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## Designing of the Fabric Stickers to Implement Environmental Graphics

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### Research Article

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#### Abstract

This descriptive-experimental article uses the fabric to design a sticker for the environmental graphics of Imam Javad University of Yazd-Iran. In these designs, each etched forms induced a special concept and vitalizing the objects is important in these cases. On the other hand, the psychology of colors has been used to design them. The organizational color of the university was used in choosing the colors in order to make more accordance between the stickers and the university environment. The book is used as the main element in the designs due to the inseparable choice of science and books. The final work was presented in the form of five designs, each designed with reasoning.

**Keywords:** Environmental Graphics; Fabric; Sticker

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#### 1. Introduction

Emojis, which are known as emoticons in Persian, such as symbols like, have been formed in cyberspace in recent years especially in instant messaging networks; and some people believe that the emoji language has the fastest grown among other languages in the world. Stickers have also found a significant place along this new language, and some linguists have described the growth of emojis and stickers as the beginning of the future transformation of language and communication in the world. The visual richness of social media enables the users to express their feelings clearly, the feelings that do not fit in the form of words (Lim, 2015). Welcoming of users to use stickers and emojis as a new visual language has also caused to notice the subject and content of this new language (Dehghan, 2018).

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Stickers are animated shapes and images that can be used to express more complex emotions in virtual networks. They are the small emoticons that replace words and sentences in making communications, and have become part of the global language over the past few years. Welcoming of users to use stickers as a new visual language has also caused to notice the subject and content of this new language (Amiri, 2008).

The essence of this phenomenon is good and is considered as a step to increase the beauty of communication. There are a few remarkable points for using a sticker:

1. Mutual acquaintance of sender and receiver with the real meaning of the sticker.
2. Regarding the abbreviation, except when several concepts need to be conveyed together.
3. Bewaring of misunderstandings and misconceptions.
4. Immoral stickers are distasteful and if they are used carelessly, it will gradually cause cultural waste, especially in the field of children.
5. Stickers will replace conversations in the future, and it is mostly predicted that people will only use signs for communication (Izadpanah, 2018).



**Fig 1.** Primary stickers and emoticons(ostvar,2013)

The Unicode Consortium, which is responsible for providing international standards for digital fonts, added libraries containing 722 types of image emoticons in 2111. Finally, the emojis were attached to the standard keyboards by the end of 2112 coincided with the expansion of the new generation of Smartphones and tablets, so that there are more than 811 emojis right now (Parkin, 2016).

What should be considered is the awareness about the generality rate of stickers' meaning and the hidden meaning of a sticker from the people's point of view. For example, the stickers of a TV, political or cartoon character are used a lot during the broadcast of that program, but using this sticker decreases after the end of the program and eventually their usage is stopped and new stickers related to the topic of the day will replace it (Izadpanah, 2018; Sajjadzadeh, 2017).

Today, living in large cities especially metropolitan areas is such that most people spend their time outdoors due to the expansion of urban life. A part of this time is spent commuting on the streets and alleys. Therefore, the impact rate of people from these environments is very high. So, such spaces provide the best opportunity for graphic designers to be able to do their best based on aesthetic principles in the field of environmental graphics. Environmental graphics have a very wide range. One of the different types is the graphics of the means of transportation's body that can be used for various commercial, cultural, educational purposes and etc. (Dehghan, 2018).

Environmental graphics should be considered as one of the main elements of social and urban life. The effects of visual arts in everyday life are made possible by environmental graphics. Environmental graphics is a social phenomenon that can be analyzed and studied according to the visual space, national, ethnical, cultural, and social characteristics, customs and political and

economic tendencies of society. As a result, environmental graphics have a direct impact on the culture of a community, a city, a neighborhood, a house and even a family member's room (Mirzaei Nasab Fahadan, 2014: 13).

Nanotechnology is the study of particles in atomic scale to control them. In other words, the physical, chemical and biological properties of every atom and molecule are different from the mass properties of the matter in the nano scale. Nanoparticles in such unique properties and scales lead to creation of new achievements in medical and engineering sciences. The main goal of most nanotechnology researches is to form new compounds or make changes to the existing materials. Studies show that the systematic system of a matter at the nanometer scale is a key for the physical, chemical and biological systems with the new and better properties. The normal properties of materials change at the nanoscale, and the surfaces' behavior gradually dominates the mass behavior of the matter, and a new realm is opened. Analysts believe that nanotechnology, biotechnology and IT are the three scientific domains that form the third industrial revolution. The sensors, robotic arms, etc. are made in nanotechnology by placing four or five very thin layers with a diameter of less than three nanometers. Nanotechnology is used in electronics, biology, genetics, aeronautics, energy studies and even in other engineering sciences.

