Creative Process in Textile Pattern Design: Wallas' Four-Stage Model

Res. Asst. Dr. Pınar Arslan

ORCID ID: <https://orcid.org/0000-0002-6917-3642>

Ankara Hacı Bayram Veli University, Faculty of Art and Design, Department of Textile Design, Ankara
– TURKEY

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Abstract

The effect of creativity is an undeniable fact in the design process. The design product that will emerge with the integration of thoughts with creativity becomes equipped with qualifications like being original, different, innovative, suitable for the age, etc. However, excellently managing the creative thinking process is incredibly essential in generating appropriate and valid solutions to the design problem. In the first stage of the designed idea, the concepts or ideas in the mind are abstract. Ideas take shape and take a solid form after going through certain stages. The first of the studies related to this is the creative thinking process is the one which is developed by Wallas consisting of preparation-incubation-illumination-verification stages. This method, which expresses what kind of way individuals follow while transferring their feelings and thought internalized in their minds, at the time same time this allows to identify the design problem, which is the first stage of the design and to determine whether the solutions developed for the problem are suitable.

In the study, the 4-stage model developed by Wallas has been used to establish effective and suitable design solutions for complex design problems in textile designs and to pursue the idea creation and implementation stages in the textile pattern design process. Within the scope of the study, this research aims to create a collection of textile patterns based on Wallas' creative thinking method and to more clearly express what are the mental processes during textile pattern designs and to analyze the stages of the process. The experimental research method was used as a method in the research. While the population is composed of Ankara Hacı Bayram Veli University Textile Design Department's freshmen, the sample of the research is the textile pattern designs designed by 7 freshmen from Ankara Hacı Bayram Veli University, Department of Textile Design, based on the "Ankaraland" theme, where they describe the Ankara situated in their dreams. In the study, the stages of Wallas' creative thinking method (preparation, incubation, illumination, and validation/verification) were followed. Within the study's framework, students with differing readiness levels used Wallas' creative thinking model to formulate design ideas for the Ankaraland theme, generate design stories and sketches based on the theme, and have developed seven unique and creative pattern designs.

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Tekstil Desen Tasarımında Yaratıcı Süreç: Wallas'ın Dört Aşamalı Modeli

Arş. Gör. Dr. Pınar Arslan

Ankara Hacı Bayram Veli Üniversitesi, Sanat ve Tasarım Fakültesi, Tekstil Tasarımı Bölümü, Ankara –
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Öz

Tasarım sürecinde yaratıcılığın etkisi yadsınamaz bir gerçektir. Düşüncelerin yaratıcılıkla bütünleşmesiyle birlikte ortaya çıkacak olan tasarım ürününe özgün, farklı, yenilikçi, çağa uygun vb. nitelikler kazandırılmaktadır. Ancak tasarım problemine ilişkin uygun ve geçerli çözümler üretilmesinde yaratıcı düşünme sürecinin iyi yönetilmesi son derece önemlidir. Tasarlanan fikrin ilk aşamasında zihinde kavramlar veya fikirler soyut haldedir. Fikirler şekillenerek belirli aşamalardan geçtikten sonra somut biçime dönüşmektedir. Bununla ilgili yapılan çalışmalardan ilki Wallas tarafından geliştirilen hazırlık-kuluçka-aydınlatma-doğrulama aşamalarından oluşan yaratıcı düşünme sürecidir. Bireylerin zihinlerinde içselleştirdiği duyguları, düşünceleri aktarırken nasıl bir yol izlendiğini ifade eden bu metod, aynı zamanda tasarım ilk aşaması olan tasarım probleminin belirlenmesine ve probleme ilişkin geliştirilen çözümlerin uygun olup olmadığının tespit edilmesine de olanak tanımaktadır.

Tekstil tasarımlarında karmaşık tasarım problemlerine etkili ve uygun tasarım çözümleri geliştirebilmek ve tekstil desen tasarım sürecinde fikir oluşturma ve uygulama aşamalarını takip edebilmek için çalışmada Wallas'ın geliştirdiği 4 aşamalı model kullanılmıştır. Araştırma kapsamında Wallas'ın yaratıcı düşünme metoduna dayanarak tekstil desen koleksiyonu oluşturmak ve tekstil desen tasarımlarını oluştururken, mental süreçlerin ne olduğunu daha açık bir şekilde ifade etmek ve süreç ilişkin aşamaları analiz etmek bu araştırmanın amacını oluşturmaktadır.

