



An exploration of the use of artificial intelligence
in graphic design.

By

Sama Hashemieh

A research project submitted in fulfilment of the requirements for the
BA Honours in Graphic Design

at the

Independent Institute of Education: Vega School

Supervisor: Dr Ria van Zyl

Submission date: December 2020

ABSTRACT

Graphic design industry currently faces an impact from new technologies such as artificial intelligence design tools. It is well-established that artificial intelligence as an innovative tool could improve many business and design industries, but some designers believe that the use of artificial intelligence design tools would under value design as the results produced by AI design tools are not as creative or professional as a designer's work. This study aims to explore the use of artificial intelligence design tools in graphic design and how it could influence graphic design and designers. Since this study is practice-based, data collection would be based on the research findings and interpretation of findings.

To explore the use of artificial intelligence design tools in graphic design and how it could influence designers, an evaluation and comparison of design outcomes created by a graphic designer and artificial intelligence design tool is provided to determine whether AI design tools are competitors to designers or not. It is worthwhile to mention that the evaluation is objective therefore, the results could also be objective. Results suggest that the overall designs created by a graphic designer are more professional. In conclusion, AI design tool is a new technology and it is worthwhile to explore its use in graphic design.

Key Words: Artificial intelligence, Design tools, Graphic design

DECLARATION

I hereby declare that the research report submitted for the BA Honours in Graphic Design to The Independent Institute of Education (The IIE) is my own work and has not previously been submitted to another University or Higher Education Institution for a postgraduate qualification.

Signature:

Date: 14/ December/ 2020

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1. CHAPTER 1: INTRODUCTION

1.1. Research Background and Rationale

Artificial intelligence has become a huge phenomenon for many businesses and design industries and nowadays many companies are innovating in the use of artificial intelligence design tool technologies (Chathurika, 2019). As a result, artificial intelligence design tools have changed graphic designers' perceived societal value in communities since. The importance of this study is that it highlights the consequences of artificial intelligence design tools on graphic designers and whether they are at risk of fading out or not. The reason why this problem needs to be described is that graphic designers' perceived societal value in communities might be in danger which requires a well-researched study to explore that. The contribution this study will make to the field of knowledge would be to provide an insight for graphic designer and communities about the influence of artificial intelligence design tools on graphic designers' perceived societal value in communities to help them make better decisions and whether or not to support such tools.

1.2. Problem Statement

Artificial intelligence is a common tool used in a variety of disciplines such as Graphic Design. In the early 1980s, graphic design projects were mostly handcrafted by designers but in the early 1990s, the process of graphic design transcended to computer-based activity (Swanson, 2019). The process of graphic design continues computers as technology improves significantly, as a result, artificial intelligence design tools inevitably find their place in the graphic design industry (Karaata, 2018). Designers believe design is a transformative tool to improve human conditions (Vinh, 2019). However, non-designers are not aware of the design's relevance altogether. The gap between how designers see a piece of design work and how society values it is crucial for the future of this discipline. Most professional designers consider artificial intelligence design tools disrespectful as they undervalue design and designers' perceived societal value (Vinh, 2019). Therefore, it is worthwhile to explore the use of artificial intelligence design tools in graphic design discipline to find whether it can influence graphic designers or not.

1.3. Purpose Statement

The purpose of this study is to explore the use of artificial intelligence design tools in graphic design discipline and whether it could influence graphic designers or not.

Furthermore, this study provides an evaluation of design outcome of a designer and an artificial intelligence design tool to provide an insight for graphic designers' community as well as the users of such design tools.

1.4. Research questions

The primary research question:

How is artificial intelligence used in graphic design?

The secondary research question:

How does artificial intelligence design tools influence the graphic designers?

How does an evaluation of design outcomes designed by graphic designers and artificial intelligence design tools impact communities' understanding of such tools?

Can artificial intelligence take graphic designers' place in future?

1.5. The relevance of the research

Artificial Design Intelligence is the technology that uses machine learning to create a website without the help of humans a very short period of time which unfortunately no professional can reach that level(Woven Agency, 2019). The reason that makes this study relevant is that artificial intelligence design tools are influencing graphic designers' community in many ways specially in a way in which people perceive their value or in other words their perceived societal value might be in danger. As a result, this study will explore design outcomes of a graphic designer and an artificial intelligence design tool in order to compare and assist designers to improve their work if it is necessary to ensure they provide human satisfaction as well as improving their own perceived societal value in communities.

1.6. Aims of The Research

The most important aim of this research would be exploring the use of artificial intelligence such as design tools in graphic design discipline. The secondary aims of this study are listed as follows:

1. Analyse and critically reflect on the design value of a graphic designer's design outcome and an artificial intelligence design tool's design outcome.
2. Determine the influence of artificial intelligence design tools on graphic designers.

2. CHAPTER 2: LITERATURE REVIEW

This study explores the use of artificial intelligence(AI) design tools in graphic design. Nowadays artificial intelligence is considered as a common tool in a variety of disciplines including graphic design. As technology improves, the utilisation of such design tools increases in the graphic design discipline. As designers believe that design is a transformative tool to improve the human condition, non-designers are not aware of their significant value. There is a gap between how designers see their work and how society values it which is concerning for the future of graphic design discipline. As a result, designers believe artificial intelligence design tools undervalue design and designers' perceived societal value. This chapter pinpoints the ways in which artificial intelligence design tools are used in graphic design and the way it can influence designers. In this study, a definition of artificial intelligence, artificial intelligence design tools, and graphic design as well as designers' perspective about each phenomenon are provided.

2.1. Artificial Intelligence Design Tools

In order to define artificial intelligence design tools, the term artificial intelligence needs to be defined first. Alan Turing asserted the idea of engaging computers in human skills and language (Swanson, 2019). Karaata (2018) describes artificial intelligence as incorporating human skills in tools and machines where the skills would not be used in the human body but in pieces of machinery. Artificial intelligence is a field in computer science which focuses on increasing intelligence behaviour in machines as well as automating the human skills in different tools that assist human (Luger, 2008). The process of graphic design continues on computers as technology improves significantly, as a result, artificial intelligence design tools inevitably find their place in the graphic design industry (Karaata, 2018). Artificial intelligence design tools are one of the many means AI is being used in the industry. Artificial intelligence design tools in the context of graphic design refer to applications or websites that create design outcomes such as logo, layout design, and website design using artificial intelligence codes without any graphic designer's involvement in its process of design (Karaata, 2018). Skaggs (2019) states, artificial intelligence design tools use a certain algorithm which provides a variety of design specification for instance, style sheets and compositions where non-designers can specify the physical parameters such as colour, font, and size in a very short period of time and have their required design outcome.

