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Employing two types of feedback and two styles of learning in a ubiquitous learning environment for developing technological skills and technology

Zeinab El_Agizy,
Educational Technology Lecturer - Faculty of Specific , Education , Tanta University, Egypt

zenab_elageezy@sed.tanta.edu.eg

Abstract
The aim of the present study is to investigate the effectiveness of using feedback (corrective/explanatory) and the learning style (individual/cooperative) in a ubiquitous learning environment to develop some technological skills such as designing educational websites and technological acceptance among technology students. For this goal, the researcher prepared tools of the study: (1) a list of criteria for designing a ubiquitous learning environment, (2) an achievement test and an observation card for designing electronic websites, (3) a scale for technological acceptance, and (4) the design of a ubiquitous learning environment. The tools of the study were pre and post applied on the research sample, which consisted of (60) male and female students from the Department of Educational Technology at the Faculty of Specific Education, Tanta University. The sample was divided into four groups: each group (15) male and female students, according to the type of feedback and learning style. The research has concluded that there are statistically significant differences in favor of the experimental group that received explanatory feedback and the cooperative learning style over the other experimental groups. Moreover, the study recommended the necessity of using explanatory feedback and collaborative learning environment to develop the skills of designing educational website and technological acceptance among educational technology students

Keywords: Ubiquitous learning environment; Feedback; Learning style; Technological skills And Technological acceptance

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Introduction

The world has recently undergone a profound scientific and technological revolution that has had a great impact on all aspects of life, which has made educators search for educational methods and models to provide an interactive and lively learning environment with multiple sources, to benefit from that technology and keep pace with rapid developments, to reveal the Ubiquitous learning model, which is one of the modern trends in The educational and pedagogical process. Ubiquitous learning is considered a new trend in the world of information and communication. It depends on diffusion technology, which means the presence of something everywhere, where the role of the teacher becomes a guide, guide, facilitator, organizer and monitor instead of being indoctrinated in the traditional way and making the student the focus of the educational process. He researches, thinks, innovates, and reaches results on his ownWith the supervisory assistance of the teacher, and the introduction of advanced cultural, scientific, intellectual, and civilizational concepts, such as modern applications and Ubiquitous learning environments that can be used at any time, place, and place, and can be adapted to academic curricula with technical controls and standards.

Mohamed Khamis (2011) attested to the close relationship between mobile learning and ubiquitous learning, which is that Ubiquitous learning means learning that is always around us, everywhere, and at any time, and can be easily accessed using mobile learning devices, which are laptops, pocket computers, mobile phones, and personal digital assistants (PDAs), and e-book readers.

It is considered an extension of mobile learning technology, as it is a model of learning that takes place in a computerized environment based on learning the right thing at the right time and place, and in the appropriate way. Ubiquitous learning is learning at all times and places, and is always present around us, based on smart mobile phones, laptops, and personal digital assistants (Mohammed Al-Maradni, Mustafa Al-Sheikh, and Ahmed Yassin, 2020).

learning is distinguished from mobile learning by its ability to go to greater distances through its focus on the process of providing learning at the right time, place, and method. In addition to educational resources appropriate for the learner.

Ubiquitous learning is "an educational model through which trainees can train anywhere and at any time with the help of portable computer technology and wireless communications," according to Srilaphat and Jantakoon (2019: 76). It is an environment that contributes to the spread of learning everywhere, and uses devices." Portable media are used as a medium for accessing knowledge.

The goal of Aisha Al-Omari and Rabab Al-Bassel's (2019) study was to identify the effect of a proposed program to employ Ubiquitous learning in teaching in developing learning outcomes, and to reveal the degree of continuity of the effect of the proposed program to employ Ubiquitous learning to develop learning outcomes among female graduate students specializing in teaching and learning technology at the College of Education, Taibah University. The results of the research revealed the presence of a significant effect. The proposed program for employing Ubiquitous learning in developing learning outcomes was statistically based. The research recommended providing training courses and workshops for teachers specializing in

training them on how to employ Ubiquitous learning and its applications and developing learning outcomes in the teaching, learning and learning processes.

