Designing a website to train the female graduates on manufacturing men's clothing according to technical regulations to enrich the field of medium-sized projects

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ABSTRACT

Websites have contributed to providing opportunities and ideas to individuals, and have changed their lifestyles all over the world, as they can now communicate and interact with each other wherever they are.

Men's clothing is considered one of the most consumed pieces of clothing because of its special importance in the lives of men in Saudi society, as it is one of the clothing products that has a historical dimension, and the manufacture of men's clothing depends on various factors, some of which are economic and some of which are closely linked to the method used in production. Therefore, the men's clothing industry is one of the industries that has received great attention from producers.

Medium-sized projects contribute to providing job opportunities and supporting the spread of the culture of self-employment among female graduates instead of relying on government jobs. Their importance is represented by their contribution to economic and social development, in addition to their role in preparing women entrepreneurs.

The research aims to:

1 -Designing a website to train female graduates on manufacturing men's clothing according to technical regulations to enrich the field of medium-sized projects.

2 -Measuring the effectiveness of the website in providing female graduates with special knowledge for manufacturing men's clothing in accordance with technical regulations.

3 -Measuring the effectiveness of the website in providing female graduates with the special skills to manufacture men's clothing according to technical regulations.

The research recommended:

1-Developing academic curricula in educational institutions according to new technology to meet the rapid global changes in human resources development.

2 -Activating electronic educational means to raise the skill level of female students to bring Saudi educational outcomes to international levels.

3 -Creating specialized websites to draw clothing models for different categories, "women, men, children," so that female students can integrate into the labor market and establish small and medium projects of their own.

4- Holding training courses for college graduates to train on men's clothing manufacturing skills according to scientific principles.

تصميم موقع إلكتروني لتدريب الخريجات على تصنيع الملابس الرجالية وفق الضوابط الفنية لإثراء مجال المشاريع المتوسطة

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ملخص:

ساهمت المواقع الإلكترونية في توفير الفرص والأفكار للأفراد، وغيّرت أنماط حياتهم في جميع أنحاء العالم، حيث أصبح بإمكانهم التواصل والتفاعل مع بعضهم البعض أينما كانوا.

تُعد ملابس الرجال من أكثر قطع الملابس استهلاكًا لأهميتها الخاصة في حياة الرجال في المجتمع السعودي، فهي من منتجات الملابس ذات البعد التاريخي، ويعتمد تصنيع ملابس الرجال على عوامل مختلفة، منها ما هو اقتصادي ومنها ما يرتبط ارتباطًا وثيقًا بطريقة الإنتاج. لذلك، تُعد صناعة ملابس الرجال من الصناعات التي حظيت باهتمام كبير من قِبل المنتجين.

تساهم المشاريع المتوسطة في توفير فرص عمل ودعم نشر ثقافة العمل الحر بين الخريجات بدلًا من الاعتماد على الوظائف الحكومية. وتتمثل أهميتها في مساهمتها في التنمية الاقتصادية والاجتماعية، بالإضافة إلى دورها في إعداد رائدات الأعمال.

يهدف البحث إلى:

1- تصميم موقع إلكتروني لتدريب الخريجات على تصنيع ملابس الرجال وفقًا للأنظمة الفنية لإثراء مجال المشاريع المتوسطة.

٢- قياس فاعلية الموقع الإلكتروني في إكساب الخريجات معارف خاصة بتصنيع الملابس الرجالية وفقًا للوائح الفنية.

٣- قياس فاعلية الموقع الإلكتروني في إكساب الخريجات مهارات خاصة بتصنيع الملابس الرجالية وفقًا للوائح الفنية.

توصل البحث إلى:

١- وجود فروق ذات دلالة إحصائية بين متوسط درجات الخريجات في التطبيق القبلي والبعدي للموقع الإلكتروني للتدريب على تصنيع الملابس الرجالية وفقًا للوائح الفنية لإثراء مجال المشروعات المتوسطة لصالح التطبيق البعدي.

٢- وجود فروق ذات دلالة إحصائية بين متوسط درجات الخريجات في التطبيق القبلي والبعدي للاختبار التحصيلي لصالح التطبيق البعدي.

٣- وجود فروق ذات دلالة إحصائية بين متوسط درجات الخريجات في التطبيق القبلي والبعدي لاختبار أداء المهارات لصالح التطبيق البعدي.

كلمات مفتاحية: موقع ويب، ملابس رجالية، مشاريع متوسطة الحجم.

Introduction:

The Kingdom of Saudi Arabia vision 2030 confirmed on the keenness and interest in investing in education, and strengthening efforts to align the outcomes of the educational system with the needs of the labor market. Since its launch, the vision has worked to increase the interest in developing education regarding a curriculum, teachers, students, and graduates. This is in an effort from it to keep pace with scientific and cultural developments. (https://www.vision2030.gov.sa)

The individual is the most important of which societies possess because of the role he plays in developing and modernizing them. Therefore, his preparation has received the attention of those societies, and interest in him has increased in recent years as a result of the rapid and successive cognitive and technological changes that the world is witnessing in various different areas of life, and the trend towards globalization in all its cultural, social and economic manifestations. (Jamal Fakhri Al-Din, 2001 AD, 2)

In addition to the communications and information revolution, this caused human knowledge to multiply, especially scientific and technological knowledge, and that in short periods of time, as there was a huge boom in the field of satellite technology, multimedia, and the Internet. (Tariq Abd El-Ra'ouf, 2019 AD, 11)

Websites have contributed to providing opportunities and ideas to individuals, and have changed their lifestyles all over the world, as they can now communicate and interact with each other through their phones and laptops wherever they are, which has changed the approach to business and their operations (Rehan Abd El-Hadi, 2019 AD AD, 19).

In addition to developing the education process, and information become available on websites free for various individuals through electronic encyclopedias and websites specialized in certain types of science and knowledge, whereby any individual is now able to obtain the knowledge he wants, and he can obtain information at any time easily. (Saytah Al-Mutairi et al., 2020 AD, 272).

Training human resources is one of the effective trends that contribute in increasing productivity, as it is a response to the variables of the external environment. Therefore, it was necessary to prepare trained technical cadres who can contribute to the rotation of the wheel of development, considering the human element is the basis of the development and training process and the tool of development and its means, which if properly invested and employed, the efficiency in performance and production can be achieved. (Imad al-Din Johar, 2014 AD, 303)

Modern training methods, such as distance learning, or as it is called online training, is the creation of a mean relies on the use of the new techniques to enter into an interactive training program, and sometimes a program dedicated to a specific type of individual via the Internet or other electronic media, and that for the purpose of developing individual capabilities, regardless of the circumstances of time and place, as the Internet is one of the most prominent technological creations that has imposed itself on the global level during the past years until it has become a method of daily interaction and a pattern of knowledge exchange between the peoples of the world (Mohammed Saad, 2012 AD, 28).

Clothing industry organizations rely on training as it is a characteristic of modern organizations that are keen to keep pace with every change in the technological and administrative fields, so without a developed human force capable of absorbing change, the organization will not be able to achieve its goals, and since training improves the individual's capabilities and develops his skills, it contributes directly improves the economic and social level of the individual, as it is one of the tools of development (Amal Al-Sayyed, 2010 AD, 243).

In light of the continuous development of knowledge and the steady increase in human expertise, technological creations have become a necessity that must be used at all educational levels, in order to raise the level of efficiency and effectiveness of the educational process (Noha Abd El-Aziz, Tahani Al-Kharaz, 2023 AD, 14).

This development has led to the emergence of new systems in education and the trend has increased to employ them in all educational levels to raise the efficiency and effectiveness of the educational process, including "individual learning, distance learning" and other systems and means that have changed the form and content of the educational process (Al-Gharib Ismail, 2008 AD, 120).

Educational applications of the Internet seek to produce specialized training websites that are concerned with preserving selected educational materials, and encourage interaction between trainers and trainees, and allow them to exchange and share information among themselves, in addition to the possibility of updating and developing their contents. Electronic educational websites have a great impact in improving the level of learners. (Akram Fathi, 2005 AD, 8)

The Kingdom of Saudi Arabia's Vision 2030 focused on broad interest in involving women in the development process of their society, taking their role and position to be an active element in society, and eliminating the problem of unemployment, which is a prominent phenomenon in the Arab world in general, as there is a large percentage of women in the Kingdom of Saudi Arabia who are looking for job opportunities, whether in the private sector or the government sector. The Kingdom's Vision 2030 also focused on linking

education outcomes with labor market requirements through education programs that are compatible with development needs and the local and global labor market. (www.vision 2030.gov. sa)

The ready-made clothing industry has recently witnessed amazing progress in all its stages, starting from the design stage, preparing patterns and means of production, which places on educational institutions many responsibilities to prepare their children in a way that is consistent with the knowledge explosion and technological progress that prevails in society (Samah Al-Sawy, 2017 AD, 62).

Female graduates are considered one of the highest ambitious groups and those responsible for the advancement of society, and they are considered the cornerstone of its development, and the most important, most aware and cultured segment of it where they represent enormous energy and a human source for development, so their training and qualification is necessary. (Etidal Ali, 2012 AD, 176)

The men's garment is considered one of the most consumed pieces of clothing because of its special importance in the lives of men in Saudi society, as it is one of the clothing products that has a historical dimension, and the manufacture of the men's garment depends on various factors, including what is economic and what is closely related to the method that followed in production, so the men's clothing industry is one of the industries that has received great attention from producers. (Hazem Abd El-Fattah et al., 2017 AD, 80)

The technical specifications for men's clothing include the standard operational requirements for manufacturing the garment, starting from the design drawing, passing through all operating processes until the packaging stage, by following clear and right scientific practices to produce a garment that carries highly precise technical specifications (Imad Al-Din Johar, Maha Al-Zahrani, 2022 AD) ,27).