Araştırmada yöntem olarak deneysel araştırma yöntemi kullanılmıştır. Araştırmanın evrenini Ankara Hacı Bayram Veli Üniversitesi Tekstil Tasarımı Bölümü 1. Sınıf öğrencileri oluştururken, araştırmanın örneklemini ise Ankara Hacı Bayram Veli Üniversitesi 1. sınıf Tekstil Tasarımı Bölümü öğrencilerinden 7 öğrencinin hayallerindeki Ankara'yı betimledikleri "Ankaraland" temasından yola çıkarak tasarladıkları tekstil desen tasarımlarıdır. Çalışmada Wallas'ın yaratıcı düşünme metodunun aşamaları (hazırlık, kuluçka, aydınlanma ve onaylama/doğrulama) izlenmiştir. Araştırma kapsamında farklı hazırbulunuşluk düzeylerine sahip öğrenciler tarafından Wallas'ın yaratıcı düşünme sürecinin uygulanması sonucunda Ankaraland temasına yönelik tasarım fikirleri ortaya konulmuş, temaya uygun tasarım hikayeleri ve eskiz çizimleri yapılmış, özgün ve yaratıcı birbirinden farklı 7 adet desen tasarımı geliştirmiştir.

1. INTRODUCTION

Cross (1999) defines design as "a matter of human intellect, something that can be achieved by all people which is distinguishing people from other animals and machines (up until now)". According to Friedman (2003: 507-508) design is the process where creating something new with an original and innovative perspective is followed for a specific goal. Norman (2013: 229-242) notes that design is defining the problems for the needs and finding the solutions by developing the right hypotheses for the problems encountered, as well as the concept of design is a complex activity. A further similar approach to the design concept can be stated as the formation of the original product or output as a result of mental activity. Nevertheless, along with the cognitive activities implemented to address the design problem, the designer's personal and environmental experiences and socio-cultural characteristics are also effective (Önal, 2011: 155-156).

It is understood from the artworks and design products that civilizations in the past had a full grasp of design thinking, perception, and imagination. According to this, it is shown from the existence of man that he can design thanks to the capability coming from his core (Cross, 2011: 10-11).

In the realization of the design practice, the concept of creativity remains at the center. Creativity, which is described as an action, idea, or product that changes the current condition or converts into a new state, is not an attribute endowed to some unique individuals. It is only the most solid expression of the sociocultural accumulation of a person has (Csikszentmihalyi, 1996: 23-28). In other words, creativity is a mental and cognitive mechanism that identifies/perceives issues in a subject, produces new ideas for this question, develops hypotheses, experiments, and delivers the results of the data. It means approaching problems with a different perspective during the formation of original ideas. Creativity can also be defined as a successful step taken with a sense of curiosity, thinking outside the box, the desire to explore with the imagination, creating a bridge between ideas, making new connections between ideas, etc. (Torrance, 1969: 3-4; Onur and Zorlu, 2017: 1541). Mayer (1989: 205) defines creativity as "the ability to solve problems in a way that a person has not learned to solve them before".

The creation phase of design combines human creativity with a different mechanism of reasoning and incorporates it with values regarding knowledge, experience, and aesthetics. When you create a design idea, it is important to ensure that it is original, innovative, functional, aesthetic, and marketable (Chan, 2015: 262). The key to a design to be original and innovative is to perform creative thinking.

According to Amabile (1998: 79), creative thinking is "the ability of people to articulate how they address challenges and solutions, to put together existing ideas in a different combination." Kampylis and Berki (2014: 6) defines students' creative thinking as a "thinking mechanism that enables them to produce their ideas, questions, and hypotheses, try within alternatives by their imagination, and to evaluate their own ideas and peers' ideas, final products, and processes". The first method developed regarding the creative thinking process is the creative thinking method which includes the preparation, incubation, illumination and validation/verification stages as stated by Wallas (1921). Since this method of thinking is also an approach to problem-solving, the steps in this process are the actions of the scientific method. It can be applied in various fields such as design, architecture, math, etc. One of these fields is the textile design area.

Textile design refers to the design phase of various fabrics such as knitting, weaving, printing, and is a broad topic that covers design fields from wallpaper to interior decor, apparel, fashion, and architecture. The textile designer has to understand what kind of design process to pursue with which fabric and how to produce a suitable textile surface for a given theme, trend, and collection. Catching up with the contemporary world in terms of color, pattern, theme, fashion, trend, etc. in the fabric

designs created is important for designers. From the start of the creation process until the end, the textile designer continues this process by gathering and evaluating ideas through investigating the world and examining them quite well (Steed and Stevenson, 2012: 9-12).

The textile designer is a person who discovers new places by traveling, explores new cultures, follows everything about art and design, is interested in interdisciplinary studies and combines it with his/her designs, is also aware of current events and knows the limits of the pattern styles, themes, production method and technique for a specific textile surface which they will be applied. When looking for sources of inspiration while designing, the designer always seeks to address customer needs and expectations accurately by pursuing technological developments (Birrell, 1973: 8-9).