Characteristics of Ubiquitous learning:

In the light of Mohamed Amin (2019) and Ihab Al Aswaad (2020), the characteristics of ubiquitous learning are the following:

- **Freedom of movement:** This allows the learning process to be transferred far from any fixed point without restrictions of time or place, and the ease of movement with educational devices due to their light weight and small size.
- **Interactive and participatory**: Where the learner can interact and participate with experts, learners, and peers, synchronously or asynchronously.
- **Adaptation:** This means that the learner can obtain the correct information using the appropriate methods at the time that suits him and that takes into account his individual differences from his fellow learners.
- **Availability** :It enables the learner to access the subject to the topic he wants to learn from anywhere in a way that suits his needs and abilities.
- **Immediacy**: Where the learner can obtain information immediately, wherever he is.
- **Consistency**: So that the learning activities carried out by the learners are constantly recorded and thus the learners' work cannot be lost.

There other main characteristics of ubiquitous learning as follows: (Mohamed Al-Maradni, Mustafa Al-Sheikh, and Ahmed Yassin, 2020; Hamdi Emira, Ibrahim Ashoush, and Ibrahim Al-Qadi, 2019)

• **Permanency**: Students can never lose their work if they do not erase it intentionally, and all the learning processes carried out by students are constantly recorded.

• **Accessibility**: Students can access their educational documents anywhere and the information provided to them according to their needs and abilities, and then the learner is self-directed.

• **Immediacy:** It is the ability for students to obtain information wherever they are. Accordingly, students can reach solutions to their educational problems quickly. Students can also record their questions and search for their answers afterward.

• **Instructional activities**: Educational activities can be integrated and embedded in our daily lives through nature in real, original forms to help students learn better.

Advantages of Ubiquitous learning:

Aisha Al-Omari and Rabab Al-Bassel (2019: 344) suggested some advantages of ubiquitous learning as it:

• is a form of education and e-learning, based on the principle of the spread of learning and its free movement, crossing the boundaries of time and space.

• provides a deeper understanding of what is known as the best way at any time and place.

• shifts from the concept of learning in fixed time and place to the concept of learning at all times and places.

• enables learners to deliver read, audio and visual information in real time remotely.

• controls the learner's emotional response by organizing the flow of information.

• provides real-time online, social, participatory and interactive learning opportunities at a distance.
• saves time and the hassle of travel and transportation for the learner.
• quicken storage and operating efficiency.
• adds to the clarity of sound, images, scientific designs, tables and graphs.

Strategies of Ubiquitous learning:

Inas Mandour (2023) identified the strategies of ubiquitous learning as follows:

• **Online synchronous learning strategy**: This strategy supports real-life interactions not only through the textual interface, but also through the interface with audio and visual resources. It also features interaction buttons and a list box that help the student interact with the learning material and others.

• **Offline learning strategy:** The main characteristic of the synchronous learning strategy is the independence of time and place and the asynchronous nature of communication via the PDA. These features mean that students and teachers do not need to be online at the same time and place in order to be able to communicate and interact with each other.

• **Blended learning strategy**: The blended learning strategy uses the principles of cooperative learning for the student to participate and exchange information simultaneously and asynchronously. It also enables teachers and students to interact at any time in remote locations for institutional learning on interactive multimedia. Using the blended learning strategy, the student can learn enriching modern scientific references by creating live links directly to a specific file or website.

Numerous studies, such as those by Tariq Al-Jabrouni (2019), Walid Salah (2021), and Basma Farhoud (2022), have confirmed the use of ubiquitous learning applications and their major influence on the development of the acquisition of the cognitive element of various skills in educational technology. On the other hand, students can collaborate with others and work through challenges online thanks to ubiquitous learning (Muhammad Amin, 2019). Hamdi Amira, Ibrahim Ashoush, and Ibrahim Al-Qadi (2019) stressed on developing the cognitive and performance aspects of educational web page design skills. Ultimately, Aisha Al-Omari and Rabab Al-Basil (2019) focused on developing learning outcomes and reducing mental wandering. Furthermore, Lin, S., Chih Hu, H., and Chiu, C. (2020) concentrated on enhancing learners' motivation by utilizing mobile flexible ubiquitous learning to overcome time and place constraints in order to boost learning motivation. In addition, Basma Farhoud (2022) highlighted the effectiveness of ubiquitous learning in developing motion graphic design skills among female secondary school students. Walid Al-Rifai and Fatima Abu Shenadi (2022) focused on an adaptive navigation system based on learning analytics in a ubiquitous learning environment and its impact on the development of digital skills and academic perseverance among graduate students during the Covid-19 pandemic. Enas Mandour (2023) focused her research on two forms of pervasive e-learning to help students learn how to use cloud computing apps and become technologically competent.