Silicon nanoparticles are an ideal alternative to fluorescent pigments due to their biocompatibility, high photoluminescence quantum efficiency, and stability against photobleaching. Researchers at the University of California have developed a new solution for producing macroscopic amounts of hydrogen-terminated silicon nanoparticles without the need for making a contact with hazardous materials.

The starting point and initial development of nanotechnology is not exactly known. In fact, the history of nanotechnology dates back to prehistoric times, when early humans used natural nanomaterial. We learned that the first nanotechnology engineer was in fact the nature itself. For example, carbon molecules at the nanometer scale are located in the cavities of cave walls, which are remained for thousands of years. Shrinking the objects has not been a new category in the industrial and post-industrial era, and in the electrical industry. Being small had a special value and cost in the Far East thousands of years ago. The childhood is referred to as beauty in classical Japanese literary texts in the tenth century (Zohoori, 2017; Yamin, 2021; Borhan, 2016).

Traces of nanostructured materials have also been seen in antiquities of different historical periods such as the Middle Ages. Medieval glassmakers may be considered as the first nanotechnologists. Studies have shown that gold nanoparticles were used in the beautiful glass of churches at that time. Of course, these glassmakers did not know why adding gold to glass changed its color. Another famous example is the Lycurgus Cup in Rome, dating to the fourth century AD. This cup is seen green in daylight, but when the light is shone into the cup, it is seen in red and pink. This interesting optical characteristic is due to the presence of gold and silver nanoparticles used in it.

In future medical applications, the most important issue is the construction of very stable quantum dots that are not dangerous to health, in other words, are inherently non-toxic. Therefore, more studies are needed to be done on high quality silicon nanoparticles, especially on the photo physics of silicon nanoparticles that have a narrow size distribution, because these silicon nanoparticles, which have controllable optical properties, are very useful for future applications such as fluorescent labels.

## 2. Practical Discussion and Work

The cotton fabric with the specifications listed in the table is used in this article. Silica nanospheres is also used with the specifications listed in the table to complete it. The completion is done as a batch pad.

**Table 1** Characteristics of the used fabrics

Texture's type	Fabric's kind	Weight (g/m <sup>2</sup> )	Cord density (1/cm)	Weft density (1/cm)
Twisted	Cotton 100 %	100	22	14

**Table 2** Material used

Type of material	Chemical formula	Molecular weight	CI.NO.
Silica nanospheres	SiO <sub>2</sub>	61.18	813173

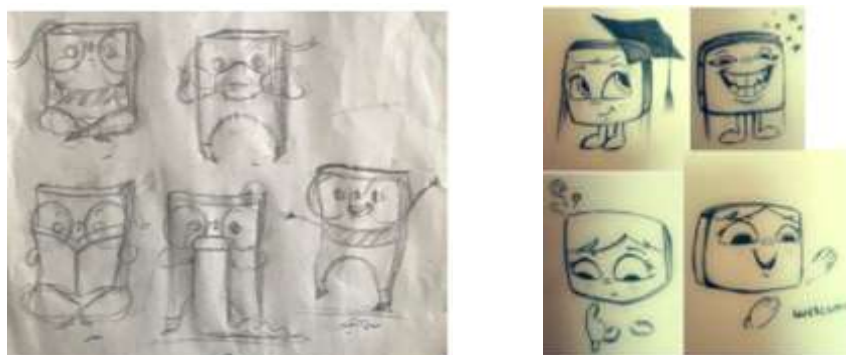
The mentioned material was prepared on the cotton fabric by the batch pad method in order to prepare a sample of cotton fabric with silica nanospheres. The fabric was used as an effective factor in preventing the destruction of the fabric by water (rain) due to its usage in the open university environment after stabilization.

### 2.1. Drop Test

This test was performed to evaluate the stability of the fabric against water, so that the fabric completed with nanospheres was exposed to the same droplets and the same acceleration of water with the control sample and the rate of water absorption on them was investigated. The results showed that the control sample immediately absorbed the droplets, while the fabric completed with nanospheres still did not absorb anything after 12 minutes.

### 2.2. Primary Etudes

At first, many etudes were made and five designs were approved by the professors, so their color and computer design will be discussed below.