Medium-sized projects contribute to providing job opportunities and supporting the spread of the culture of self-employment among female graduates instead of relying on the government jobs, and their importance is represented by their contribution to economic and social development, in addition to their role in preparing women entrepreneurs. Any country, whether developing or developed, needs medium-sized projects to participate in the growth of its economy through the service sector and assistance in the industrial sector as well (Haifa'a Al-Shalhoub, 2009 AD, 1).

Medium-sized projects are characterized by a relatively low capital to start business in it, in addition to their ability to employ semi-skilled workers, provide an opportunity during the work for training to raise capabilities and skills, and have a low risk compared to large companies. (https://www.tamweely. org)

The studies that dealt with constructing websites in the field of designing and producing clothing varied, such as the study of (Noha Al-Aboudi, Tahani Al-Kharaz, 2024 AD), which aimed to designing a website for training on constructing a pattern of the men's shirt using the Gemini program and measure the effectiveness of the training to raise the efficiency of the cognitive and skill performance for the female trainees. As well as measuring the effectiveness of the website in providing female graduates with the knowledge and skills of constructing men's shirts. And, the study of (Sukar Al-Otaibi, 2022 AD), which aimed to set standards for constructing a fashion design website to support the small projects, and identify the features of women's traditional clothing in the Kingdom of Saudi Arabia, and the female graduates trained to create women's designs inspired by traditional Saudi clothing to develop and support the small projects through the site. Also, the study of (Nahed Al-Thubaiti, 2021AD), which aimed to determine the scientific foundations for designing an electronic website for training in the field of automatic embroidery for furniture to enable female graduates to establish medium-sized projects, and a study of (Rehan Abd El-Hadi, 2019), which aimed to construct an educational website to provide skills for drawing and implementing women's patterns to keep pace with Internet-based e-learning, and to determine a list of basic skills for drawing and implementing women's patterns that must be developed among learners interested in the field of clothing and textiles, and to verify the effectiveness of the proposed website in developing the knowledge and skills of drawing patterns among learners.

Studies have also varied that dealt with designing and producing men's clothing, such as the study of (Rania Deabes, Maha Al-Masoudi, 2023 AD), which aimed to produce sustainable woolen clothing within clothing factories in the northern region of the Kingdom of Saudi Arabia for both of "Al-Mashlah, men's garment" were achieved both aesthetic and functional aspects, and a study of (Imad Al-Din Johar, Maha Al-Zahrani, 2022 AD) that aimed to solve the problem of wasting time by rearranging operations within the production line in men's clothing factories, improving worker productivity in the production line, and calculating the productivity increase as a result of using balance in designing the production line. And a study of (Imad Gohar, Maha Al-Zahrani, 2021 AD) that aimed to determine lean manufacturing strategy techniques associated with improving the production process in men's clothing factories, and to know the basic requirements necessary to implement the lean manufacturing strategy in clothing factories, as well as measuring the extent to which the strategy's elements are applied in Men's clothing factories.

Websites are one of the most important modern technological means for receiving knowledge and skills in various fields. This is what prompted the researcher to benefit from the technical development and employ it by designing a website to train female graduates on manufacturing men's clothing according to technical specifications to enrich the field of medium-sized projects.

Research problem:

The Kingdom of Saudi Arabia's Vision 2030 aims to support entrepreneurship, develop youth skills, and raise the percentage of medium-sized projects' contribution in the domestic product. The twenty-first century witnessed a massive information and technological revolution in the field of computers, which were used in various specializations around the world, especially in building training websites, being a modern method that helps learning, as it benefits the individual and society, and in line with the Kingdom's trends in preparing cadres trained with the latest educational technologies, the researcher designed the website, and the research problem can be formulated in the following questions:

1- What is the possibility of designing a website to train female graduates on manufacturing men's clothing according to the technical regulations to enrich the field of medium-sized projects?
2- What is the effectiveness of the website in providing female graduates with the special knowledge to manufacture men's clothing according to the technical regulations?
3- What is the effectiveness of the website in providing female graduates with the special skills to manufacture men's clothing according to the technical regulations?

Research objectives:

1- Designing a website to train female graduates on manufacturing men's clothing according to the technical regulations to enrich the field of medium-sized projects.
2- Measuring the effectiveness of the website in providing female graduates with the special knowledge to manufacture men's clothing according to the technical regulations.
3- Measuring the effectiveness of the website in providing female graduates with the special skills to manufacture men's clothing according to the technical regulations.

Research importance:

1- Keeping pace with the latest global trends of the information technologies in the training process to develop the knowledge and skills of female graduates.
2- Emphasizing the role of educational institutions in providing knowledge and skills to categories of society by preparing cadres trained on manufacturing men's clothing.
3- Trying to provide job opportunities for female graduates in ready-made clothing factories for men's clothing
4- Enriching libraries specialized in the field of clothing manufacturing with modern scientific studies in manufacturing men's clothing according to the technical regulations.

Research terms:

- Design:
- Planning for a specific thing and doing creative and beautiful things, as it is the artist's arrangement of his psychological motivations in a form from some forms (Yousri Issa, 2013 AD, 15).
- Reformulating ideas and vocabulary and shaping them in order to apply them practically, by studying all aspects of this idea and developing an initial vision of the form it is intended to be, in addition to taking into account all aspects affecting this idea during its practical implementation, and how this idea affects its environment (Al-Shaima Aboul Gheit, 2023 AD, 583).

- Website:
- A method of learning using modern communication mechanisms, such as computer and its networks, and its multimedia, such as sound, image, graphics, search mechanisms, and electronic libraries, as well as Internet portals, whether remotely or in the classroom. It is the use of technology of all kinds to deliver information for the learner in the shortest time, least effort, and greatest benefit (Abdullah Al-Mousa, 2020 AD, 113).

- Training:
- A planned activity that aims to provide individuals with a set of information and skills that lead to increase the individual's performance rates in his work. Training is closely linked to development, where the development of human resources that aims to achieve community development in all social, economic, and cultural fields. Psychologists are considered training is among the solutions proposed to solve modern civilizational problems, as training is considered an investment in human capital to enable the individual to perform the role assigned to him within the framework of the modern environment and help him adapt to working conditions (Sulaiman Al-Thuwaini, 2021AD, 69).
- A continuous, organized process centered on the individual, aiming to bring about specific behavioral, technical, and mental changes to meet specific current or future needs required by the individual, the work he performs, and the organization he works with (Amal Al-Sayyid, 2010 AD, 211).
- An attempt to change the behavior of individuals to make them use different methods in performing works, and make them behave differently after training than they did before (Amani Bahjat, 2018 AD, 123).

- Female graduates:
- Female graduate is a former student from an educational institution (school, college, university).
(https://web.archive.org)

Manufacturing:
- The craftsman's craft, every science or art that a person has practiced until he is skilled at it and it becomes his craft (Al-Wagieze Dictionary, 2003 AD, 370).
- That process through which goods are produced from raw materials in a way that meets human needs, either directly or indirectly, and it is one of the basic processes for the renaissance and growth of societies, especially on the economic level, which prompted humans to develop it in an effort to increase production. Thus, increasing the amount of benefits derived from it (https://www.oracle.com).

- Men's Thobe:
- A garment worn by men in most Arab countries, fitted to the body, draping slightly wide on the sides, with an office collar, and two shoulder lines of natural length, closed with a placket and fitted with buttons and buttonholes, reaching the level of the waist, with long sleeves, their length reaches the wrist of the hand, and the length of the Thobe reaches the wrist of the foot. The men's garment consists of four main parts:

- ➤ **Al-badanah:** The piece existed in the front and back middle area of the garment, each of which is a rectangular piece, the width of which represents the width of the shoulders / and its length from the shoulder to the heel.
- ➤ **Al-baniqah:** A trapezoid-shaped piece existed on both sides of Al-badanah to give the garment the necessary width, and it starts from under the armpit until the end of the garment (Maha Al-Zahrani, Imad al-Din Jawhar, 2021 AD, 198).
- ➤ **Al-tkhrasah:** A small piece that takes the shape of a trapezoid, close to the shape of a square, and is installed in the armpit area, as it is the splice between the sleeve, Al-baniqah, and Al-badanah.
- ➤ **Sleeve:** Covering of the arm, it starts from the shoulder with a suitable width until the wrist of the hand, and be attached by Al-tkhrasah (Mojedah Salim, Hanan Al-Ashqar, 2018 AD, 42).

Men's Thobe
https://alaseel.com

- Technical Specifications:
- A clear set of requirements that must be present in a material, product, or service. They are technical or operational requirements, and they can be internal or external. Many general standard specifications consist of a specific method of practice, and the specifications are represented in the specification upon which the product is made (Haifa'a Al-Jasser, 2022 AD, 9).

- Medium-sized projects:
- Small-sized units that produce and distribute goods and services, consisting of independent, self-employed producers (Hassan Abdel-Al, 1994 AD, 44), and rely on a small number of workers, and most of them work with small fixed capital, or without fixed capital (Fatmah Bouchhak, Hakimah Bourabi, 2015 AD, 32).

