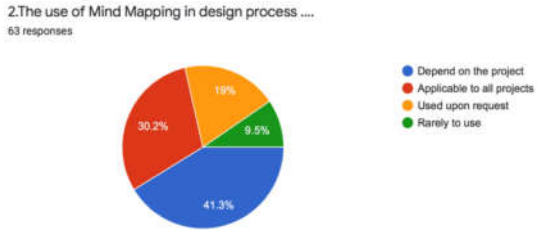

Figure 4. The Use of Mind Mapping in Design Process

Taking into account the impact of the use of mind mapping by the Graphic Design students on their project's outcome, 41% of the students agreed that the use of mind mapping sometimes makes a difference, and 38.1% of the students stated that the use of mind mapping always makes a difference. In contrast, 15.9% of the students answered that the use of mind mapping rarely makes a difference, and 4.8% of the students agreed that it never makes a difference to the project outcome. (See Figure 5)

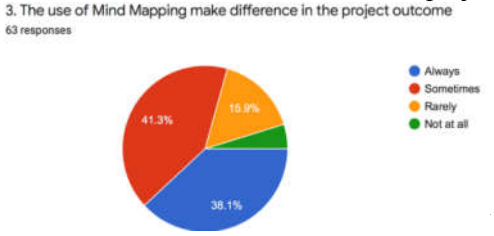

Figure 5. The Impact of the Students' Use of Mind Mapping on the Project Outcomes

In regard to the stage of the design process at which mind mapping is used by Graphic Design students in Jeddah International College, 60.3% of the students indicated that they use mind mapping in the design concepts generation stage, while 17.5% of the students use it in the project organization stage. On the other hand, 12.7% of the students use mind mapping in the design implementation stage, and 9.5% of the students use Mind mapping in the design presentation stage. (See Figure 6).

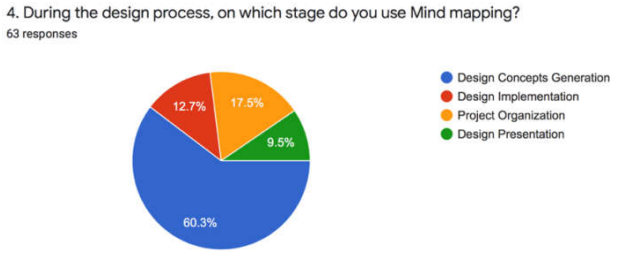

Figure 6. The Stage of Using Mind Mapping During the Design Process

Moreover, concerning factors affecting the decision of whether or not to use mind mapping by Graphic Design students in Jeddah International College, 46% of the students indicated that the decision to use mind mapping depended on self-motivation. On the other hand, 31.7% of the students answered that the decision to use Mind mapping depended on instructor request, and 14.3% of the students answered that the decision to use Mind mapping depended on its use being considered for grades. 7.9% of the students answered that the decision to use mind mapping depended on peer advice. (See Figure 7).

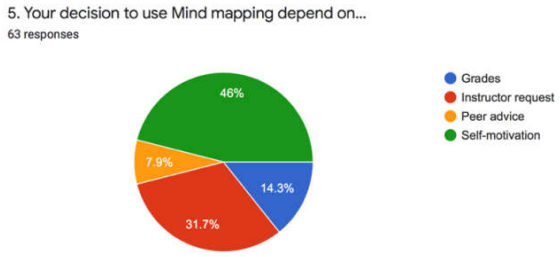

Figure 7. The Decision of the Use of Mind Mapping by Graphic Design Students

In exploring students' perceptions of grading as a motivation for using mind mapping in the design process by Graphic Design students, results show that 52% of the students agreed that they sometimes use mind mapping in the design process based on the grade assigned for it. 22.2% of the students mentioned that they always use mind mapping in the design process based on the grade assigned for it. While, 14.3% of the students answered that they rarely use Mind mapping in the design process based on the grade assigned for it, and 11.1% of the students stated that they never use Mind mapping in the design process based on the grades assigned for it. (See Figure 8).