According to Ahlam Mohamed and Manar Abdallah (2021) and Inas Mandour (2023), two requirements must be fulfilled for ubiquitous learning to be realized as intended:

• **Student-system interaction**: when a student goes into an educational setting, sensors recognize him and communicate information about the setting—such as text, audio, photos, or other data—to the student's device. In parallel, it asks the student for data, uses techniques to evaluate the data, and stores all of the student data in the deployed learning environment server.

• **Communication between entities and devices**: After the student observes and enters the entity, the entity evaluates the information and assesses the student's comprehension when he grasps six out of ten of the entity's points. This allows the appropriate information to be downloaded for each student, so the sequence in the steps will be as follows:

- The student enters the entity and performs the login process.
- The student reads the guidelines and instructions.
- The student deals with the application and performs the necessary activities.
- The entity analyzes the student's answer, monitors grades, and provides feedback.

Feedback has become a prominent place in the educational process because it is an important component in electronic teaching and learning environments, as it seeks to achieve various educational outcomes. It is also one of the tools used to evaluate the educational process, by giving the learner an idea about his performance and providing him with information to identify who he is. During which he reflected on the progress he achieved during and after the performance, and this was confirmed by (Mohamed Khamis, 2009). That feedback is the basis of any educational system in general and is an urgent necessity in electronic learning in particular. Because it does not happen directly face to face, but rather it happens all or some of it electronically, where the learner is alone at the other end and needs feedback and educational guidance.

Feedback is considered an important element in the formative assessment process, as it provides information to the teacher and learners about the learning outcomes the learners have presented that are consistent with the learning objectives (Hessa Al-Khalidi and Othman Al-Turki, 2018, p. 121).

Many studies have confirmed that the learner's knowledge of the results of his learning helps him improve his performance, while the learner's lack of knowledge of his results may hinder his learning process. Among these studies is the study of (Al-SaeedAbdel Razek, Muhammad Amasha (2018); Wang, W., & Li, S. (2021); And the study of Rohmah, D. & Halim, A. (2023); And Howaida Sharaf's study (2023).

And for feedback Several patterns were mentioned by many studies, such as Hani Ramzi's study (2020); Ahmed Youssef (2021); Salwa Al-Masry, Noha Mahmoud, and Hussein Ismail(2022) ; Hassan Shehata, Zainab Khalifa, Hanaa Muhammad, Ahmed Mustafa(2022) The feedback was divided into multiple types in terms of the target group, quantity or direction, the method of obtaining it, the appropriate time frame for providing it, or according to its functional role.

Al-Saeed Abdel Razek, Muhammad Amasha (2018), and Sobhi Atta (2020) state that feedback can be divided functionally into two types: corrective feedback and

interpretive feedback. Corrective feedback is what is obtained from In order to provide the learner with information about the inability to answer and correct the answer to the error.

Explanatory feedback takes place when the student receives the information required to determine whether his response is correct, how to fix an incorrect response, and an explanation and clarification of the reasons behind the mistake.

Salwa Abdel Wahab (2019, p. 93) knows Explanatory feedback is the detailed information provided to the student. It is not limited to informing him of the correctness or error of his answer; Rather, you explain to them the reasons for the error and provide them with the correct answer to the question.

Hanan Ali (2018, p. 242) agreed Explanatory feedback explains the causes of the error in addition to correcting it, which reduces students' misunderstandings and prevents them from making the same similar mistakes, which increases their achievement and skill performance. Also, the environment in which there are many interaction tools is available that allows learning by providing feedback. More flexible and personalized for each student through interpretive feedback that helps in developing cognitive achievement and skill performance.

Ahmed Youssef''s (2021) goal was to assess how nursing college students' growth of problem-solving abilities and self-regulation of learning was impacted by the interplay between the kind of feedback based on learning analytics and the timing of its delivery. The findings showed that giving students explanatory feedback at the outset of their education significantly aided in the development of their problem-solving abilities. Moreover, the study indicated that providing corrective feedback at the end of the learning time helped in the process of self-regulation of learning.

The goal of Hassan Shehata, Ahmed Mustafa, Hanaa Muhammad, and Zainab Khalifa's (2022) study was to assess how the two kinds of "corrective-explanatory" feedback affected seminar students' development of grammatical concepts in an adaptive learning environment. The results of the study showed statistically significant differences between the experimental groups that received corrective feedback and those that received explanatory feedback. The study concluded that in order to help students develop grammatical notions, adaptive learning environments should provide explanatory feedback.

Numerous research in the same setting have examined patterns of individual and collaborative practice; the study by Stephen X. Liu, Q. Huang, S. Gao, & J. (2021) Effectiveness of practice collectively is arguably the most significant of them.