Research hypotheses:
1- There are statistically significant differences among the mean degrees of the female graduates' in the pre- and post-application for the website of training on manufacturing men's clothing according to technical regulations to enrich the field of medium-sized projects, in favor of the post-application.
2- There are statistically significant differences among the mean degrees of the female graduates in the pre- and post-application for the achievement test in favor of the post-application
3- There are statistically significant differences among the mean degrees of the female graduates' in the pre- and post-application for the skill performance test, in favor of the post-application.

Research methodology:
This research followed the quasi-experimental approach because it achieves the research objectives and verifies the proof of its hypotheses.

Research sample:

The research sample consisted of (30) female university graduates in the Kingdom of Saudi Arabia

Research tools:

1- The website for manufacturing men's clothing according to the technical regulations.
2- An achievement test (pre/post) to measure the effectiveness of the website in acquiring the knowledge included in it.
3- A skill applied test (pre/post) to measure the effectiveness of the website in acquiring the skills included in it.
4- An estimating scale to measure skills and evaluate the results contained in the website for manufacturing men's clothing according to the technical regulations.

Research limits:

➢ **Objective limits:** A website for manufacturing men's clothing.
➢ **Time limits:** The research was conducted in year 2024 AD.
➢ **Spatial boundaries:** The website was implemented at the College of Design at Umm Al-Qura University.

Research procedures:

Determining the goals of the website:

The process of setting goals is considered the first step in preparing the site, through which the content is determined and organized, in addition to choosing the educational means and educational activities accompanying the application and the teaching methods used, then determining the evaluation methods through which the extent of achieving the desired goals can be identified. The general objectives have been determined to include both cognitive aspects and skill aspects, as they are considered an accurate embodiment of the level of learning to be achieved after the females graduates learn through the site, then the objectives are formulated in a procedural manner that facilitates the selection of appropriate content for the subject. The website aims to train female graduates on manufacturing men's clothing according to technical regulations to enrich the field of medium-sized projects, as it was applied to a sample of (30) female graduates.

General objectives of the website:

➢ Providing the Saudi labor market with highly qualified female graduates in the field of men's clothing manufacturing.
➢ Contributing to find job opportunities for female graduates by establishing medium-sized projects in the men's clothing manufacturing.
➢ Developing a positive attitude among female graduates towards information technology through interaction with the website.

A - Cognitive objectives:

• Defines men's clothing.
• Mentions the materials for manufacturing men's clothing: "basic materials, auxiliary materials".
• Defines the vocabulary of men's clothing.
• Distinction of the specifications of a well-fitting men's clothing fit the body.
• Mentions how to take men's clothing measurements.
• Analysis of various selections of men's clothing for 2024 fashion trends.

B- Skill objectives:

• Draws men's clothing pattern.
• Adjusts the pattern interlocking of the men's clothing.
• Explains how to take sewing marks.
• Cuts men's clothing.
• Applies the stages of sewing men's clothing, which are: "Al-badanah and Al-baniqah in the front of the garment, Al-badanah and Al-baniqah in the back of the garment, the two shoulder lines of the garment, the collar with the lining, the collar with the neckline of the garment, the two armholes of the sleeve with the two armholes of the armpit of the garment, the lining of the pocket with Al-sayalah, the sleeve line and the line separating the front and back, hem line).
• Ironing men's clothing.
• Packaging men's clothing.

Planning of the Website:

Topics included on the website:

1- Definition of men's clothing.
2- Materials of manufacturing the men's clothing "basic materials, auxiliary materials".
3- Vocabulary of men's clothing
4- Specifications of men's clothing that fits well on the body.
5- Method of taking men's clothing measurements.
6- Describing various selections of men's clothing for 2024 fashion trends.
7- Steps of manufacturing men's clothing:
• Method of drawing the men's clothing pattern.

• Interlacing the men's clothing pattern.
• The stage of taking sewing marks
• Cutting stage.
• Sewing stage of men's clothing:
➢ Sewing Al-badanah and Al-baniqah in the front of the garment.
➢ Sewing Al-badanah and Al-baniqah in the back of the garment.
➢ Sewing the two shoulder lines of the garment.
➢ Sewing the office collar with lining
➢ Sewing the collar with the neckline of the garment.
➢ Sewing the armhole of the sleeve with the armpits of the garment.
➢ Sewing the pocket lining with Al-sayalah.
➢ Sewing the sleeve line and the line separating the front and back
➢ Sewing the hem line
➢ Ironing stage.
➢ Packaging stage

8- Definition of medium-sized projects.
9- Objectives of medium-sized projects.
10- Medium-sized projects' support institutions in the Kingdom of Saudi Arabia.

Arbitration of the website:
In light of the objectives set for the website, scientific topics were chosen for the website, and the website icons were organized in a logical, sequential manner according to the scientific content on an integrated basis. The content was presented to a group of the specialized professors in the field of clothing manufacturing to ensure the correctness, clarity and formulating the objectives, and the logical sequence of the scientific topics of the website, and the website evaluation tools were built for training on manufacturing men's clothing in accordance with technical regulations.

Designing the website:
The researcher adopted the "Abd Al-Latif Al-Jazzar, 2002 AD" model in designing the website , due to the ease of the model and its inclusion of the necessary characteristics for designing websites over the Internet, in addition to its clarity and ease of use. The stages of the model for designing websites on the Internet are:
o Studying and analyzing stage.
o Designing stage.
o Producing and creating stage.
o Evaluation stage. (https://www.edu-technology1.com)

Studying and analyzing stage:
The studying and analyzing stage is the first stage in designing the websites, upon which the rest of the stages are built, and in which the content is determined to suit the requirements of the female graduates, so that each female graduate can navigate within this content without restrictions. This stage consists of two steps:

▪ **Determine the characteristics of the female graduates:**
The educational needs of the female graduates were to raise their levels of knowledge and skills to reflect on the development of their attitudes towards manufacturing men's clothing, which reflects positively on the female graduates' performance. Accordingly, female graduates who possess the following characteristics were selected:
➢ Tendencies for knowledge and being aware in the field of clothing manufacturing.
➢ Computer use skill.
➢ Willingness to apply the practical skill.

▪ **Determine the general goal of the website:**
Providing the female graduates with knowledge and skills of manufacturing men's clothing
Designing stage:
It means designing the components of the learning environment "the website" based on the standards that have been reached for designing website pages, and that in order to achieve the general goal of the website, then setting the procedural goals of the website with taking into account that the goals are characterized by clarity and precise definition of the expected learning outcomes. This stage includes:
❖ **Preparation stage:**
• Determining a title for the website: "Manufacturing men's clothing".
• Creating textual content, by creating files and saving them on the computer in "Word" format, which includes:
1- Introducing the website.
2- Objectives of the website.
3- Means of communication with the website creator.
4- Website topics.

- Sitting a layout for the website map and categorize the information sequentially is representing all sections and pages of the website.

Table (1): layout of the website for "Men's clothing manufacturing"

Home page	Men's clothing	Manufacturing men's clothing	Medium-sized projects
Introducing the website	Definition of men's clothing	Method of drawing the men's clothing pattern	Definition of medium-sized projects
Objectives of the website	Materials of manufacturing the men's clothing "basic materials, auxiliary materials"	Steps of manufacturing men's clothing	Objectives of medium-sized projects
	Vocabulary of men's clothing		Medium-sized projects' support institutions in the Kingdom of Saudi Arabia
Means of communication with the website creator	Specifications of men's clothing that fits well on the body		
	Method of taking men's clothing measurements		
	Describing various selections of men's clothing for 2024 fashion trends		
	Website information reviewer		

❖ **Designing stage:**

At this stage, the design of the website is chosen in terms of "choosing the logo, division of pages, colors, size of images and shapes, and movement of changing pages". The design is selected in calm colors that are featured by simple and clear when viewed on web pages, provided that it is appropriate to the goal and the content of the website, the methods of displaying the content, and the practical visualization that the browser will see so that he can distinguish the interface of the website once he enters it. The basic pages of the website were designed as follows:

Website home page:

It is the starting page that appears, as it loads as soon as the trainee writes the website address. This page contains four sections: "home page, men's clothing, manufacturing men's clothing, Medium-sized projects"; and each of the main sections contains sub-sections, as follows:

o **The first section "home page":** includes "Introducing the website, objectives of the website, and Means of communication with the website creator".

o **The second section "Men's clothing":** includes "Definition of men's clothing, Materials of manufacturing the men's clothing, Vocabulary of men's clothing, Specifications of men's clothing that fits well on the body, Method of taking men's clothing measurements, and Describing various selections of men's clothing for 2024 fashion trends".

o **The third section "Manufacturing men's clothing":** includes "Method of drawing the basic pattern for men's clothing, and steps of manufacturing men's clothing".

o **The fourth section "Medium-sized Projects":** Includes "Definition of medium-sized projects, Objectives of medium-sized projects, and Medium-sized projects' support institutions in the Kingdom of Saudi Arabia".

o **Icon for** the references from which information was obtained.

| The first section of the website | The second section of the website |

The third section of the website	The fourth section of the website

Producing and creating stage:

At this stage, the components of the website are linked by creating "distinctive" hosting on **Bring Your Idea Online With a Website**, and uploading backgrounds and images of the pre-designed website, and making modifications to them to ensure they are suitable for the site's page templates, and activating the website page links for the website, and all links that are represented in lists, images, or texts that take the browser to a sub-page or the home page, or transfer him to text or multimedia files, and ensure that they work correctly, also linking the home page and content pages to databases to ensure the integrity of the design and colors, and the clarity of the site components, so that it is easy for the female graduates to deal with the website.