These are the result of technological innovations that are exceedingly altering how work gets done and how it is influencing graphic designers (Amatullo, 2019). The more artificial intelligence design tools become accessible to non-designers, the more possibility that graphic designers become less valued in communities (Swanson, 2019). However, Chathurika (2019) believes artificial intelligence design tools incorporate certain algorithms which could support human designers' work. Designers would be able to instruct artificial intelligence design tools to create design outcomes like humans would design, which leads to assist them in designing the final outcomes in a professional, stunning way and they could be used only as assistances and human designers would be the leaders of the project (Chathurika, 2019). As opposed to that, the fact that machines could create complex design outcomes without the help of any human in a short period of time, it could be concerning for the future of creative designers (Woven Agency, 2019). Based on these explanations, artificial intelligence could be a tool that imitates human skills and it could be an alternative to real designers in different disciplines including graphic design.

2.2. Examples of Artificial Intelligence Design Tools

- Free Logo Design: Logo generator

This website uses artificial intelligence technology to create and sell a variety of logos without requiring a single graphic designer. Optionally, the choices are filled in with slogans and icons specific to the brand. The website's algorithm produces multiple logo designs depending on the data in a matter of seconds, and the user selects a template to create the final desired logo design (Karaata, 2018).

- Designscape: Layout designer

Supported by Adobe, Microsoft, and NSERC, Design Scape is a system that supports the design process and makes suggestions for engaging layout, changes in the position, scale, and element alignment. It would be the first work that offers immersive recommendations for single-page projects such as advertisements and posters. This was developed primarily for inexperienced and novice graphic designers who may not have a design theory order. The program utilises two distinct but compatible recommendations: recommendations for improvement that enhance the existing structure, and recommendations for brainstorming that alter the design (Karaata, 2018).

2.3. Graphic Designers

Graphic design is one of many branches of art and design which is a design discipline in both education and industry. In the early 1980s, graphic design projects were mostly handcrafted by designers but in the 1990s the process of graphic design transcended to computer-based activity (Swanson, 2019). The process of graphic design continues on computers as technology improves significantly which has a result in being influenced by new technology such as artificial intelligence design tools which makes it difficult for designers to cope with the altering situation that impacts their societal value in communities (Karaata, 2018). Dorst (2019) argues that design had always had to discover new ways of dealing with the ever-increasing nature of the challenges it had to solve in its development from craft to technical professional practice and intellectual discipline. Dorst (2019) claims that the reason design is equipped to cope with social challenges is that while certain complex issues are viewed from either technological or technocratic point of view, much of the complexity of contemporary problems derives from the human realm and design, as a natural link between technology and humanity, is ideally placed to make a contribution.

2.4. Graphic Designers and Perceived Societal Value

As Vinh (2019) states, designers believe design is a transformative tool to improve human conditions. However, non-designers are not aware of the design's relevance altogether. The gap between how designers see a piece of design work and how society values it is crucial for the future of this discipline (Vinh, 2019). Skaggs (2019) describes the gap as one of the inevitable results of artificial intelligence. Most professional designers consider artificial intelligence design tools disrespectful as they undervalue design and designers' perceived societal value (Vinh, 2019). Whereas Skaggs (2019) states that design related professions such as graphic design which are classified into either craft-based or analyst field and the middle ground designers are unemployed or their salary is at the minimum level which is one of the influences of artificial intelligence design tools on graphic designers' perceived societal value in communities.

However, Vinh has a completely different and open-minded perspective of the influence of artificial intelligence design tools and the way in which design would be accessible to non-designers. Vinh (2019) argues that designers do not embrace the idea that more people, specially non-designers, would be able to create a piece of design without any help from real designers. As an example, platforms where free or very inexpensive designs are provided in a variety of quality and style. Designers find that as disrespect and an undervaluing of design (Vinh, 2019). Whereas this could be an advantage to designers to assist them as well as providing opportunities for people without professional design experience and some of the non-designers might become world-class designers, but most of them would not reach that level of experience (Vinh, 2019). In summation, designers believe the influence of artificial intelligence design tools could have both positive and negative effects on graphic designers' perceived societal value in communities.

In conclusion, designers perform as a natural bridge-builders between technology and humanity (Dorst, 2019), and design is considered as a transformative tool to improve the human conditions (Vinh, 2019). Artificial intelligence design tools, one of the recent technologies incorporated in a design discipline, are considered as a human skills imitation in the field of design which can create novel design outcomes in a short period of time without any help from human designers (Karaata, 2018). It also provides a variety of choices which makes it challenging for human designers to compete with them. Some designers such as Swanson believe that as artificial intelligence design tools become more accessible to non-designers, the possibility of graphic designers becoming less valued in communities increases and this influences the perceived societal value of them in communities (Swanson, 2019). However, shockingly most non-designers using artificial intelligence design tools won't become professional, world-class designers (Vinh, 2019). On the other hand, such tools could be to help designers to perform even better and more efficient. The gap between how designers see their work and how society values their work is crucial to their future in the industry (Vinh, 2019). Overall, artificial intelligence design tools might slightly change graphic designers' perceived societal value in communities, but they neither perform as a complete threat to designers nor causing the graphic design discipline to fade out in the future.

3. CHAPTER 3: METHODOLOGY

3.1. Research Approach

As a research methodology, the qualitative research method has added an advantage to the exploratory capacity that researchers ought to explore and expand their research studies. The qualitative approach helps researchers to develop and implement their interpersonal and subjective experience skills to their exploratory research processes (Alase, 2017). The qualitative research approach allows the creation of a relationship for the researcher with their research participants which is considered as an advantageous element of the study (Alase, 2017). Therefore a qualitative research approach is appropriate for this study because it explores and provides a better understanding of the value of design outcome by graphic designers and explore the possible influence of artificial intelligence design tools on graphic designers.

3.2. Research Design

The qualitative research design is a series of advance decisions that make up the master plan defining the methods and procedures for gathering and analysing the information needed (Masood, 2013). In this research, design evaluation is considered as an appropriate method to collect and analyse data in order to finalise the results and provide academic insight to designers and communities.

3.3. Research Paradigm

For the purpose of this study interpretivism paradigm approach which is mainly appropriate for qualitative research has been chosen. The Interpretivism worldview provides theoretical solutions to elaborated human issues (Nell, 2016). Kivunja and Kuyini (2017) argue that the interpretivism approach focuses on understanding the human experience where the interpretation of the subject on the context is being observed, as opposed to the observer's viewpoint. The aim of this worldview is to study an individual's interpretation of a social phenomenon they interact with (Grix, 2004). Pham (2018) states that the advantage of the interpretivism approach is that researcher can describe objects, humans, or events as well as understanding such phenomena in social context considering different viewpoints. Therefore, in order to conduct research on the way in which artificial intelligence design tools are used in graphic design, interpretivism approach is required. The reason for choosing interpretivism approach is because researcher requires evaluation of design outcomes of a designer and artificial intelligence

design tool to explore the use of such tools and explore whether it could influence designers or not, this means human interpretation of the context is needed to understand result. Live Science (2017) discusses that inductive reasoning provides a conclusion from generalising certain observations and collected data. This method of reasoning is applied to this study because the researcher explores the phenomenon such as the use of artificial intelligence design tools in graphic design and collects required data in order to draw conclusions from it.