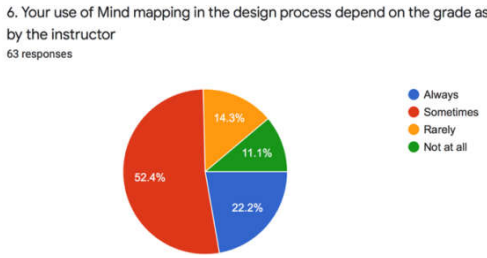

Figure 8. Use of Mind Mapping in the Design Process Dependent on the Grade Assigned to it by the Instructor

Regarding the self-motivation of using mind mapping by Graphic Design students in the design process, 41% of the students answered that sometimes they use mind mapping based on self-motivation. 31.7% of the students answered that they always use mind mapping based on self-motivation, while 15.9% of the students stated that they rarely use mind mapping based on self-motivation, and 11.1% of the students answered that they never used mind mapping based on self-motivation. (See Figure 9).

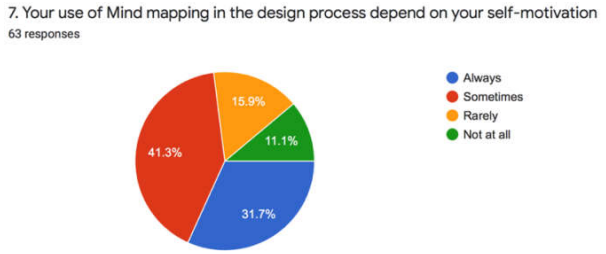

Figure 9. Self-motivated Use of Mind Mapping in the Design Process

Regarding the impact of mind mapping on creativity for Graphic Design students in Jeddah International College, 44.4% of the students stated that the use of mind mapping sometimes opens new paths of creativity. 34.9% of the students answered that the use of mind mapping always opens new paths of creativity. While 12.7% of the students reported that the use of mind mapping rarely opens new paths of creativity, and 7.9% of the students disagreed that the use of mind mapping opens new paths of creativity. (See Figure 10).

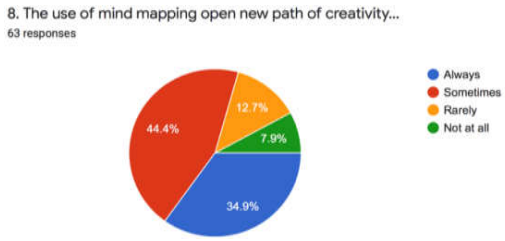

Figure 10. The Role of Mind Mapping in Opening New Paths of Creativity

Regarding the students' reasons for skipping mind mapping in the design process by Graphic Design students in Jeddah International College, 31% of the students answered that they skip mind mapping to avoid more work. While 25% of the students stated that they skip Mind mapping because of lack of knowledge of its effectiveness. 28.6% of the students believed it is too time-consuming, and 14.3% answered that they do not know how to use it. (See Figure 11).

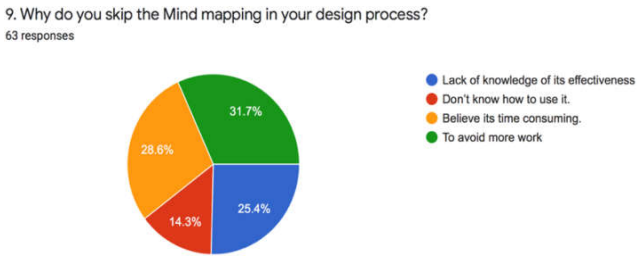

Figure 11. Reasons Behind Skipping Mind Mapping in the Design Process

When evaluating the opinions of the Graphic Design students in Jeddah International College as to whether or not the use of mind mapping is a boring and useless process, results show that 33.3% of the students felt that the use of mind mapping in the design process is sometimes boring and useless. 33.3% of the students felt that the use of mind mapping in the design process is rarely boring and useless. Moreover, 22.2% of the students disagreed that the use of mind mapping in the design process is boring and useless, while, in contrast 11.1% of the students agreed that the use of mind mapping in the design process is boring and useless. (See figure 12).