Evaluation stage:

At this stage, the website is tested and evaluated by examining it and ensuring its work, preparing research tools and evaluating them by the specialized professors in clothing manufacturing, in order to ensure the validity and stability of the tools, and applying it to female graduates to ensure the effectiveness of the website.

Designing the achievement test:

The researcher designed the achievement test, which is considered the tool used to measure knowledge and concepts in a course or group of courses (Abu Hatab and Sadiq, 2000 AD), and the achievement test contained 37 questions.

Correcting the achievement test:

The researcher corrected the achievement test according to the correction key, which is an answer form containing the number of the correct answer for each question, where the degrees were distributed among the questions at the rate of one degree for each correct answer, meaning that the total degree for the achievement test was 37 grades.

Designing the skill test:

The researcher designed the skills test to determine the effectiveness of the skills included on the website, where the applied tests are used as an objective means to estimate the efficiency with which the process tasks (sensory, cognitive, motor) are performed (Abu Hatab and Sadiq, 2000 AD).

Estimating scale:

The researcher designed the estimating scale to evaluate the skill test, where it presented to a group of specialized professors, in order to verify the veracity of its content and proposed items, and to express an opinion on the suitability of these items to the content. They had some opinions and suggestions, which the researcher took into account in the estimating scale.

The estimating scale contained a triple estimating scale, and the researcher took into account the logical sequence when dividing the scale and correction was carried out by three raters by placing a mark (√) in front of the rating that applies to the item in the scale. The marks that were placed were translated into degrees; two degrees were assigned for accurate performance, one for somewhat accurate performance, and zero for inaccurate performance.

Sincerity and Reliability:
The sincerity and reliability of the achievement test:
1- Sincerity:
The issue of test sincerity relates to what the test measures and to what extent it succeeds in measuring it. **The logical sincerity:**

The achievement test was presented to an arbitration commission of the specialized professors in order to ensure the ease and clarity of the test phrases, the association of objectives with test questions. The arbitrators unanimously agreed on the validity of the achievement test for the application with presenting some proposals, and the following has been modified according to their proposals:
- Reduce the number of questions.
- Taking into account the ease and clarity of wording.

2- Reliability:

Reliability means that the test is coordinated in the results it gives; the reliability coefficient of the achievement test was calculated in the following ways:

A- Reliability using Split-half method:

The reliability of the achievement test was confirmed using the split-half method, and the reliability coefficient value was 0.851 - 0.937 for the achievement test as whole, which is a significant value at the 0.01 level because this value is close to the whole one, which indicates the reliability of the achievement test.

B- Reliability of Alpha coefficient:

It was found that the Alpha coefficient = 0.893 for the achievement test as whole, which is a high value, and this is evidence of the reliability of the achievement test at the 0.01 level, as the value is close to the whole one.

Table (2) Reliability of the achievement test

Reliability of the achievement test	Alpha coefficient		Split-half	
	Correlation values	Sig.	Correlation values	Sig.
	0.893	0.01	0.851 – 0.937	0.01

The sincerity and reliability of the skill applied test:

1- Sincerity:

The logical sincerity: the test has been presented to a group of specialized professors, and they all approved the validity of the test for applying.

2- Reliability:

Reliability of the arbitrators

The reliability coefficient of the arbitrators can be obtained by calculating the correlation coefficient among the degrees given by two or more arbitrator to the same individuals or to the same tests. In other words, each examinee gets two or more degrees from correcting one test.

The correction was done by three of the professor arbitrators, and that is done by using the estimating scale in the evaluation process, and each arbitrator performed the evaluation process alone.

The correlation coefficient was calculated among the three degrees set by the arbitrators (X, Y, and Z) for the post-applied test using the rank correlation coefficient for each sample separately, and the following table shows that:

Table (3) Correlation coefficient among the arbitrators for the skill test

Arbitrators	Drawing men's clothing pattern	Pattern interlocking for men's clothing	Cutting men's clothing pattern	Sewing men's clothing	The estimating scale as whole
X, Y	0.707	0.851	0.766	0.915	0.801
X, Z	0.824	0.938	0.749	0.789	0.869
Y, Z	0.873	0.792	0.816	0.890	0.726

It is clear from the table that the values of the correlation coefficients among the arbitrators are high, and all values are significant at the level of 0.01 because they are close to the whole one, which indicates the reliability of the applied test that measures the skill performance, and also indicates the reliability of the estimating scale , which is the tool for correcting the skill test.

Results of research:

The first hypothesis:

The first hypothesis states the following:

"There are statistically significant differences among the mean degrees of the female graduates in the pre- and post-application for the website of training on manufacturing men's clothing according to technical regulations to enrich the field of medium-sized projects, in favor of the post-application".

To verify this hypothesis, the (**t**) test was applied; and the following table shows that:
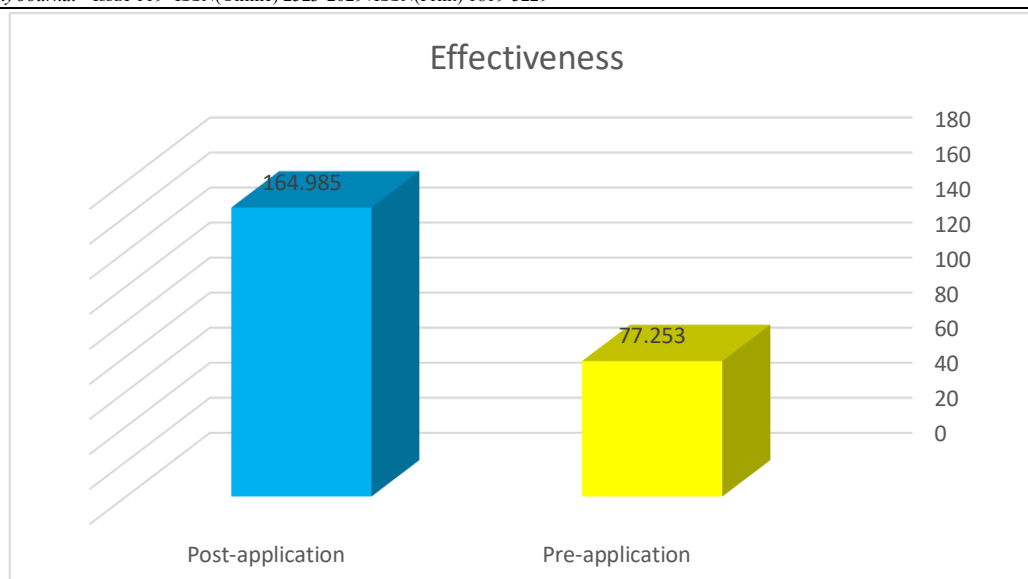
Table (4) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for the website of training on manufacturing men's clothing according to technical regulations to enrich the field of medium-sized projects

Effectiveness	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	77.253	7.027	30	29	53.448	0.01 In favor of the post-application
Post-application	164.985	11.308				

Chart (1) the differences among the mean degrees of the female graduates' in the pre- and post-application for the website of training on manufacturing men's clothing according to technical regulations to enrich the field of medium-sized projects

<u>**From table (4) and chart (1), it is clear that**</u>: the value of " **t** " equals "**53.448**", and it is a statistically significant at the level 0.01, where the mean degrees of the **female graduates** in the post- application was "164.985", while the mean degrees of the **female graduates** in the pre- application was "77.253", which indicates that there are real differences between the two applications in favor of the post-application, which indicates the effectiveness of **the website of training** the **female graduates on manufacturing men's clothing according to technical regulations to enrich the field of medium-sized projects**.

To know the effect size, the Eta equation was applied: t = value of (t) = 53.448, df = degrees of freedom = 29.

$$n^2 = \frac{t^2}{t^2 + df} = 0.99$$

By calculating the effect size, it was found that $n^2 = 0.99$

$$d = \frac{2\sqrt{n^2}}{\sqrt{1-n^2}} = 19.8$$

The effect size is determined whether it is large, medium, or small as follows:
0.2 = small effect size
0.5 = medium effect size
0.8 = large effect size
This means that the effect size is large, and thus **the first hypothesis has been verified.**

<u>**The second hypothesis:**</u>
The second hypothesis states the following:
   "There are statistically significant differences among the mean degrees of the female graduates in the pre- and post-application for the achievement test in favor of the post-application".
To verify this hypothesis, the (**t**) test was applied; and the following table shows that:

Table (5) significance of the differences among the mean degrees of the female graduates in the pre- and post-application for the achievement test