3.4. Population

A sample population is usually a wide number of individuals or items that are the main subject of a scientific inquiry (Hassan, [s.a]). A research population is also referred to as a well-defined set of individuals identified to have similar characteristics. In general, all individuals or objects within a given population have a specific, linking feature or characteristic (Hassan, [s.a]). In order to define the population in the context of this research, practice-based research is required to be defined.

3.4.1. Practice-based Research

Research overall provides knowledge for a wider community outside the existing mental or physical realm of the single researcher. Research includes knowledge that is unique to others and it is shared with them, allowing others to learn from research concerns, approaches and the final findings (University of Johannesburg, [s.a.]). There are several definitions of the term practice. The basic description could be described as the specific use or application of a concept, belief or method, as opposed to theories relevant to it (Candy and Edmonds, 2018). Note the difference with theory and the emphasis on the use or application of concepts and practices (Candy and Edmonds, 2018).

By the means of defining terms *Research* and *Practice*, it is easier to understand the context of practice-based research. Candy (2006) states that if the conceptual artefact is the foundation of the contribution to research, the study is practice-based. Practice-based research is an initial experiment conducted in order to obtain relevant knowledge, in part by the practice and the findings of that specific practice. Allegations of originality and contribution to knowledge can indeed be articulated by innovative results of the practice which could involve artefacts such as images, prototypes, designs and digital media. Although the purpose and context of the statements are described and demonstrated in

words, complete interpretation could only be accomplished through a direct reference to such outcomes (Candy, 2006).

In the other hand, the focus in the creative arts practice-based research, is on the creative process and the works that are generated where the artefact plays a crucial part in the new understandings of the practice that emerge. In this way, practice and research work together to create new knowledge that can be shared and reviewed (Candy and Edmonds, 2018).

Since this research is practice-based and it is based on data analysis findings where researcher investigates and analyses graphic design artefacts created by a graphic designer and different artificial intelligence design tools. As a result, the population could be a variety of brand identity design outcomes created by both a graphic designer and an artificial intelligence design tools. There are a variety of brand identity outcomes that graphic designers are able to do for brands or companies such as logo, business card and packaging. By analysing such designs, the research could contribute to the knowledge of the community and they could decide which whether designs made by artificial intelligence design tools and a graphic designer are valuable or not according to a set of criteria.

3.5. Sampling

The research population is defined as the entire group that the researcher intends to draw conclusions about. However, the research sample is defined as the specific group of people selected from the population that the researcher will collect data from (McCombes, 2010). Sampling is the process used for statistical analysis in which a predetermined amount of samples are taken from a larger population (Tuovila, 2020). Due to the research population of this study and the type of research which is practice-based, only one selected design type from population will be chosen for sampling. The population of this research consists of brand identity design outcomes. As a result of a wide variety of brand identity design outcomes, only five logo designs created by both a graphic designer and an artificial intelligence design tools are selected and analysed as samples of the research.

According to Cambridge Dictionary (2020), logo is defined as an image or symbol seen on the company's products that reflects the company's character and purpose. Logo makes the brand or company recognisable and easy to remember for its consumers. In this research, different categories of logo designs such as food, retails and medical services are analysed.

3.5.1. Artificial intelligence design tool logo process

The following steps are required for a user to design the logo on an artificial intelligence design tool, which in this research, it is a logo generator website called Free Logo Design. Free Logo Design is an online logo generator which helps users without design skills create logos in a short time (Free Logo Design, 2020).

Step 1:

The first page that appears on Free Logo Design website is where user can choose the category and enter the company name or the logo name. There are variety of styles available for users to choose before starting to design.

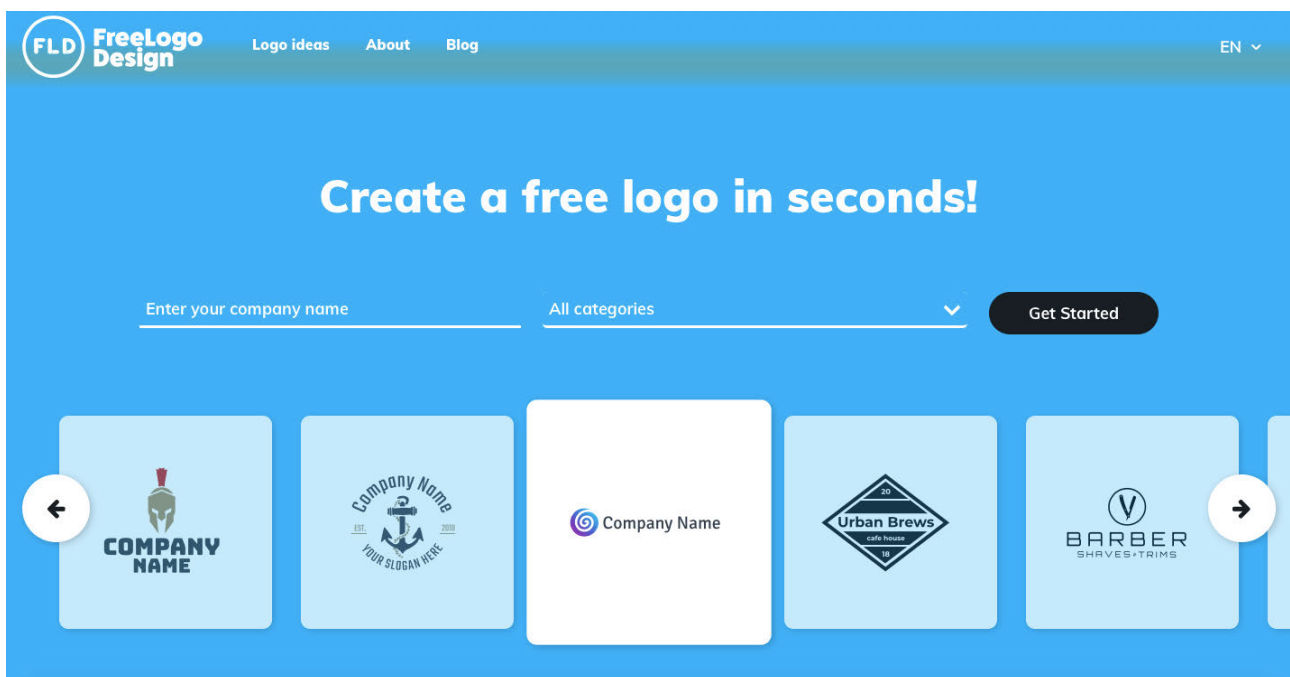


Figure 1: Hashemieh, S. 2020. *Free Logo Design step 1*. (Free Logo Design, 2020).