While producing their exciting ideas, designers can be inspired by various creative disciplines such as streets, films, television, magazine, store, art gallery, museums, bookstore, library, music, literature, architecture, sculpture, painting, photography, and urban environment. While designing, they can be inspired by the elements of the current life, can take the past as a reference, benefit from various styles such as art, design, tradition, culture, etc. Photographs, sketches, color charts, typographic examples, some drawn ideas, words, etc. can be used as tools in this process (Ambrose and Harris, 2010: 60-62).

Different regions, environments, and places have different cultural properties peculiar to them. In today's world, textile designers can be affected by both urban and rural environments. Especially they observe the differences in their environment and examine cultural elements such as life, environment, architecture, nature, color, form, structure, etc. and also experience the culture in which they belong by wandering around. Therefore, the information they have collected will establish sources of inspiration for their latest designs. So, they can use the visual and experiential richness as a design source and transfer it to their designs. Particularly in the design phase, what makes the textile designer unique is s/he creates a new perspective, by utilizing the imagination when observing an environment. Instead of seeing everything as it is, s/he can discover its surroundings from a design perspective (Steed and Stevenson, 2012: 34-40).

The textile designer uses artistic creativity in the design process. First of all, to cope with this ambiguity, the designer who faces uncertainty in his / her mind identifies the problem of design. And then, expresses the design problem visually. S/he reaches a creative solution through solid and symbolic expressions (Getzels and Csikszentmihalyi, 1976: 246).

With this changing world, the established paradigms relevant to the solution of design problems should be determined in textile pattern designs, and they need to be updated to keep up with the century. This work is very significant in terms of offering clarity regarding the conscious and unconscious steps during the design of textile patterns. The research aims to create a collection of textile patterns built on the creative thinking method of Wallas and to explain more explicitly which mental processes are present during the creation of textile pattern designs and to examine these process stages. At the same time, it aims to develop effective and appropriate design solutions by using the creative thinking process for complex design problems in the textile field.

In this study, Wallas' creative process stages (preparation, incubation, illumination, and validation/verification) are discussed in detail as the method. Textile design students were included in an experimental study about a design subject by following the creative process stages (preparation, incubation, illumination, and validation/verification) of Wallas.

Within the scope of the research, a literature review was carried out based on the resources available on the subject. The experimental research method was used as a method in the study. While the population of the study is the freshmen of Ankara Hacı Bayram Veli University Textile Design Department, the sample of the study is the textile pattern designs which are designed by 7 freshmen

from Ankara Hacı Bayram Veli University Textile Design Department based on the “Ankaraland” theme in which they describe the Ankara they dream of.

In the first stage of the research, a group of 7 students determined the design problem and conducted extensive research on this problem. The students turned the data they obtained as a result of their research into a presentation. 7 different keywords were determined related to this specific theme. In line with these keywords, students have created their design stories. The phases of creating design ideas, sketching, and coloring are discussed in detail with Wallas' thinking method and explained in subheadings.

2. WALLAS' CREATIVE PROCESS STEPS

According to Wallas, the creative process consists of 4 stages. The first of one is the determination and research of the problem, the second is the resting phase where there is a break from thinking about the problem, the third is the illumination stage where the “happy idea” pops up, and finally, the verification phase where the solution is controlled, if necessary corrected and improved (Wallas, 1926: 80).

Photo 1: Wallas Creative Process

2.1. Preparation

Throughout the preparation phase, which is the first stage of the creative process, ideas are formed regarding the subject to be examined, the study question is developed, and extensive and thorough research is carried out. At this stage, the research problem is defined by various actions such as literature review, data collection, research, discussion, asking questions, taking notes, reviewing possible solutions, etc. related to the subject. (Hartmann, 1941: 367; Kneller, 1965: 48; Mardianti and Pradnyo Wijayanti, 2018: 155-156).

In the creation phase, conducting a rigorous study about experience, knowledge, and subject are the points that should be underlined in the preparation phase, which is the first phase of the creative process. Human memory can create things in its own way. The necessity of the sketches (preliminary designs) and drafts for designers' inspiration for their design fields (machine, poetry, painting, building, fabric, etc.) should not be overlooked. When developing something new, working effectively with the hypothesis put forth in this context is incredibly necessary. The designer's mind should be filled with various elements such as themes, patterns, colors, motifs, compositions, figures, etc. (Ribot, 1906: 163).

The researcher should be aware of which field to approach during the creative idea process. S/he should use the forms and methods to efficiently express the stated problem (Kneller, 1965: 51).