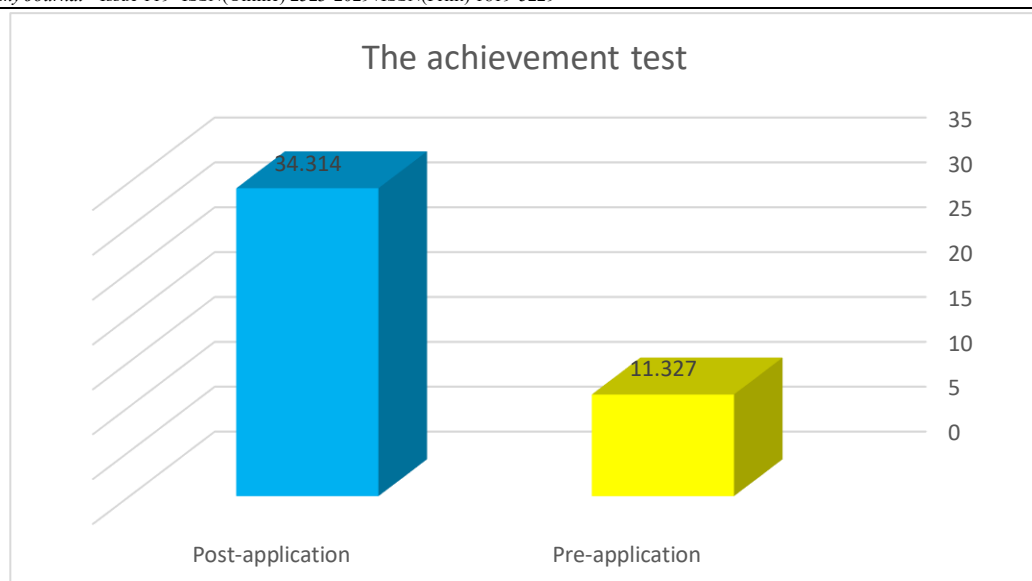| The achievement test	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	11.327	1.296				
Post-application	34.314	3.008	30	29	20.207	0.01 In favor of the post-application

Chart (2) the differences among the mean degrees of the female graduates in the pre- and post-application for the achievement test

From table (5) and chart (2), it is clear that: the value of " t " equals "**20.207**" **for the achievement test**, and it is a statistically significant at the level 0.01 in favor of the post-test, where the mean degrees of the female graduates in the post- application was "34.314", while the mean degrees of the female graduates in the pre-application was "11.327", and thus **the second hypothesis has been verified.**

The third hypothesis:
The third hypothesis states the following:

"There are statistically significant differences among the mean degrees of the female graduates in the pre- and post-application for the skill performance test, in favor of the post-application".

To verify this hypothesis, the (**t**) test was applied; and the following tables show that:

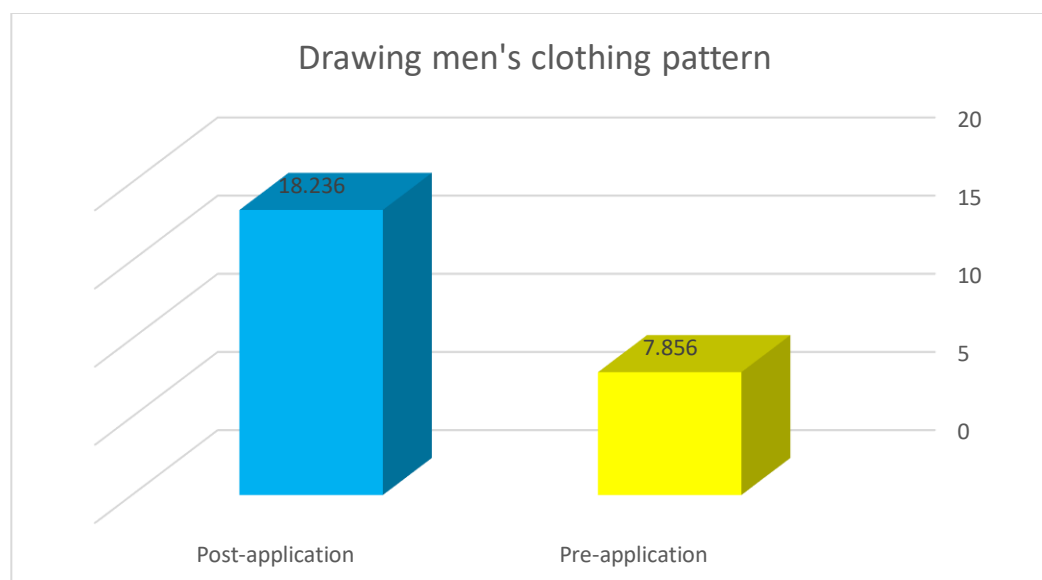**Table (6) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Drawing men's clothing pattern"**

Drawing men's clothing pattern	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	7.856	1.366				0.01 In favor of the post-application
Post-application	18.236	2.010	30	29	13.327	

Chart (3) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Drawing men's clothing pattern"

From table (6) and chart (3), it is clear that: the value of " **t** " equals "**13.327**" **for Drawing men's clothing pattern**, and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "18.236", while the mean degrees of the female graduates in the pre- application was "7.856".

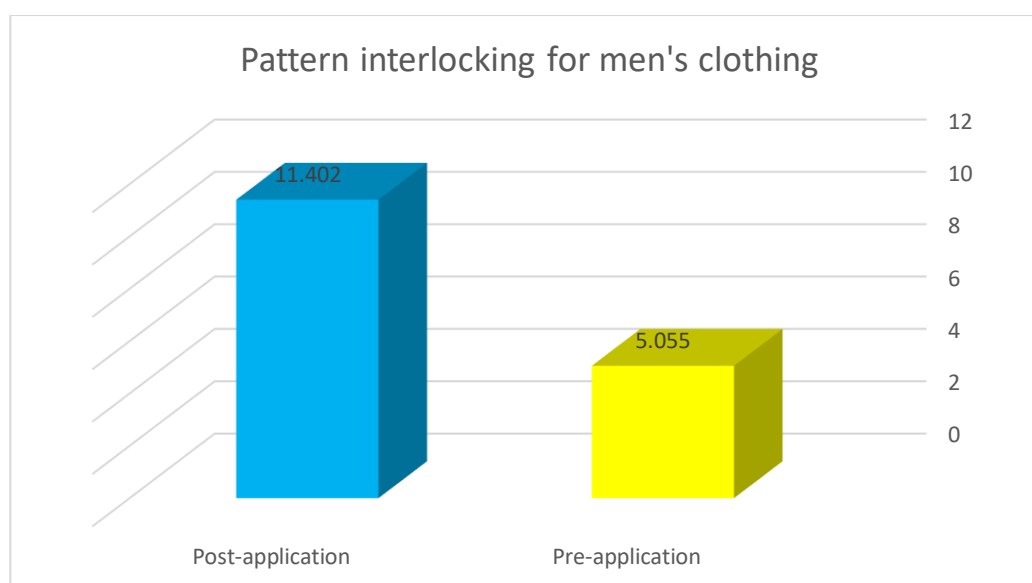**Table (7) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Pattern interlocking for men's clothing"**

Pattern interlocking for men's clothing	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	5.055	1.249				
Post-application	11.402	1.886	30	29	8.081	0.01 In favor of the post-application

Chart (4) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Pattern interlocking for men's clothing"

From table (7) and chart (4), it is clear that: the value of " **t** " equals "**8.081**" **for Pattern interlocking for men's clothing**, and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "11.402", while the mean degrees of the female graduates in the pre- application was "5.055".

Table (8) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Cutting men's clothing pattern"

Cutting men's clothing pattern	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	9.431	1.381				
Post-application	16.388	1.707	30	29	10.102	0.01 In favor of the post-application

Cutting men's clothing pattern
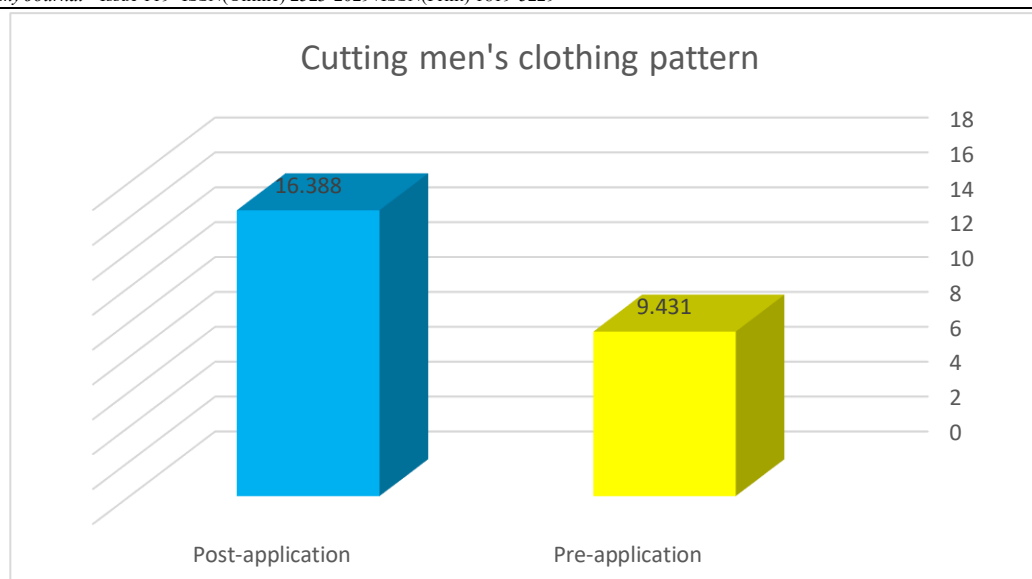

16.388

9.431

Post-application   Pre-application

Chart (5) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Cutting men's clothing pattern"