Step 2:

After choosing the category and entering the name of the logo, several logo design options in the chosen category with the name of the user's brand appears. User can change the category while choosing a logo option for extra variety. Add button directs the user to the page where further adjustments of the logo takes place.

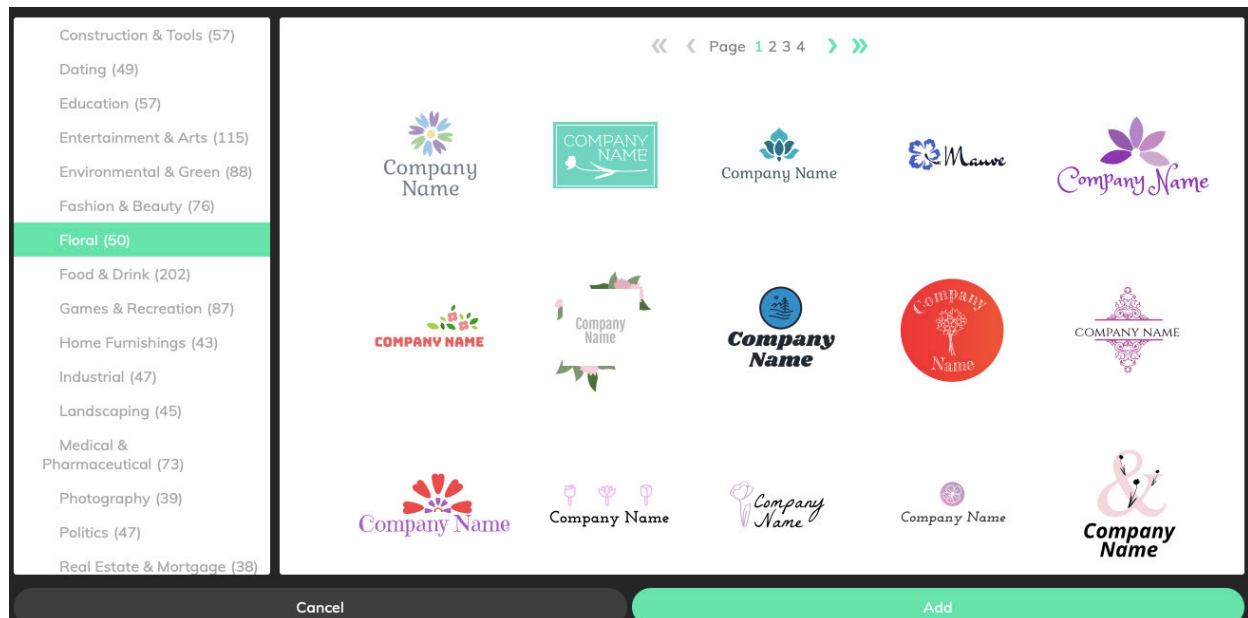


Figure 2: Hashemieh, S. 2020. *Free Logo Design step 2*. (Free Logo Design, 2020).

Step 3:

The chosen logo option appears with different adjustment tools in order to improve or adjust the logo design as previewed in Figure 3. Text tool allows user to change the font and its size or colour, shape tool enables user to add geometric shapes and lines to the design and adjust colour and size. Icon tool provides a large variety of icons in a wide range of categories where user can choose from and use as a design element. Logo tool allows user to step back and pick another logo design if not satisfied with the current design. The main colour palette used in the logo is viewed on the tool bar and enables user to adjust it. Save button leads the user to a page where it allows saving the logo design.

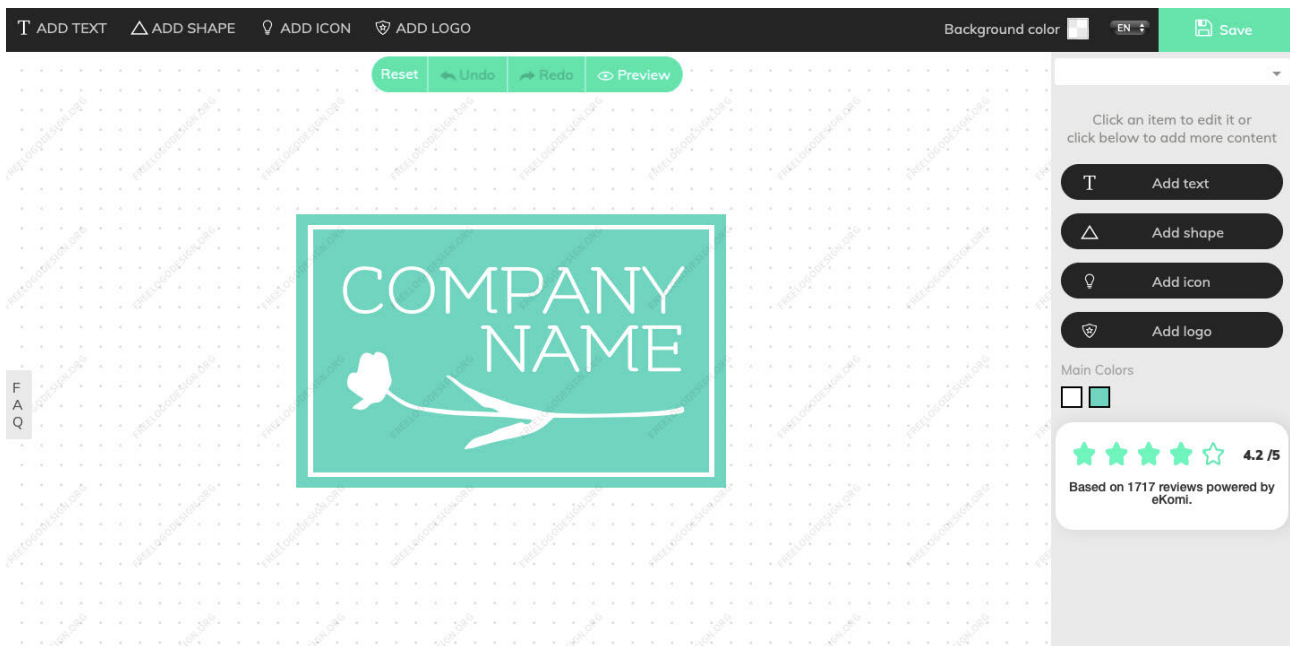


Figure 3: Hashemieh, S. 2020. *Free Logo Design step 3*. (Free Logo Design, 2020).