**Fig 2** A sample of the primary Etude

Today, stickers can convey messages about a variety of topics, and can also provide more accurate illustrations of characters and relationships. Presenting the sticker design for Imam Javad University has been done. The book is considered as the main form of the sticker because it symbolizes the relationship between the science and the student due to designing a character with different modes.

The property of the fabric used in making the sticker is that it can be stored in a rainy environment, so that the fabric is highly resistant to water and it is also partly resistant to light. Currently, all the people of the world are affected by Covid 19 disease. Due to this issue, a sticker has been designed about this subject that it has a mask which is one of the preventive factors of this disease and a scarf designed with a university-specific color shows that the university is trying to create a safe place with observing all protocols.



**Fig 3** Designed stickers

### 2.3. Sticker Analysis

The form that appears at the first glance in the sticker is a rectangular shape, which is one of the shapes that a child depicts in the beginning of his drawings, and a house is drawn by placing a triangle on it which inspires a sense of security. The rectangular shape of the book is reminiscent of a safe university house.

Red color releases adrenaline in the blood and increases energy. The law of red lives says: Man can achieve whatever he wants and “where there is a will, there is a way”. This color is used for the thinking sticker chair in this part, so that it actually draws the students' attention to the subject of thinking by drawing the red color, as if the thinking concept is emphasized. The eye is the window of the soul. The glasses are the symbol of Imam Javad University in this part, which has been chosen in the color of the university logo, and the book which is related to the human soul. As a

result, Imam Javad University is a gateway to science. The circular shape of the glasses is the secret of success, which is the key to eternal success. A very cheerful and lively graduation sticker designed to bring satisfaction to your education.

Visual features and symbols are divided into five characters. A very cheerful and lively graduation sticker designed to bring satisfaction to your education.

Turquoise can be considered as the name of a set of colors between the green and blue spectrum, which has more blue shade and is between blue and green on the scale. Therefore, according to psychology, turquoise has characteristics of both colors; it has the calmness of blue and the growth and development of green, and a color similar to turquoise stone, which has been given characteristics such as being auspicious and being protected against bad opinions, etc. This color has many positive features and is used in the university logo, so it is the color chosen for the stickers' glasses, and it also complements the brick color, namely the stickers' bodies. Turquoise color along with the red or orange color creates an eminent and dazzling effect. Turquoise enhances creativity and sensitivity and is the color of the soul evolution. It has great power in perception and observation and can create the ability to distinguish and recognize the ways ahead, ways to succeed, balance between advantages and disadvantages, and the right and wrong situations and opportunities. If students have daily routines and do not know how to get out of it, they can get help from seeing the turquoise color, all of which have been considered due to the way the people in university treat with it.

The combination of turquoise with the colors found in nature creates an interesting harmony, and the combination of turquoise with green, brown and dark blue creates a beautiful combination that the designer has used these combinations due to the placement of stickers in the university environment. Despite all these good properties, the best color for the corona sticker's scarf is turquoise that carries all these positive properties against this virus.

The color used for a part of the sticker on the hands, feet and graduation hat is a range of purple color that has been considered both in terms of its size and the environment in which it is placed. Its combination with purple color has strength and energy of the red color and also perfection and spirituality of the blue color. Purple evokes a sense of worth and prestige and is a symbol of originality and personality. This color increases the power of imagination and creativity. This creative color is very effective in work and education environments and it is considered for the university due to this reason. It helps to create peace and tranquility, superiority, gentleness, respect and reduction of noise along with other colors. Educational institutions often use the middle shades of purple and violet because these two colors inspire intellectual thinking and great achievements. This color is also a symbol of willpower, which says that the sticker entered the university with willful feet and strong hands holding a graduation letter. The eye is the window of the soul. The glasses are the symbol of Imam Javad University in this part, which are chosen in the color of the university logo (turquoise color) and the book, which is related to the human soul is considered as the entrance to science in Imam Javad University. The circular shape of the glasses is the secret of an eternal success.

### **3. Conclusion**

In this article, fabric stickers were designed to be used in the university environment according to the environment of Imam Javad University and considering the organizational color of the university. The fabrics are also supplemented with nanomaterials to be more resistant to water and rain in the open environment of the university. On the other hand, each designed forms of the stickers induce a special concept, and the colors psychology has also been used to design them. The

book is used as the main element in the designs, and the reason of this choice is inseparability the between the science and book. Vitalizing the objects was also considered in the designs and the organizational color of Imam Javad University was used. Finally, five designs which were provided with reasoning were presented.

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