This stage is a period in which more comprehensive knowledge is gathered on the research issue and ideas can shift rapidly. While reading various sources about the problem is applicable, on the other hand, other methods of obtaining information are discussing, interviewing, or connecting with other people working in the field about the research problem. A long-term mental effort may be needed to reach out to the source of the problem information. The preparatory phase can be short-term like a few minutes, a few hours, but also can last for months or even years. The researcher can experience different emotional states at this time, including skepticism, anxiety, and disappointment (Patrick, 1955: 11-12).

2.2. Incubation

In her study, Amabile (1998: 79) stated that while encountering difficulties in examining the incubation problem, there is a brief diversion from the subject under review, moving to something else and approaching the question from a different perspective.

The second stage of the creative process is incubation. It's time to engage with new things, stop thinking about the problem before seeking a solution, or become involved with the idea from time to time but giving a break occasionally. In this process, the idea is constantly changing until it is fully defined (Patrick, 1955: 13).

The idea emerges instantaneously in the incubation phase while changing in different thought processes. The researcher generally stopped thinking at this stage, and the activities such as exercise, relaxation, rest, sleep, reading books, etc. may help the mind to feel more relaxed. The incubation period can be short or long term depending on performed work. This stage takes a few hours or days while sketching an artwork/design product, however, this period may be extended during a scientific experiment while inventing something (Patrick, 1955: 27-28).

After the conscious mind functions during the preparation period, the phase of unconscious activity begins during the incubation period. Here, various unconscious thoughts that are not under pressure establish unexpected solution relationships in the creative process and determine the situations (Kneller, 1965: 51).

The explanation of why the incubation process appears shocking is that the problems, exhaustion, deviation from the issue, and moving away from the answer are now renewed and refreshed again (Hartmann, 1941: 368). It is also possible to do research more freely from different perspectives to find answers at this stage. The answers sought to transform the ideas of the research problem via unusual directions as well. The incubation stage provides alternative solutions as well as transforming the ideas (Guilford, 1979: 4).

While solving a creative problem, researchers conduct studies by broadening their information networks beyond their own expertise to pinpoint solutions to these problems. The incubation period facilitates this and helps them to come up with new ideas (Sio and Ormerod, 2009: 107-110). Also, unexpected combinations may arise between ideas generated (Csikszentmihalyi, 1996: 79).

In brief, the incubation phase of the ideas depends on the intensive work carried out in the preparation phase, which is the first phase of the creative process. Rather than worrying about the problem of research, it is the stage where the thoughts are put on a shelf without being conscious or voluntary, allowing relief and rest to take place without any conscious intervention. (Incubation as an Important Component in the Creative Process, 1979: 3). Also, it can be named as the full maturity stage of the problem.

2.3. Illumination

While Wallas (1926) calls this stage "illumination", some researchers (Csikszentmihalyi, 1996) refer to it as "insight". Illumination is the third stage of the creative process. The "Aha!" moment or the Archimedes' "Eureka!" moment when the pieces of the puzzle came together (Csikszentmihalyi, 1996: 79-80).

The idea incubated is considered to be completely formed at the illumination stage, as well as being felt internally via strong intuition. This stage which can take place in any area such as poetry, painting, design, etc. is the moment of when general points are determined, sketches or drafts are created, and the description of the problem solution is provided for the first time, and it is the inspiration moment when the solution is determined initially. The process of the rapid and sudden emergence of ideas is the clearest indicator of illumination. Emotions such as happiness about the problem solution, pleasure, and satisfaction for being in the state of clarification, etc. are experienced in

this period (Patrick, 1955: 29-40).

The sketch is a drawing of an idea that represents the visual work that enables ideas to become solid on paper. Sketching, which is the backbone of the design studies, is the sine qua non of the creative process and a visibility-based thinking mechanism with its evolving quality and development. (Steed and Stevenson, 2012: 136). Hua (2019: 903) mentions that sketch is an important part of the design that supports design thinking and creativity. In addition to this approach, it is discussed that the sketch helps the activities in the mind of the designer before the design phase. In this sense, Fish (2004: 151) stresses that, in addition to being the starting point of the design phase, sketching forms the foundation of design, and its primary role is to help the designer's imagination.

Sketches are the medium of transition when the design starts to take form, and when the collection of ideas is combined with paper, and the idea of design spreads. In Turan's study (2011: 168), the ambiguous and unpredictable nature since each pencil trace on the paper has various definitions and those traces are subject to interpretation also reveals that the sketch feeds the designer as a means of expressing ideas and the sketch's role in the design is emphasized.