From table (8) and chart (5), it is clear that: the value of " **t** " equals "**10.102**" for **Cutting men's clothing pattern**, and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "16.388", while the mean degrees of the female graduates in the pre- application was "9.431".
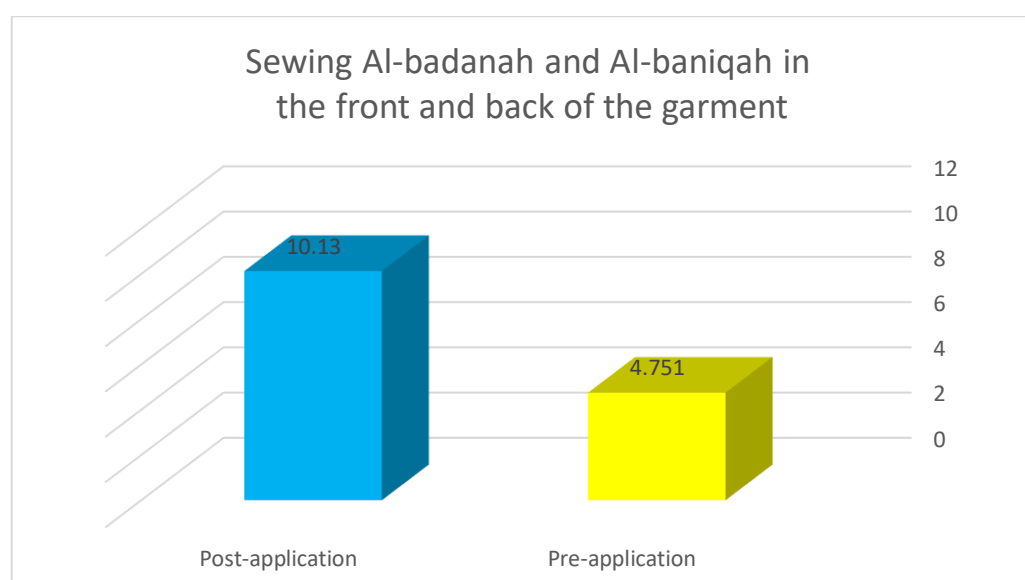
Sewing men's clothing

Table (9) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "   Sewing Al-badanah and Al-baniqah in the front and back of the garment"

Sewing Al-badanah and Al-baniqah in the front and back of the garment	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	4.751	1.121	30	29	7.115	0.01 In favor of the post-application
Post-application	10.130	1.842				

Sewing Al-badanah and Al-baniqah in the front and back of the garment

10.13

4.751

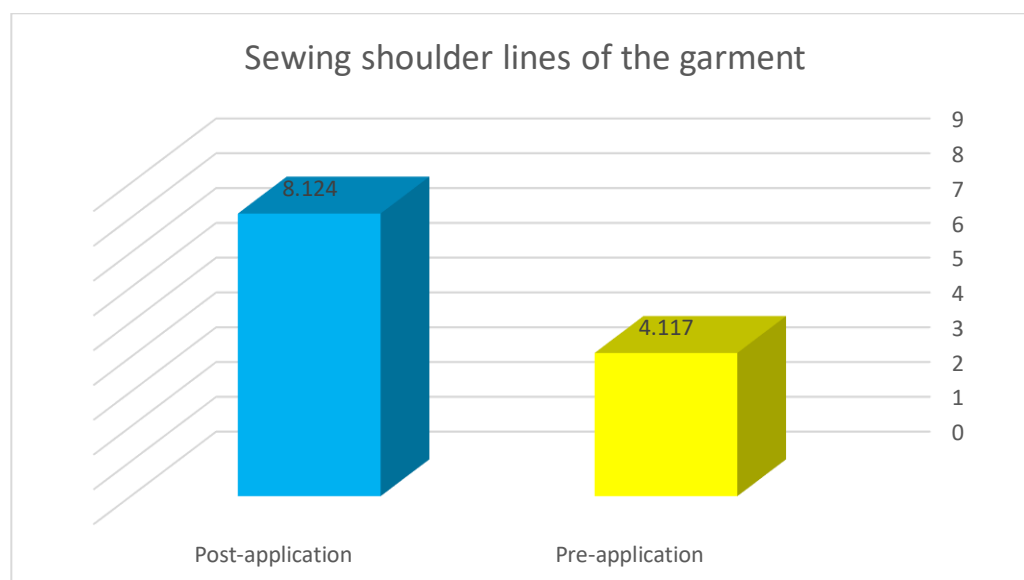Post-application   Pre-application

Chart (6) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing Al-badanah and Al-baniqah in the front and back of the garment "

From table (9) and chart (6), it is clear that: the value of " **t** " equals "**7.115**" for **Sewing Al-badanah and Al-baniqah in the front and back of the garment**, and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "10.130", while the mean degrees of the female graduates in the pre- application was "4.751".

455

Table (10) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing shoulder lines of the garment"

Sewing shoulder lines of the garment	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	4.117	1.001				0.01 In favor of the post-application
Post-application	8.124	1.298	30	29	6.034	

Chart (7) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing shoulder lines of the garment"

From table (10) and chart (7), it is clear that: the value of " **t** " equals "**6.034**" for **Sewing shoulder lines of the garment** , and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "8.124", while the mean degrees of the female graduates in the pre- application was "4.117".
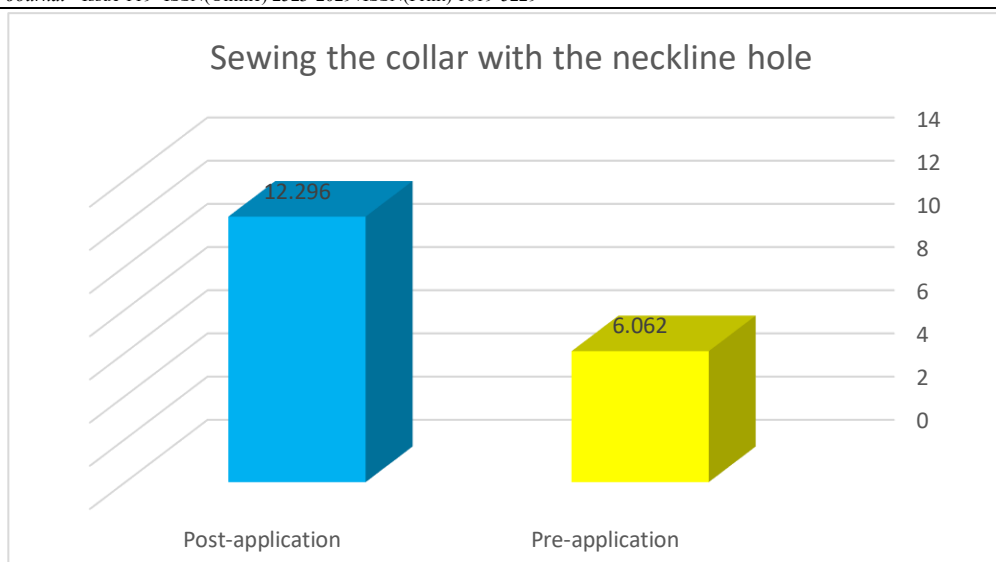
Table (11) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing the collar with the neckline hole"

Sewing the collar with the neckline hole	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	6.062	1.110				0.01 In favor of the post-application
Post-application	12.296	1.642	30	29	9.024	

Chart (8) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing the collar with the neckline hole"

From table (11) and chart (8), it is clear that: the value of " **t** " equals "**9.024**" **for Sewing the collar with the neckline hole**, and it is a statistically significant at the level 0.01 in favor of the post-test, where the mean degrees of the female graduates in the post- application was "12.296", while the mean degrees of the female graduates in the pre- application was "6.062".

Table (12) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing armholes"