Step 4:

At this stage user is able to save the design or edit the logo if necessary. There are 3 options when saving the design. The low resolution option which is the free version, is a PNG format file that can easily be pixelated if it gets resized and it is not functional for printing or digital use. The high resolution option which could be ideal for professional use is not free.

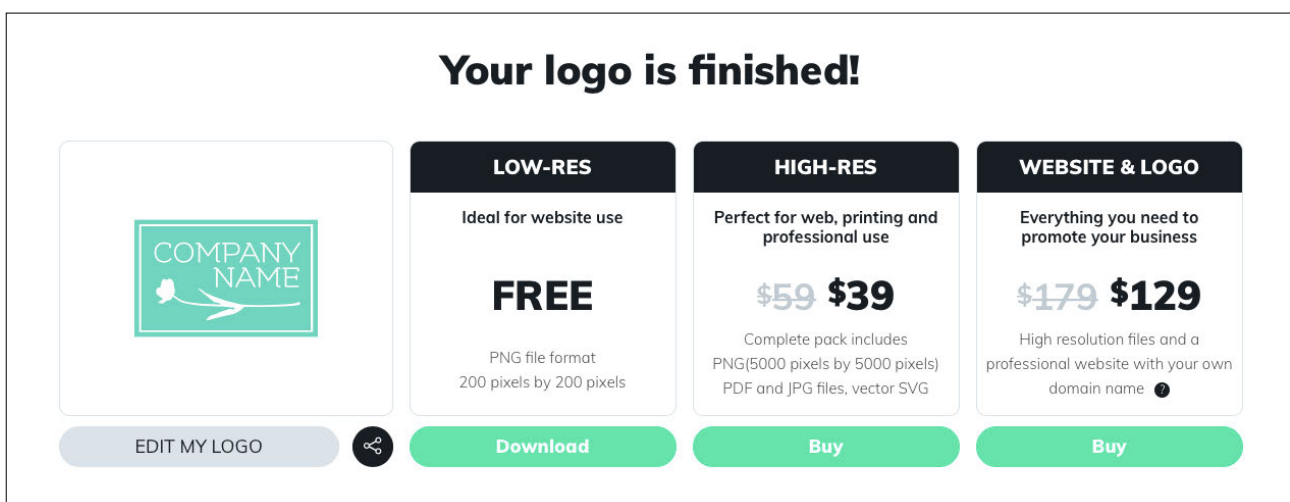


Figure 4: Hashemieh, S. 2020. *Free Logo Design step 4*. (Free Logo Design, 2020).

3.6. Data Collection Method

Data analysis is the procedure of collecting and evaluating the information on variables targets in a systematic manner that helps the researcher to answer established research questions, test hypotheses, and analyse final outcomes (Kabir, 2016). Because this study is practice-based and it is highly related to graphic design outcomes such as logo designs, the research data is collected by visual observation and analysis, evaluation and comparison of design outcomes made by a graphic designer and an artificial intelligence design tools.

According to the Duke University ([s.a]), The purpose of a visual analysis is to identify and acknowledge the visual choices made by the creator in the development of a work.

Through analysing and writing about the different parts of the work, a deeper understanding of the design outcome will be gained by the researcher as a whole (Duke University, [s.a]). Therefore the purpose of analysing and evaluating logo designs in this study is to provide a better insight into the design value of the work created by a graphic designer and artificial intelligence design tool and contribute to the knowledge.

3.6.1. Data Collection Process

The process undertaken in data collection includes selecting five logos in different categories created by a freelance graphic designer in the past two years. These five logos are recreated using artificial intelligence design tools available online for users for free. Such artificial intelligence design tool is chosen and experimented by researcher in order to ensure the tool is accurate and free to use. Artificial intelligence design tool used in this research is a website that generate logos according to users requirements. There are several websites using artificial intelligence to design logos including Logo Maker, Graphic Springs and the website that is used in this research is Free Logo Design.

Such tool is incorporated in this research to recreate five logos created by a graphic designer. The reason for choosing five logos in different categories is to evaluate designs in different categories to avoid bias or expected results and analyse how the artificial intelligence design tool create logos in variety of categories and not only in one category. Next step is to actually recreate the logos according to client's brief and make them as professional as possible. The colours, fonts, style and the overall presentation of the logos are according to client requirements and their brand personality. This makes the logos look as they are designed by a graphic designer.

A similar work was done by Art Lebedev Studio where the artificial intelligence design tool was trained on a hand-drawn data collection of Scalable Vector Graphics icons depicting numerous themes (Macaulay, 2020). The machine then analyses the input text of a brand, such as its brand name and a description of its work, and selects words to be translated into images. The outcomes are then adjusted by a set of algorithms that scale, smooth and simplify the design, and produce a number of color palettes and fonts and lastly a number of logo options for the client (Macaulay, 2020).

The only difference with artificial intelligence design tool used in Art Lebedev Studio with the tools available online would be that the information and input from client should be analysed by the researcher instead of the artificial intelligence machine. Lastly the most professional logo recreated by artificial intelligence design tools which meets the requirements of the client brief is chosen in the next step in order to be critically compared and evaluated with the same logo created by a graphic designer. Therefor this leads the research to have the inputs prepared for the final results of the research where the logos are evaluated and provide knowledge and insight for the community.

3.8. Data Analysis Method

Data analysis in qualitative research could be described as gaining insights from such complex information in a complicated process (QuestionPro, 2020). It is used for exploratory study and data analysis. The content analysis which is one of the data analysis methods is the most frequently used data analysis approach in the research methodology. This can be used to evaluate recorded information such as text, images, and even physical artefacts (QuestionPro, 2020).

Since in this study design outcomes of artificial intelligence design tools and as well as a graphic designer, are critically evaluated, the content analysis could be applied in this research in order to evaluate data from a visual representation of logo designs. Therefor, certain sets of criteria are prepared in table format in order to ensure the logos are analysed and evaluated both accurately and professionally.

3.9. Data Analysis Criteria

In designing a logo design, there are crucial elements that defines whether or not a logo is successful from design perspective. According to Jackson (2018), essential elements are colours, typeface, line, shape, negative space and lastly scale. A deliberate use of such elements can increasingly help to build the company's brand identity in the market. In defining the brand, each of these elements plays a crucial role and if integrated wisely, the logo can engage with target audience easily (Jackson, 2018). When analysing a logo, the researcher must ensure that these elements are professionally incorporated in each logo.