In the stage of illumination which peaks the moment of creation, all ideas become apparent with the effect of inspiration. Inspiration relies not only on foresight but also has a self-affirming impact. One is convinced by listening to his/her inspiration's voice before stating the idea which s/he found (Kneller, 1965: 53-54).

Even though the moment of illumination seems to have arisen spontaneously as a consequence of the conscious phase (preparation) and unconscious phase (incubation), it is based on a comprehensive and dedicated work and concerted effort before the idea of a solution arises. It is the completion of the chainrings about the answer during the big jump (Stamatoplos, 2014: 9).

2.4. Verification

At this stage, it is the period of self-criticism that allows the researcher to realize how significant the idea s/he found during the illumination stage is. In this process, the researcher can hesitate about solving the problem. It is the last step whether the problem reaches the final solution in the creative process and whether the solutions found are suitable are decided (Csikszentmihalyi, 1996: 80).

This phase, called verification or revision, is the part where the imagination is transformed through the mind filter into a solid and realistic idea. Within this phase, the inspiration which forms the raw material of creativity is tested. And whether the idea developed by intuition is valid or not is concluded (Kneller, 1965: 56). For example, the artist can make changes such as additions/exclusions or changing colors in the items used on the painting s/he draws. The designer, on the other hand, may need revisions in terms of the colors, patterns, etc. of the products designed. Thus, the idea is made compatible with the principles and techniques of the field of science or art. This stage can take minutes, months, years, etc. depending on the solution to the problem (Patrick, 1955: 47).

3. TEXTILE DESIGN TRIALS BASED ON WALLAS' CREATIVE THINKING MODEL

In the framework of the study, as described in the research method following Wallas' creative thinking model, the study started with seven students and they were requested to choose a particular theme. The theme of Ankaraland was chosen in this sense.

3.1. Preparation

In this study conducted by the project executive on textile design, 7 students were provided details about Wallas' creative thinking process, and the students were told to define the problem of design and perform research on the question. The research problem is the application of different dimensions to the subjects addressed in textile patterns and the incorporation of cultural richness in textile pattern design.

Regarding the problem, students have performed extensive research about how original, cultural, and thematic fabric designs can be depicted. Throughout the preparation phase, which is the first stage in the creative process, students analyzed Ankara's cultural features and collected historical and cultural data relevant to the Ankara theme from several sources. A presentation was organized and shared in the classroom regarding the data collected. The path of each student was mapped and the research purpose was assessed. The research's goal is to create original, innovative, and culture-based textile patterns by combining the cultural symbols of Ankara with the imagination world.

3.2. Incubation

Within the group, the students shared ideas to develop answers to the design problem they identified. However, the design idea for the development of textile patterns could not be generated at certain times because of the introduction of similar ideas. In this situation, the students avoided focusing on the problem of research and diverted their attention with different tasks such as sleeping, reading books, etc. and postponed thinking about the problem of design. At this point, although the students are interested in design studies, they cannot trigger their creativity because they were adapted to a certain topic. For this reason, the time is given to them in this process to enable producing design ideas.

3.3. Illumination

Lockard (1982: 3) divides the sketches into three: design, art, and mechanical. Revealing the feelings of the artist from the inner world and presenting it on paper is a priority in the design sketch, which is one of these kinds. Besides controlling and guiding the design process of the sketch drawing effectively, it also has a side that signifies the mind's visual memory.

Goldschmidt (2014) stresses that the most efficient strategy in the preliminary design process is design sketching. She talks in her research about the role sketches play in the design phase, the characteristics, and the contributions they offer. In this sense, during the phase of creation and production of the idea, designers use the time efficiently and competently when drawing sketches. The person draws effectively in this process. When the designers transfer thoughts to the paper, it is acknowledged that compared to the stage of production, this is a lower-cost process. The designer's sketch drawing proceeds when the person feels content and openly shares the feelings, but when the production of ideas ceases, you need to see the task which requires minimal rules if you try to move to the next sketch. Sketches are drafts and can be transformed as well. It provides the designer with feedback and allows for adjustments, changes, corrections, and alternatives to the design problem. Maybe not all of the situations in the mind be fully transferred to paper. Sketches for this reason have a draft structure that can be finalized. During the design process, the sketches will shift in various directions. Some thoughts can give rise to other ideas at this stage, which can provide more useful cues for the visualization of the idea of design, and thus, it means that sketches can evolve.

Sketches require a large process of research in which ideas are formed on paper, and the resulting drawings are carefully thought through, but the result remains unclear. Sketch drawing is a creative and interactive procedure in which images that exist in the mind are evaluated and transferred to the drawing. The sketching process enables the emergence of ideas that have not been thought before about the design idea, allows the association of ideas, and helps the development of the design as the drawing continues by relying on intuition (Ching, 1990: 181-184).