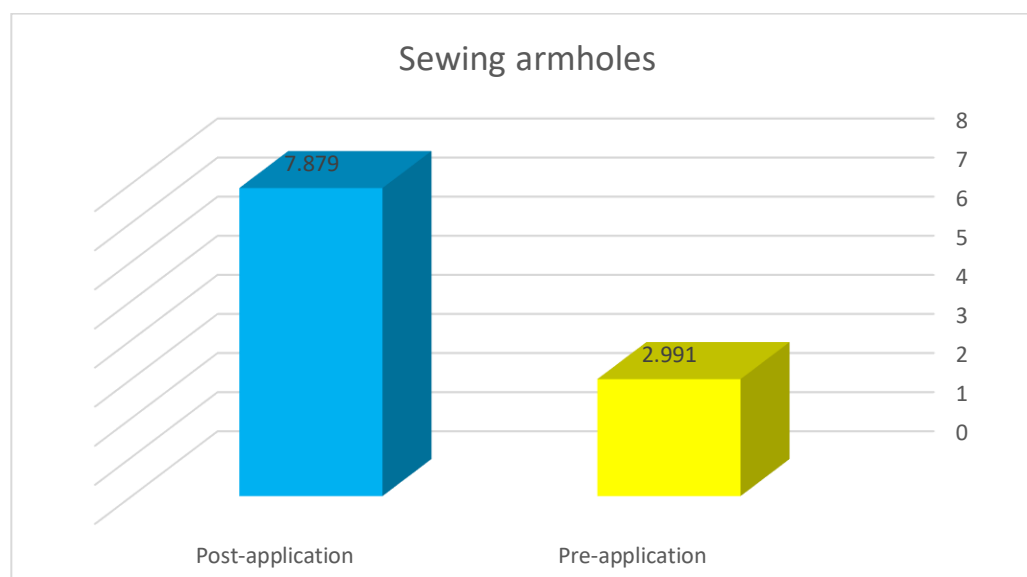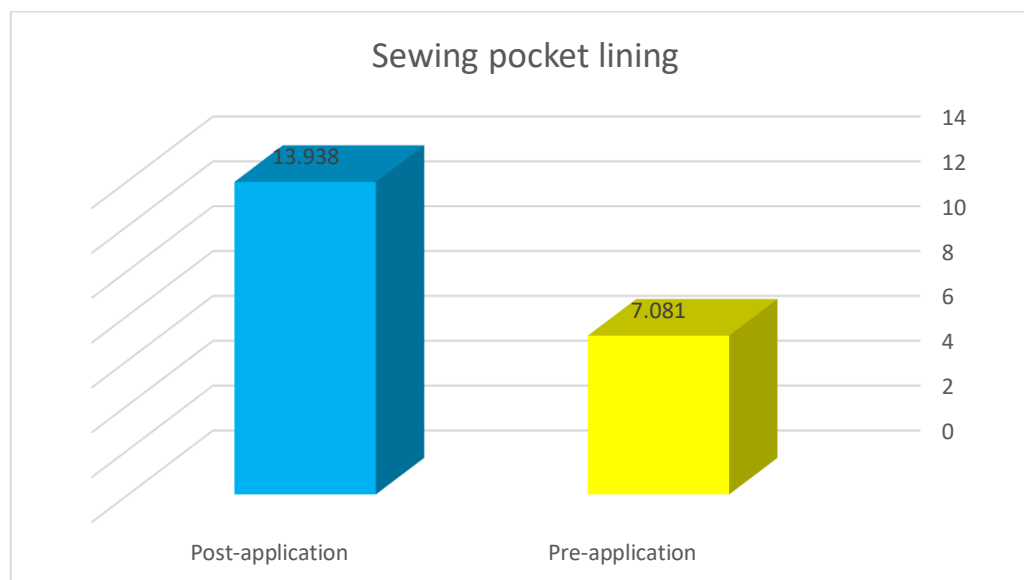| Sewing armholes	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	2.991	0.872				0.01 In favor of the post-application
Post-application	7.879	1.035	30	29	6.167	

Chart (9) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing armholes"

From table (12) and chart (9), it is clear that: the value of " **t** " equals "**6.167**" **for Sewing armholes,** and it is a statistically significant at the level 0.01 in favor of the post-test, where the mean degrees of the female graduates in the post- application was "7.879", while the mean degrees of the female graduates in the pre-application was "2.991".

Table (13) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing pocket lining"

Sewing pocket lining	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	7.081	1.295				0.01 In favor of the post-application
Post-application	13.938	1.687	30	29	8.088	

Chart (10) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing pocket lining"

From table (13) and chart (10), it is clear that: the value of " t " equals "**8.088**" for Sewing pocket lining, and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "13.938", while the mean degrees of the female graduates in the pre-application was "7.081".

Table (14) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing the sleeve line and the line separating the front and back "

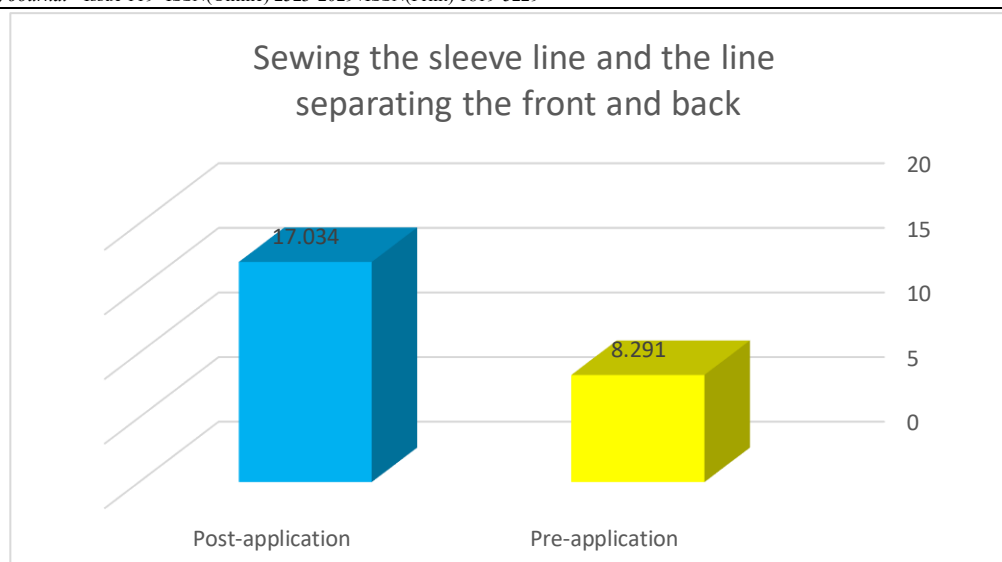| Sewing the sleeve line and the line separating the front and back	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	8.291	1.179				0.01 In favor of the post-application
Post-application	17.034	2.215	30	29	14.153	

Chart (11) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing the sleeve line and the line separating the front and back"

From table (14) and chart (11), it is clear that: the value of " t " equals "**14.153**" for **Sewing the sleeve line and the line separating the front and back**, and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "17.034", while the mean degrees of the female graduates in the pre- application was "8.291".

Table (15) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing the hem line"

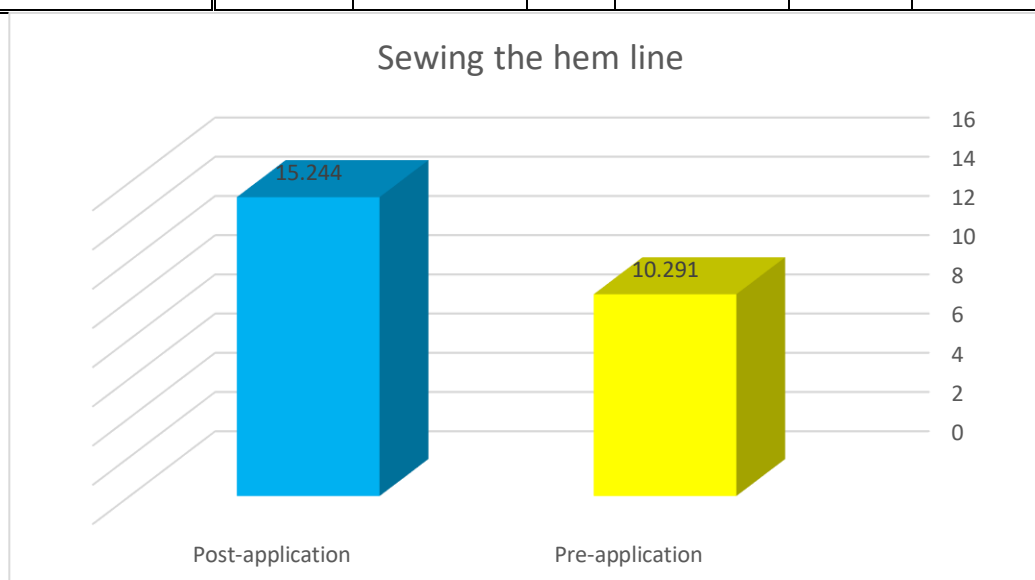| Sewing the hem line	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	10.291	1.370				0.01 In favor of the post-application
Post-application	15.244	1.376	30	29	5.253	

Chart (12) the differences among the mean degrees of the female graduates' in the pre- and post-application for "Sewing the hem line "

From table (15) and chart (12), it is clear that: the value of " t " equals "**5.253**" for **Sewing the hem line**, and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "15.244", while the mean degrees of the female graduates in the pre-application was "10.291".

Table (16) significance of the differences among the mean degrees of the female graduates' in the pre- and post-application for "The total sum of the skill test"

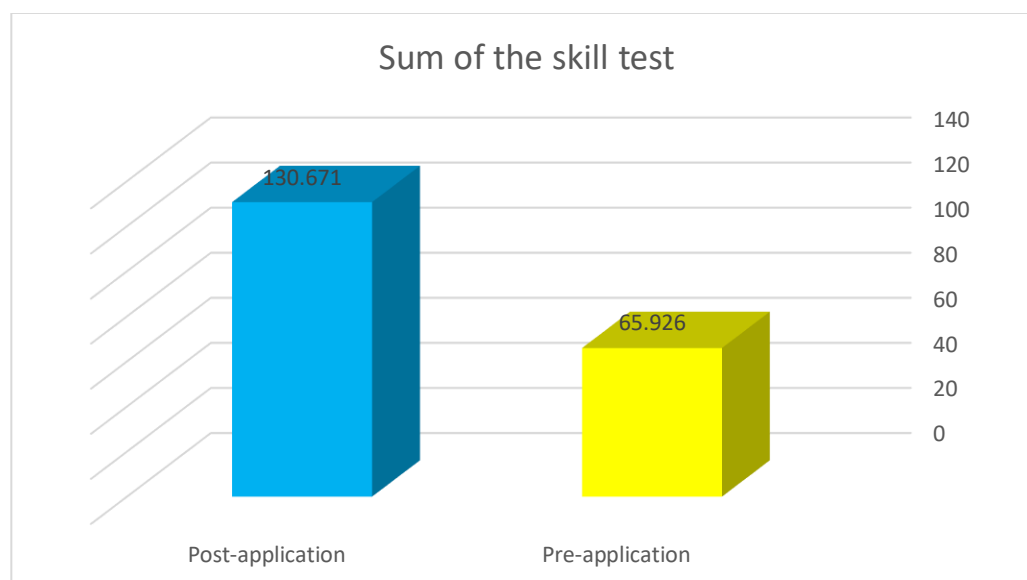| Sum of the skill test	Mean "M"	Std. Deviation	N	Degrees of freedom "df"	Value of (t)	Sig. & its direction
Pre-application	65.926	6.231				0.01 In favor of the post-application
Post-application	130.671	9.097	30	29	48.352	

Chart (13) the differences among the mean degrees of the female graduates' in the pre- and post-application for "The total sum of the skill test"

From table (16) and chart (13), it is clear that: the value of " t " equals "**48.352**" **for The total sum of the skill test**, and it is a statistically significant at the level 0.01in favor of the post-test, where the mean degrees of the female graduates in the post- application was "130.671", while the mean degrees of the female graduates in the pre- application was "65.926", and thus **the third hypothesis has been verified.**

Recommendations:

1- Developing curricula in the educational institutions in accordance with new technology to meet the rapid changes globally to develop the human resources.