There are specific principles when designing a logo which could also used to analyse and evaluate a logo design and they are incorporated in this research to have an accurate findings. The main principles are as following:

- Simplicity: a logo should be simple and without extraneous elements to distract the viewer (Reich, 2014).
- Aesthetically appealing: a logo should professional and appealing which means it includes functionality and aesthetics in a logo (Cantor, 2020).
- Adaptable: a successful logo should be recognisable and acclimate to variety of environments and the space or the formate should not impact its quality and value (Cantor, 2020).
- Uniqueness: a logo should be impactful, iconic and represent the identity of the brand (Cantor, 2020).
- Memorable: a quality logo should involve the viewer and stick in their mind where they could identify the logo easily (Reich, 2014).
- Functionality: a great logo serves its purpose in both tangible and digital environments and the quality would be high in both ways (Cantor, 2020).
- Impactful: a successful logo conveys certain emotions and meanings (Reich, 2014).

In order to evaluate logos, the brief of each logo and a short description of the client as well as the brand are provided as a reference and to ensure the logo designs meet the brief requirements and embody the brand. As a result, a table including the criteria is provided to analyse and evaluate each logo created by a graphic designer and artificial intelligence design tools. The key elements and principles of a successful logo as well as the brief provide a sets of criteria for researcher to analyse logo designs with no bias and accurately. The purpose of this analysis would be to provide insight and knowledge for community and to ensure whether artificial intelligence design tools could actually create

valuable design outcomes or not and if graphic designers' future might be impacted by such technology or not. The next chapter of this research specifically focuses on the findings of the research and how it would contribute to the knowledge of the community. In conclusion, this chapter of the research concentrated on defining and demonstrating research population, sampling, data collection method and data analysis method in details. Therefor, the process undertaken to collect data and analyse it according to practice-based research definition, was explained. Lastly the criteria required to analyse designs created by graphic designer and artificial intelligence design tools was provided and the result of such analysis will be provided in the chapter of this research.

4. CHAPTER 4: FINDINGS AND INTERPRETATION

In this chapter, the primary research question which is how artificial intelligence is used in graphic design and whether or not artificial intelligence design tools can be the future graphic designers, is addressed by evaluating design outcomes of a designer and an artificial intelligence design tool. As discussed previously, artificial intelligence design tools are capable of providing different graphic design outcomes such as logo design, layout and editorial design, website design and so forth. This research focuses on the use of artificial intelligence design tool as a logo creator. Therefore, Free Logo Design website is incorporated as a the artificial intelligence logo design tool. The criteria for evaluation of the logos are based on key logo design principles as well as the brief of each logo. In this research, five logos in different categories designed by a designer are chosen and the same logos are recreated with an artificial intelligence design tool.

4.1. Logo briefs

BonTon: BonTon is a brand for baking products and ingredients such as baking kits specially for young children. The brand name “BonTon”, which means Good Taste in French, has the tagline “Good taste, for fancy little ones” to emphasise to adults that the product is good for their children. This brand is very simple, friendly and fun. The targeting audience are young children between 4-12 and their parents between 29-40 who are interested in baking at home. BonTon with its quality and creative packaging stands out in the industry. The preferred style would be minimalistic, fun and child-friendly with pastel colours.

Florex: Florex is a flower shop brand which provides designed flower bouquets as well as event flower decoration such as wedding. The target audience is young adults between 21-38, specially women, with medium to high income levels who are interested in designed, extraordinary flowers. The style would be feminine and luxurious.

Splashy Fen: Splashy Fen is a South African music festival which gathers people to Underberg with music experience outdoor. Splashy Fen is a friendly, family orientated festival where young and old build memories that last a lifetime. To reinforce its ‘family friendly’ character, the style would be fun and bright. The otter iconography that is synonymous with the brand’s identity, should be included in the logo design.

NarinTeb: NarinTeb is a dental retail which provides dental products. Their brand is sophisticated, young and loyal. The targeting audience is professional companies who need quality dental products with high income level. The preferred style of Narinteb would be minimalistic and sophisticated design with professional colours.

Morals: Morals is a construction and consulting brand which provides services in property industry and assisting customers interested in selling or buying properties to make the right choice. Morals is loyal to the customers and provides complete transparency. The targeting audience are men between 30-55 who are interested in property business. The style of Morals brand would be simple but impactful in the industry.

4.2. Logo designs

Designer	AI Design Tool
	
	
	
	
	

Table 1: Logo Designs. (Hashemieh, 2020)

4.3. Evaluation tables

The evaluation tables are designed in a way in which the visual representations of each logo created by a designer and an artificial intelligence design tool would be available as well as the total of eight logo design criteria including the brief consideration, simplicity, aesthetically appealing, adaptable, uniqueness, memorable, functionality and lastly impactful. If the logo design achieve the criteria, it would get a green check mark. Evaluation of logos are provided by three participants who filled the evaluation table by choice. The results of evaluation are considered objective because it relies on three participants point of view, how they visually analyse logos, their background, their understanding of the criteria and more.

The purpose of evaluating logos is to acknowledge whether or not artificial intelligence design tools can be the future graphic designers and take graphic designers place in future. The evaluations determine whether the overall design created by a designer is more valuable according to the criteria or the overall design produced by artificial intelligence design tool. The logos on the left side of the table are designed by a designer and logos on the right side are designed by artificial intelligence design tool.

4.4. Participant 1

CRITERIA		
		
Brief	✓	—
Simplicity	—	✓
Aesthetically appealing	✓	—
Adaptable	✓	✓
Uniqueness	✓	—
Memorable	✓	—
Functionality	✓	—
Impactful	✓	—

CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	—
Adaptable	✓	✓
Uniqueness	✓	—
Memorable	—	—
Functionality	✓	—
Impactful	✓	—

CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	✓
Adaptable	✓	✓
Uniqueness	—	—
Memorable	—	—
Functionality	✓	—
Impactful	—	—

CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	✓
Adaptable	✓	✓
Uniqueness	—	—
Memorable	—	—
Functionality	✓	—
Impactful	—	—

CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	—
Adaptable	✓	✓
Uniqueness	✓	—
Memorable	—	—
Functionality	✓	—
Impactful	—	—

4.5. Participant 2

CRITERIA		
		
Brief	✓	✓
Simplicity	—	✓
Aesthetically appealing	—	✓
Adaptable	—	✓
Uniqueness	—	✓
Memorable	—	✓
Functionality	—	✓
Impactful	—	—

CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	—
Adaptable	✓	—
Uniqueness	✓	—
Memorable	—	—
Functionality	✓	—
Impactful	—	—

CRITERIA		
		
Brief	✓	✓
Simplicity	—	—
Aesthetically appealing	—	—
Adaptable	—	✓
Uniqueness	✓	—
Memorable	✓	✓
Functionality	—	✓
Impactful	—	—