At the first stage of design which is the sketches, the designers demonstrate their ideas and inspiration through them. Sketchbooks were designed for the documentation of drawings. In these notebooks, drawings, photographs, pieces of fabric, etc. are kept. Sketchbooks are valuable for encouraging designs to be created/produced and generating new ideas (Wilson, 2001: 14).

Students desired to express the Ankara from their own eyes, in their own fantastic worlds of

imagination. So that, the Ankaraland theme has arisen during the stage of illumination. Based on the theme of Ankaraland, various iconic elements of Ankara were addressed, fictionalized with the students' imagination, and the design process began by identifying keywords relating to the theme. The designs' preliminary sketching phase was planned and formulated in a table following the keywords chosen (See Table 1.)

Table 1. Sketch Stage in Textile Pattern Design

Design Theme	Student	Design No	Keywords
Ankaraland	A	Design 1	Ankara minibusses
	B	Design 2	Billboard
	C	Design 3	Angora goat
	D	Design 4	Crowd
	E	Design 5	Ankara Gates
	F	Design 6	Atakule Tower
	G	Design 7	Angora cat

Stories of the designs were prepared separately, and sketches of textile pattern designs were created as per the defined keywords. Here are detailed stories and sketches from every design.

The minibusses of Ankara were determined as keywords in Design 1 and a design story and sketch were created accordingly (See. Photo 2). Student A talks about the story of the design as follows:

"If I had imagined Ankara in another universe, the minibusses would have been one of the 3 items I wanted to take with me. Every city has its own rules and laws and colors which are invisible. As a person who looks both from the outside and from the inside, I think that one of the factors which is separating Ankara from other cities is the minibusses. They color the gray city almost from one end to the other. They're furious. But at the end of the day, they are transferring us to the location we want to go as quickly as possible.

Photo 2. Sketch of Textile Pattern Design

In Design 2, the billboard named "They Look Here" was determined as a keyword and a design

story and sketch were created accordingly (See. Photo 3). Student B talks about the story of the design as follows:

"The place where you can see the poster here is actually a billboard. The message which promises that if you advertise here, people will look at this board has tried to be conveyed. But it seems that no one has advertised there, which has made "They Look Here" become the symbol of Ankara. What interests me is that, even though it is not used for its intended purpose, it attracted people's attention and they are somehow made to look there."

Photo 3.: Sketch of Textile Pattern Design

Angora goat was determined as a keyword in Design 3 and a design story and sketch were created accordingly (See Photo 4). Student C talks about the story of the design as follows:

"An Angora goat, which is peculiar to the Ankara is included in my design. In my opinion, this animal may not only be in white, but it may be in all colors of the world."

Photo 4: Sketch of Textile Pattern Design

In Design 4, crowded was determined as a keyword and a design story and sketch were created accordingly (See Photo 5). Student D talks about the story of the design as follows:

"How many people are looking at each other's faces all day long in a crowded city. Very few. So, from our perspective, Ankara might be consisting of tired people, the faces of people who want to catch up, but their different personalities might felt like being in the Wonderland. Ankara is still Ankara... The crowd is still crowd... instead of changing the facts in my design, I aimed to change our perspective upon them. Because Wonderland actually always promises the truth."

Photo 5: Sketch of Textile Pattern Design

In design 5, Ankara gates are determined as keywords and a design story and sketch are created accordingly (See Photo 6). Student E talks about the story of the design as follows:

"Rapunzel appears in my mind each time I see the entrance door of Ankara. Besides the fact that the Wonderland vibes already exist inside it, I added a few things as well. I have presented the section of the bridge as if the bricks were lined up and I rendered it appear simple by just coloring the roof and middle part. The explanation to include ivy is that the plant in which the ivy is placed upon dries after a while. I applied this to cover the door, and after a while, to symbolize the disappearance of the concrete illustration of Ankara."

Photo 6: Sketch of Textile Pattern Design

In Design 6, Atakule was determined as a keyword and a design story and sketch were created accordingly (See Photo 7). Student F talks about the story of the design as follows:

"Atakule was designed to be a symbol of Ankara and attract attention. I created a dragon curled around the tower by using a different interpretation of this symbol. The fairy tales have inspired me here. The explanation is that in the fairy tales there is usually a castle and a princess is in this castle. This castle always has a guardian. On that basis, I drew a dragon to guard the tower. There was a banner hanging on the tower sometime after the tower was built that says "Tower is yours: a shopping mall." Based on that, I assigned the tower to the most faithful guardians for life.'