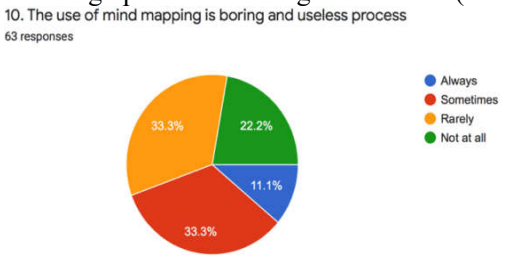

Figure 12. Perceptions of the Use of Mind Mapping as a Boring and Useless Process

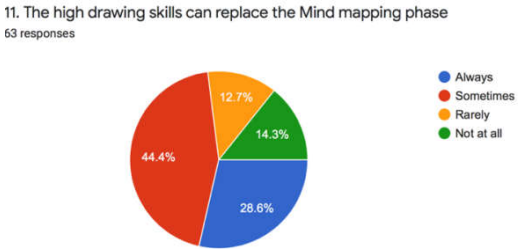

Figure 13. Strong Drawing Skills Can Replace the Mind Mapping Phase

Regarding the students skipping the mind mapping phase due to their strong drawing skills, survey results from the Graphic Design students in Jeddah International College show that 44.4% of the students felt that strong drawing skills can sometimes replace the mind mapping phase, and 28.6% of the students agreed that strong drawing skills can always replace the mind mapping phase. On the other hand, 14.3% of the students answered that strong drawing skills can never replace the mind mapping phase, and 12.7% of the students felt that strong drawing skills can rarely replace the mind mapping phase. (see figure 13)

7. Discussion and Conclusion

This research aimed to investigate the use of mind mapping as a creative tool by graphic design students in Jeddah International College in Saudi Arabia. Godwin (2019) proposed that the use of mind mapping in education is an effective tool for students seeking to maximize the learning experience and generate creative ideas. However, the findings proved that the effectiveness of the use of mind mapping depends on the project itself. In addition, the students' decision for using mind mapping depends on external factors such as the instructor's request or the grade assigned for the mind mapping.

The results also indicated that the majority of the students used mind mapping in the design concept generation stage more than they did in the other stages of the design process as developed by AGIA (2011).

It can be noted that the results supported the idea that the use of mind mapping has an impact on the design project outcomes, as 79.4% of the students believed that the use of mind mapping has an impact on project outcomes. Also, the literature review proved that the quality of design project outcomes depends on the design process --the better the process, practice and implementation, the more creative the result.

This concurs with Cropley and Cropley (2005) who argued that when the product is original, pleasing to look at and goes beyond only the mechanical solution, then the product must be affected by the creative design process including mind mapping.

Buzan, (2006) noted that mind maps, are useful for recording ideas, giving an overview of a large subject or area, and encouraging problem solving by allowing the designer to see new creative pathways. The results of this paper support Buzan's argument, as 79% of the students believe that the use of mind mapping sometimes opens new paths of creativity. However, when considering the reasons behind the skipping of mind mapping in the design process by students, reasons given were either to avoid more work or because it is time consuming. This reinforces the argument of Otto and Wood (2001) that many designers do not use ideation methods like mind mapping due to the increased time it requires.

The research indicated that there is a lack of student engagement in mind mapping, due to either one or a combination of four major factors: to avoid more work, lack of knowledge of its effectiveness, lack of understanding of how to engage in it, or a belief that it is too time- consuming. An additional factor was the belief that it is not applicable to all projects. Though the majority believed that it improves the outcomes of their projects and opens a new path of creativity, their highest motivation to use it depended on the grade assigned to including it as an element of the design process by the instructor.

In conclusion, students can be encouraged to use mind mapping as a creative tool for design projects in order to enhance creative outcomes, thus ensuring students' use of both lobes of their brain activelyand encouraging them to engage in creative thinking, explore their imagination, and develop problem solving skills. In addition, brainstorming and mind mapping can transform the classical design process inserting an element of fun into it.

The researcher recommends that further research should be conducted to explore alternative means to overcome the obstacles to the Design students' use of mind mapping. For example, the use of digital online tools to engage in mind mapping, which could save time and effort and thus remove the obstacle of the time costs involved. Moreover, the researcher proposes a board game (see figures 14 and 15) as a means to encourage the students to use mind mapping. The board game has playing cards, and each card has a word, an image or a color that serves to inspire creative ideas and save time for the students while engaging in mind mapping. The game also has a mat on which the students can write emerging words or ideas. The board game could be also developed as a mobile application for those who prefer a digital solution.

Figure 14. Board Game Box

Figure 15. Mind mapping Thinking Cards

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