CRITERIA		
		
Brief	✓	✓
Simplicity	✓	—
Aesthetically appealing	✓	✓
Adaptable	✓	—
Uniqueness	✓	—
Memorable	✓	—
Functionality	✓	✓
Impactful	—	—

CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	—
Adaptable	✓	—
Uniqueness	✓	—
Memorable	—	—
Functionality	—	✓
Impactful	✓	—

4.6. Participant 3

CRITERIA		
		
Brief	✓	✓
Simplicity	—	✓
Aesthetically appealing	✓	✓
Adaptable	✓	✓
Uniqueness	✓	—
Memorable	✓	—
Functionality	✓	✓
Impactful	✓	—
CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	—
Adaptable	✓	✓
Uniqueness	✓	—
Memorable	✓	—
Functionality	✓	✓
Impactful	✓	—
CRITERIA		
		
Brief	✓	✓
Simplicity	—	✓
Aesthetically appealing	✓	—
Adaptable	✓	✓
Uniqueness	✓	—
Memorable	✓	—
Functionality	✓	✓
Impactful	✓	—

CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	✓
Adaptable	✓	✓
Uniqueness	✓	—
Memorable	✓	—
Functionality	✓	✓
Impactful	✓	—
CRITERIA		
		
Brief	✓	✓
Simplicity	✓	✓
Aesthetically appealing	✓	—
Adaptable	✓	✓
Uniqueness	✓	—
Memorable	✓	—
Functionality	✓	✓
Impactful	✓	✓

4.7. Findings

In this part of study, the result of logo evaluations compared by three participants is provided. The aim of this evaluation is to address the primary and secondary research questions. Research questions are as following:

The primary research question:

How is artificial intelligence used in graphic design?

The secondary research question:

How does artificial intelligence design tools influence the graphic designers?

How does an evaluation of design outcomes designed by graphic designers and artificial intelligence design tools impact communities' understanding of such tools?

Can artificial intelligence take graphic designers' place in future?

In order to address above questions, the overall evaluation results of participants should be analysed. The results showcase that according to one participant's evaluation, two logo designs designed by artificial intelligence performed a better design comparing to the designer's logo. The rest of the evaluations show that logo designs created by a graphic designer critically performed a better design comparing to artificial intelligence design tool's logos. It is considered that the results could be objective, but the fact that participants had the description of the briefs as well as each criteria's definition, It could help them to make the right decision in evaluating logos which leads to achieving more accurate results.

According to the overall results of evaluations, in the majority of logo evaluations, the graphic designer provided a more successful design by a considerable margin, comparing to Free Logo Design website which means artificial intelligence could not be a concerning competitor to graphic designers yet. Swanson (2019) claims that the more artificial intelligence design tools become accessible to non-designers, the more possibility that graphic designers become less valued in communities. As opposed to that, logo evaluations in this research claim that designers could achieve more value by demonstrating the comparison of logo designs created by a graphic designer and artificial intelligence design tool. Such successful result may assure communities that graphic designers considerably create more successful designs.

Furthermore, this could impact the understanding of communities from artificial intelligence design tools in different ways. People using such tools would understand that graphic designers provide more successful design outcomes and they could support them by employing them for required projects. In the other hand, it can lessen the graphic designers' concern about artificial intelligence taking their place in future. This does not mean as technology improves, artificial intelligence would not be used in graphic design discipline, but it means that graphic designers can still provide better designs. Artificial intelligence could be used in graphic design as an assistant tool to provide inspirations and ideas for the final design which is created by a designer.

4.8. Trustworthiness

In order to include a specific set of criteria that can be used to assess quality, an effective set of criteria for the reliability and trustworthiness of qualitative research was created by Lincoln & Guba in 1985 (Stumpfegger, 2017). Four key components of trustworthiness are as following: credibility, transferability, dependability, and confirmability (Devault, 2019). The credibility is the way qualitative researcher provides the accuracy of the results of the research report (Statistics Solutions, 2020). This could be achieved by showing the data as well as the critical evaluation of design outcomes so the findings are accessible to designers and communities.

Transferability describes how the qualitative researcher demonstrates that the findings of the study are applicable to other contexts (Statistics Solutions, 2020). Transferability is achieved by providing similar examples of design outcomes created by artificial intelligence design tool and a graphic designer.

Dependability is the degree to which the research may be replicated by other researchers, and the results will be consistent (Statistics Solutions, 2020). In other words, if anyone were to replicate the study, they would have enough information from this research report to do so and achieve the same conclusions as the study did (Statistics Solutions, 2020). Dependability is applied to this study by sharing all the sources of the research as well as all the data gained from critical logo evaluation.

Confirmability is described by Statistics Solutions (2020) as the degree of neutrality in the results of the research analysis and non-existence of any apparent bias or personal motive of the researcher. As a result, this study provides both advantages and disadvantages of design outcomes created by a graphic designer versus an artificial intelligence design tool. The findings are free of any bias in a way in which researcher provides evaluation results from three participants and not only one. The evaluation forms do not indicate which logo was designed by graphic designer or artificial intelligence which makes the result more accurate and valid.

5. CHAPTER 5: CONCLUSION

This research explored the use of artificial intelligence in graphic design discipline which refer to applications or websites that create design outcomes such as logo, layout design, and website design using artificial intelligence codes without any graphic designer's involvement in its process of design. As Karaata (2018) states, the process of graphic design continues on computers as technology improves significantly, as a result, artificial intelligence design tools inevitably find their place in the graphic design industry. Consequently, it is predictable that artificial intelligence will be involved in graphic design process whether as an assistant or a tool to only execute the concept.

The findings of this study showcased that, the overall performance of logo designs by a graphic designer was more successful in comparison with artificial intelligence design tool. This research explored whether or not artificial intelligence can influence graphic designers and the results showed that artificial intelligence design tools could be used as graphic designers' assisting tool and not as the main graphic designer who provides concepts, research, prototyping, execution and so forth. As a result, artificial intelligence could be considered as an advantage to designers where designers could get assistance from it and save huge amount of time and energy. This means that designers' concern that artificial intelligence would take their place in the future, is not concerning. Evaluation results indicate that designers provide a better overall design outcome which is an answer to the research problem.

This research provided logo evaluations done by three participants and in future studies, the evaluation could be done by large amount of participant to make the results more accurate. The findings of this research can help future studies regarding this phenomena to gather some useful information about the main theories and different opinions of authors about this title. This study could be considered almost successful but it definitely requires deeper research and more participants.