Photo 7: Sketch of Textile Pattern Design

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In Design 7, the Angora cat was identified as a keyword and a design story and sketch were created accordingly (See Photo 8). Student F talks about the story of the design as follows:

“The Angora cat is a Turkish cat accepted in the world. Its homeland is the Anatolia. Angora cat is a long-haired cat breed based on its characteristics and is considered the ancestor of long-haired cats. The Angora cat, which was the favorite of the noble class in Europe in the 18th century, has lived in the palaces.”

Photo 8: Sketch of Textile Pattern Design

The ideas which suddenly emerged in the students' minds transformed into meaningful things during the illumination stage of the creative thinking process. In this sense, the students' formulation of the Ankaraland concept, the formation of keywords and sketches relevant to this theme are the ideas of solutions that suddenly appear at this stage. At this point, sketches have shaped the design problem, which has been defined as combining Ankara's cultural symbols with the imagination and creating original, innovative, and culture-based textile patterns.

3.4. Verification

The course executive and the project team were involved in coordinating the sketches that describe Ankaraland. Through reviewing the sketches portrayed by the students in their own imaginations, the ideas were revised in line with the required principles of design, and the students were given feedback on sketch, pattern, and color based on the theme. The course coordinator modified the textile pattern designs that emerged based on the theme by directing the students at all stages of the creative process. At the verification stage, which is the final phase of the creative thinking process, the final designs are confirmed as acceptable for the theme.

Photo 9: Coloring of Textile Pattern Design

Photo 10: Coloring and Composition of Textile Pattern Design

Photo 11: Coloring of Textile Pattern Design

Photo 12: Coloring of Textile Pattern Design

Photo 13: Coloring of Textile Pattern Design

Photo 14: Coloring of Textile Pattern Design

Photo 15: Coloring of Textile Pattern Design

CONCLUSION AND DISCUSSION

The creative thinking process is required to be carried out for the development of effective, original, contemporary, unique, and thematic pattern designs in textile design. In the area of textile design, an experimental study has been undertaken. Wallas' creative thinking method is discussed at length in this research. This process has 4 stages. These stages are; the preparation in which the problem of design is defined, the incubation in which the thoughts about the problem is suspended, the illumination in which the idea of the sudden solution pops up in mind, and the verification stage in which the solution created is examined or reviewed for adequacy for the current problem.

Within the scope of the study conducted with students, Wallas' 4-stage model was utilized to

determine the pattern design process.

The students performed thorough research during the preparation phase, which is the first stage of this process in order to define the design problem. A presentation of the research has been organized accordingly. At this stage, the students determined the design problem as incorporating a different dimension to the subjects covered by textile patterns and integrating cultural richness into textile pattern design.

At the incubation stage, students suspended their studies about the research problem and focused on different things such as sleeping, reading books, etc. Thus, time is provided to mature the design idea.

At the stage of illumination, students suddenly brought solutions to the problem of design which they stopped thinking about. At this stage, the idea of the Ankaraland theme was discovered by students who wanted to convert Ankara based on their perspective through their own fantastic imaginary worlds. The theme-related stories and keywords of the designs were defined, and sketches were created.

In the verification stage, evaluations were performed regarding the students' sketches. Also, at this point, it has been checked whether the sketches are appropriate for the theme and the design stories. The students provided the relevant feedback on drawing, pattern, and color, and the final designs were accepted at this stage. At the same time, pattern designs are colored. Additionally, the students painted the pattern designs on their faces, lived the Ankaraland theme in Ankara's streets, and turned this experience as a short film.

In this study, the process of creative thinking was practically handled. In this approach, it has been shown that how students can effectively utilize their imaginations when designing patterns, and how they manage this process. At the end of this process, students with varying levels of readiness created original and innovative pattern designs within the research framework. We found that students gained new perspectives, improved their abstract and creative thinking skills, and revealed and shaped creative design concepts due to their active engagement in this process and involvement at all stages. Students struggled to identify the design issue during the creative thinking process preparation phase and present new design ideas during the incubation phase. The students managed the illumination and verification stages better because of the sudden emergence of creative design ideas and transforming these ideas into designs. When the results of the pattern design applications created using Wallas' creative thinking model are analyzed, it is believed that the use of this method in textile design and all other design areas would be advantageous as it encourages students' imagination and the subsequent designs are combined with creativity and turn into original designs.