2- Activating electronic educational means to raise the skill level of the female students to bring Saudi educational outcomes to international levels.

3- Creating specialized websites to draw clothing patterns for different categories "women, men, children", so that the female students can integrate into the labor market and establish small and medium projects of their own.

4- Holding training courses for college female graduates to train on men's clothing manufacturing skills according to scientific principles.

Conclusion :

1- There are statistically significant differences between the average scores of female graduates in the pre- and post-application of the website for training on manufacturing men's clothing in accordance with the technical regulations to enrich the field of medium-sized projects in favor of the post-application.

2- There are statistically significant differences between the average scores of female graduates in the pre- and post-application of the achievement test in favor of the post-application.

3- There are statistically significant differences between the average scores of female graduates in the pre- and post-application of the skill performance test in favor of the post-application.

References:

1- Etidal Abdul Rahman Ali (2012 AD): The impact of transformative training in reducing the phenomenon of unemployment among female graduates of scientific colleges in the Kingdom of Saudi Arabia, Journal of the College of Education, Mansoura University, Volume (3), Issue (78).

2- Akram Fathi Mustafa (2005 AD): The effectiveness of a proposed program for developing the skills of producing educational Internet sites among students of the Faculty of Education, unpublished Doctoral thesis, Faculty of Education in Qena, South Valley University.

3- Al-Shaima Mohammed Abu Al-Gheit (2023 AD): Creating a dynamic design for wall hangings using interactive technology, Journal of Architecture, Arts and Humanities, Volume (8), Issue (9).

4- Al-Wajeez Dictionary (2003 AD): Arabic Language Academy, General Authority for Amiri Printing Press Affairs.

5- Amani Bahjat Ezzat (2018 AD): Training: Its Concept, Strategies, Objectives, and Importance, Scientific Journal of the Faculty of Arts, Faculty of Arts, Assiut University, No. (68).

6- Amal Abdel Rahman Al-Sayed (2010 AD): Human Resources Management, Faculty of Commerce, Cairo University.

7- Gamal Fakhri El-Din (2001 AD): A proposed curriculum in artistic drawing for hearing-impaired students for the three grades in Al-Amal Industrial Secondary Schools, the three-year system, unpublished doctoral thesis, Institute of Educational Studies, Cairo University.

8- Hazem Abd El-Fattah Abd El-Moneim, Hisham Ahmed Assem, Jihad Abdel Razzaq Ahmed (2017 AD): The effectiveness of a proposed guideline to reduce the operating time of the lining of the classic men's jacket and its impact on productivity, Specific Education Journal, Issue (5).

9- Hassan Mohammed Abd El-Al (1994 AD): The role of industrial design in local development in the field of small industries in Egypt in light of appropriate technology, unpublished Master's thesis, Faculty of Applied Arts, Helwan University.

10- Rania Mustafa Daabs, Maha Hussein Al-Masoudi (2023 AD): Production of men's clothing using wool fabric extracted from the hair of sheep in the northern region of the Kingdom of Saudi Arabia in light of the concept of sustainability, International Journal of Design and Applied Research, Volume (2), Issue (4).

11- Rehan Al-Sayed Abd El-Hadi (2019 AD): The effectiveness of a website for developing the skills of drawing and implementing models of women's clothing, unpublished Master's thesis, Faculty of Specific Education, Ain Shams University.

12- Sukkar Manahi Al-Otaibi (2022 AD): The effectiveness of a website to train female graduates to create designs inspired by women's traditional clothing to support small projects, unpublished Doctoral thesis, College of Design, Qassim University.

13- Sulaiman Nasser Al-Thuwaini (2021 AD): The reality of evaluating training programs at the Deanship of Community Service and Continuing Education at the University of Hail from the trainees' point of view, Journal of Educational Technology and Digital Learning, Volume (2), Issue (2).

14- Samah Mohammed Al-Sawy (2017 AD): A comparison between the latest methods for preparing the classic men's shirt pattern, Scientific Journal of the Faculty of Specific Education, Menoufia University, Volume (4), Issue (10).

15- Saita Mohammed Al-Mutayri, Bashayer Youssef Al-Tuwaijri, Rawan Youssef Al-Ali, Shahad Abd El-Hakim Al-Muqrin (2020 AD): Designing an electronic shopping website for sustainable fashion, Al-Academy Magazine, College of Fine Arts, Baghdad University, Issue (98).

16- Tariq Abd El-Ra'ouf Amer (2019 AD): Education and e-learning, Dar Al-Yazouri Scientific.

17- Abdullah Abd Al-Aziz Al-Mousa (2002 AD): E-learning is a concept, its characteristics, its benefits and its obstacles, Future School Magazine, College of Education, King Saud University, No. (16).

18- Imad Al-Din Sayed Johar (2014 AD): The effectiveness of a training program for the production of men's outerwear, published research, International Design Journal, Scientific Society of Designers, Volume (4), Issue (2).

19- Imad Al-Din Sayed Johar, Maha Talib Al-Zahrani (2021 AD): Measuring the extent of application of the elements of the lean manufacturing strategy in men's clothing factories in the Kingdom of Saudi Arabia. Volume of Arts, Literature, Humanities and Sociology , Issue (74).

20- Imad Al-Din Sayed Johar, Maha Talib Al-Zahrani (2022 AD): The effect of production line designing on the time taken to produce men's clothing, International Arab Journal of Digital Art and Design, Volume (1), Issue (3).

21- Al-Gharib Zaher Ismail (2001 AD): Information technology and the modernization of education, World of Books, Cairo.

22- Fatmah Bouhachak, Hakimah Yourabea (2015 AD): The role of small and medium enterprises in achieving sustainable tourism development, unpublished Master's thesis, Faculty of Economic, Commercial and Management Sciences, Mohammed Al-Siddiq University, Jijel, Algeria.

23- Fou'ad Sadiq, Amaal Abu Hatab (2000 AD): Educational Psychology, fifth edition, Anglo-Egyptian Library, Cairo.

24- Mojedah Ma'amoun Selim, Hanan Mohammed Al-Ashqar (2018 AD): The effectiveness of the program for developing the skills of drawing a pattern of men's clothing using multimedia, the thirteenth annual conference, the tenth international, qualitative higher education in Egypt and the Arab world in light of sustainable development strategies, Mansoura University, Faculty of Specific Education.

25- Mohammed Saad El-Din Mohammed (2012 AD): A program based on virtual reality systems to develop systemic thinking skills in the use and maintenance of some educational devices for educational technology students, unpublished Doctoral thesis, Faculty of Educational Studies and Research, Cairo University.

26- Nahid Abd El-Aziz Al-Thabeti (2021 AD): Designing a website for training on automatic embroidery for furniture in the field of medium-sized enterprises, unpublished Master's thesis, College of Design, Qassim University.

27- Noha Abd El-Aziz Al-Aboudi, Tahani Suleiman Al-Kharraz (2023 AD): The effectiveness of a training website on building a pattern of a men's shirt using the Gemini program, Journal of Specific and Technological Education, Volume (30), Issue (1).

28- Haifa'a Abdul Rahman Al-Shalhoub (2009 AD): The role of small enterprises in improving the quality of life for youth, "a descriptive study applied to the Centenary Fund in the city of Riyadh", the Twenty-Second International Scientific Conference, Faculty of Social Work, Helwan University.

29- Haifa'a Abdullah Al-Jasser (2022 AD): Establishing technical specifications for designing occasion clothing for women in light of customs and traditions in the Kingdom of Saudi Arabia, unpublished Doctoral thesis, College of Design, Qassim University.

30- Yousry Moawad Issa (2013 AD): Rules and foundations of fashion design, 2nd edition, Alam al-Kutub, Cairo.

31-   https://www.vision2030.gov.sa/media/5ptbkbxn/saudi_vision2030_ar.pdf

32-   https://www.edu-technology1.com.

33-   https://www.tamweely.org/articles.

34-   https://www.oracle.com/eg-ar/scm/manufacturing.

35-   http://www.ed.gov/offices.

36-   https://alaseel.com/product.

37-   https://web.archive.org.