5.1. Contribution to existing knowledge

The contributions the researcher intends to achieve existing knowledge by this study could be listed as following:

- In the case of this study, depending on the final results of research analysis and explorations, an insight to advantages and disadvantages of using artificial intelligence design tools and the way it could influence graphic designers is provided to help people using such tools as well as designers to make better choices.
- This research contributes to the existing academic literature relating to artificial intelligence design tools and their influence on designers and the value of design. This would be helpful since there is not much academic literature available regarding this matter.
- Because this study's topic is very common currently in communities and it concerns many designers and their future, this research helps them to have a better understanding of the changes that might or might not occur in the future.

5.2. Ethical consideration

The primary goal of ethical consideration is to ensure that no one will be harmed or adversely affected as a result of the research being carried out (PhD Research, 2020). The main principles of research ethics are: minimise the risk of harm, obtain informed consent, protect anonymity and confidentiality, avoid deceptive practices and lastly provide the right to withdraw (PhD Research, 2020). In the case of this study which requires evaluation of logos created by a graphic designer and an artificial intelligence design tool, the researcher makes sure the name of the graphic designer and the participants who chose to evaluate the logos remain anonymous and no data is shared without the permission of the designer. Ethical clearance from the institution is provided to the researcher to assure the participant that the study is ethical before starting with data collection and data analysis. In this research, ethical considerations are as following:

- Ensure participants are over 18 years old.
- Ensure participant identities remain confidential.
- Ensure participant fill the evaluation form by their choice.
- Ensure that the result of evaluations are free from bias and they are accurate.

5.3. Limitation

The limitation of this study could be the limited previous studies regarding the use of artificial intelligence design tools in graphic design as well as its influence on graphic designers' future, which limits the researcher in incorporating various academic pieces of literature in the study. The second limitation of the study could be limited participants which made result of logo evaluations limited as well.

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Figures:

Figure 1: Free Logo Design. 2020. *Free Logo Design step 1*. [Online]. Available at: <https://www.freelogodesign.org/about> [Accessed 10 October 2020].

Figure 2: Free Logo Design. 2020. *Free Logo Design step 2*. [Online]. Available at: <https://www.freelogodesign.org/about> [Accessed 10 October 2020].

Figure 3: Free Logo Design. 2020. *Free Logo Design step 3*. [Online]. Available at: <https://www.freelogodesign.org/about> [Accessed 10 October 2020].

Figure 4: Free Logo Design. 2020. *Free Logo Design step 4*. [Online]. Available at: <https://www.freelogodesign.org/about> [Accessed 10 October 2020].

Appendices

Ethical clearance letter



21 August 2020

Student name: Sama Hashemieh



Campus: PRETORIA

Re: Approval of BA HONS: GRAPHIC DESIGN Proposal and Ethics Clearance

HONOURS ETHICAL CLEARANCE LETTER

Your research proposal and the ethical implications of your proposed research topic were reviewed by your supervisor and the campus research panel, a subcommittee of The Independent Institute of Education's Research and Postgraduate Studies Committee.

Your research proposal posed no significant ethical concerns and your supporting documents and instruments are in order to proceed. We hereby provide you with permission to proceed with your research.

In the event of you deciding to change your research methodology in any way, kindly consult your supervisor to ensure all ethical considerations are adhered to and pose no risk to any participant or party involved. A revised ethical clearance letter will be issued.

We wish you all the best with your research!

GENERAL CONDITIONS TO BE FULFILLED IN RELATION TO RESEARCH

Permission is granted to proceed with the above study subject to the conditions listed below being met and may be withdrawn should any of these conditions be flouted.

Please note: The panel has not considered the merits, accuracy or ethical soundness of the research. The only merits examined are the use of The IIE as a sample.

Permission is granted subject to the following conditions:

1. The researcher(s) will need to obtain informed consent in writing from all of the participants in his/ her sample if the study is not anonymous.
2. The researcher(s) may only use the data collected for research purposes and in no other way.
3. Photographs of human subjects may only be taken if relevant to the research, informed consent was obtained, and even with informed consent, the photographs may not be published on any online platforms.
4. The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.
5. No names or identifying information of participants may be used within the research and the research must be voluntary.
6. Please make it clear that the information will not be used punitively in any way and participants may in no way be counselled/advised based on this.

Supervisor: Yolandi Burger and Ria van Zyl



Campus Postgraduate Coordinator (CPC): RIA VAN ZYL

Final Research Report Summary Document Table

Research Purpose/ Objective	Primary Research Question	Research Rationale	Seminal Authors/ Sources	Literature Review – Conceptual Framework	Paradigm	Approach	Data Collection Method(s)	Ethics	Anticipated Findings	References
-Exploring the perceived societal value of graphic designers which could be influenced by artificial intelligence design tools. -Analyse and critically reflect on the design value of a graphic designer's design outcome and an artificial intelligence design tool's design outcome. -Determine the advantages and disadvantages of artificial intelligence design tools for graphic designers.	-How does artificial intelligence design tools influence graphic designers' perceived societal value in communities?	Artificial Intelligence is known as a threat to designers and it might affect Graphic Designers' future either in a positive or negative way.	-Steven Skaggs -Francisco Laranjo -Gunnar Swanson -Kees Dorst	Theme 1: How artificial design intelligence will influence website development. Theme 2: Meta-Design with Machine Learning is Coming, and That's a Good Thing. Theme 3: Refuturism Theme 4: Designing the Future We Want.	Paradigm Interpretivism	Qualitative	Visual Analysis	-Receive ethical clearance from the institution. -Researcher makes sure the name of the chosen graphic designer and the artificial intelligence design tool will remain anonymous. -No data will be shared without the permission of the designer	Evidence as to the Impact Artificial Intelligence design tools have on Graphic Designers.	-Google Scholar _JIE Library -Academic Journals -Previous Research Studies. _Magazines -Peer Reviewed Articles
						Population				
						Population Parameters				
						-Brand identity design outcomes - designs created by a graphic designer -designs created by a artificial intelligence design tool				
Research Problem	Secondary Questions/ Hypotheses/ Objectives	Key Concepts	Key Theories				Data Analysis Method(s)	Limitations	Anticipated Contribution	
Artificial intelligence design tools such as applications and websites, have a very serious influence on graphic designers' perceived societal value in communities which might make this discipline fade out in future.	-How does artificial intelligence design tools change the perceived societal value of graphic designers in communities? -How does a visual analysis of design outcomes designed by graphic designers and artificial intelligence design tools influence communities' understanding of such tools?	-Artificial Intelligence Design Tools -Artificial Intelligence -Graphic Design	-Artificial Intelligence Design Tools -Artificial Intelligence -Graphic Design				Unit of Analysis	-Limited Literature on the topic.	-Contribute to the existing academic literature relating to the topic.	
							Probability or non-probability Non-probability Sampling method Purposive convenient Size	Data Analysis Method(s) Content Analysis		