REFERENCES

- Amabile, T. M. (1998). How to Kill Creativity. *Harvard Business Review*, 76 (5): 77-87.
- Ambrose, G. and Harris, P. (2010). *Basics Design 08: Design Thinking*. Switzerland: AVA Publishing.
- Birrell, V. L. (1973). *The Textile Arts: A Handbook of Weaving, Braiding, Printing, and Other Textile Techniques*. New York: Schocken Books.
- Cannon, W. B. (1945). *The Way of an Investigator: A Scientist's Experiences in Medical Research*. New York: W.W. Norton & Company, Inc.
- Chan, C.-S. (2015). *Style and Creativity in Design*. Switzerland: Springer International Publishing.
- Ching, F. D. K. (1990). *Drawing a Creative Process*. New York: John Wiley & Sons, Inc.
- Cross, N. (1999). Natural Intelligence in Design. *Design Studies*, 20 (1): 25-39.
- Cross, N. (2011). *Design Thinking: Understanding How Designers Think and Work*. Oxford, U.K: Berg Publishers.

- Csikszentmihalyi, M. (1996). *Creativity: Flow and the Psychology of Discovery and Invention*. New York: Harper Collins Publishers.
- Fish, J. (2004). Cognitive Catalysis: Sketches for a Time-Lagged Brain. Goldschmidt and Porter (Ed.), *Design Representation* (p. 151–184). London, UK: Springer-Verlag.
- Friedman, K. (2003). Theory Construction in Design Research: Criteria: Approaches, and Methods. *Design Studies*, 24 (6): 507–522.
- Getzels, J. W. and Csikszentmihalyi, M. (1976). *The Creative Vision: A Longitudinal Study of Problem Finding in Art*. New York: John Wiley & Sons.
- Goldschmidt, G. (2014). Modeling the Role of Sketching in Design Idea Generation. Chakrabarti and Blessing (Ed.), *An Anthology of Theories and Models of Design* (p. 433–450). London: Springer-Verlag.
- Guilford, J. P. (1979). Some Incubated Thoughts on Incubation. *The Journal of Creative Behavior*, 13 (1): 1–8.
- Hartmann, G. W. (1941). *Educational Psychology*. New York: American Book Company.
- Hua, M. (2019). The Roles of Sketching in Supporting Creative Design. *The Design Journal*, 22 (6): 895–904.
- Incubation as an Important Component in the Creative Process. (1979). *Gifted Child Quarterly*, 23 (1): 1–5.
- Kampylis, P. and Berki, E. (2014). *Nurturing Creative Thinking*. International Academy of Education, UNESCO.
- Kneller, G. F. (1965). *The Art and Science of Creativity*. New York: Holt, Rinehart and Winston, Inc.
- Lockard, W. K. (1982). *Design Drawing* (revised edition). Tucson: Pepper Publishing.
- Mardianti, I. and Pradnyo Wijayanti, M. (2018). Students' Creative Thinking Process Based on the Wallas Stage in Solving Mathematical Modeling Problems. *Advances in Intelligent Systems Research (AISR)*, 157: 154–157.
- Mayer, R. E. (1989). Cognitive Views of Creativity: Creative Teaching for Creative Learning. *Contemporary Educational Psychology*, 14 (3): 203–211.
- Norman, D. (2013). *The Design of Everyday Things*. New York: Basic Books.
- Onur, D and Zorlu, T. (2017). Theoretical Approaches towards the Concept of Creativity. *Journal of the Human and Social Sciences Researches*, 6 (3): 1535–1552.
- Sio, U. N. and Ormerod, T. C. (2009). Does Incubation Enhance Problem Solving? A Meta-Analytic Review. *Psychological Bulletin*, 135 (1): 94–120.
- Önal, G. K. (2011). Architectural Design Process in Creativity and Cultural Schema Context. *Uludağ University Journal of The Faculty of Engineering*, 16 (1): 155–162.
- Patrick, C. (1955). *What is Creative Thinking*. New York: Philosophical Library.
- Poincaré, H. (1914). *Science and Method*. New York: Thomas Nelson And Sons.
- Ribot, T. A. (1906). *Essay on the Creative Imagination*. Chicago: The Open Court Publishing Company.
- Stamatoplos, A. (2014). Creativity in Information Literacy Teaching: Part One—Understanding Creativity. *LOEX Quarterly*, 41 (1): 8–10.
- Steed, J. and Stevenson, F. (2012). *Basics Textile Design 01: Sourcing Ideas: Researching Colour, Surface, Structure, Texture and Pattern*. Switzerland: AVA Publishing.
- Torrance, E. P. (1969). *Creativity. What Research Says to the Teacher, Series, No. 28*. Washington, D.C.: National Education Association.
- Turan, B. O. (2011). 21. Yüzyıl Tasarım Ortamında Süreç, Biçim ve Temsil İlişkisi. *Megaron*, 6 (3): 162–170.
- Wallas, G. (1926). *The Art of Thought*. New York: Harcourt Brace.
- Wilson, J. (2001). *Handbook of Textile Design: Principles, Processes and Practice* (first edition). Cambridge:

Woodhead Publishing.