Cooperative learning strategies are one of the learning methods that require learners to work in small groups to solve a problem, complete a specific work or task, or achieve a predetermined goal. Each member of the group feels his responsibility towards his group, because his success or failure is a common success for him and his group, or a common failure for him and his group alike. Therefore, each member of the group seeks to help his colleague. Thus, the spirit of cooperation spreads among all members of one group, which may extend to include cooperation between individuals in more than one team. Many studies showed the importance of cooperative learning in the educational process, including Issam Zaid (2022) and the study of Youssef Al-Mansour (2023) who expounds on the effectiveness of the

cooperative style of practicing classroom activities on skill performance. These studies confirmed that cooperative learning provides educational possibilities through the multiple learning methods in the learning process, which allows creating sufficient flexibility to support learning.

The importance of cooperative learning in developing educational website design skills:

Upon reviewing and analyzing the results of many studies, it is shown that cooperative learning has positive effects on academic achievement and social skills. According to Bushra Hammoud (2023), cooperative learning techniques "improve students' academic achievement." Additionally, it leads to the growth of a cooperative attitude and enhances student connections, self-esteem, and school enthusiasm.

Cooperative learning is important for:

1. It represents an area of positivity for the learner, as he is the one who searches for information and presents it to his colleagues, so he discusses it with them and they discuss it with him.
2. It leads to developing a sense of mutual understanding, friendliness, and cooperation among group members within the study environment.
3. It creates self-confidence among the members of the cooperative group.
4. It helps in acquiring the social interaction skills necessary for human behavior, communication, dialogue, and assuming responsibility.

The importance of individual learning in developing educational website design skills:

The results of many previous studies and literature have shown the importance of individual learning. These results have shown that individual learning has positive effects on academic achievement and self-efficacy. Ikram Farouk (2021) showed in her study that aimed to study the interaction between compact learning patterns (individual / cooperative) and thinking methodology (analytical / holistic) and its impact in developing the acquiring skills of still imagery retrieval systems concepts among educational technology students and their self-efficacy, and the results of the research showed statistically significant differences between the mean scores of the experimental groups to research the concepts associated with static image retrieval systems And self-efficacy as a whole is due to the effect of the interaction between each of the blended learning style (individual / cooperative) and thinking style (analytical / holistic) in favor of (the integrated cooperative / holistic style).

***individual learning is important for:**

1. It allows learners to progress in their learning according to their abilities.
2. It focuses on mastery in learning, as one can't move from one skill to another until the previous skill has been mastered.
3. It encourages self-learning, as the learner himself verifies the achievement of the desired goals through feedback on the results of his learning.
4. It takes into account the individual differences of the learner himself, i.e. within the individual in terms of his way of interacting with the learning environment and the educational content presented to him.

5. It gives the learner self-confidence and experience and helps him to be independent in learning.
6. The teacher's role is to be a guide, mentor, facilitator of learning, and coordinator of learning resources.
7. It helps the learner to adopt lifelong learning as a basic way of learning.
8. The learner has an active and positive role and searches for information, where he interacts with information, experiences, and educational resources that his mind organizes and retrieves.

The researcher tackled the concept of educational website design skills, its importance in the educational process, types, characteristics, components, and effectiveness in the educational process by reviewing previous literature, research as follows:

First: The concept of skills of educational website design

Wu, Wang, Zhu & Ruan (2018: 42) defined skills of designing web pages as designing building their various elements using programming languages to configure the website and make it available via the internet to the target audience.

According to Hasnaa Al-Tabbakh and Aya Ismail (2020: 179), it's the process of planning, developing, and implementing web pages using multimedia components and the right programming languages so that they are ready to be published online and utilized by browsers to accomplish the intended goal for the intended audience." Numerous studies have demonstrated the value of cooperative learning in the educational process. For example, Youssef Mansour (2023) and Issam Zaid (2022) have demonstrated the impact of performing classroom activities together on skill performance. These studies confirmed that cooperative learning provides many educational possibilities through multiple learning methods in the learning process, which allows creating sufficient flexibility to support learning.

Second: The importance of educational websites

Several studies have indicated the importance of learning the design of electronic educational websites (Abdullah Al-Hassan and Abdul Rahman Al-Zahrani, 2019: 121; Ibrahim Attia and Ashraf Morsi, 2019: 37; Iman Ibrahim, 2020: 84; Hasnaa Al-Tabakh and Aya Ismail, 2020: 198). In the light of the afore-mentioned studies, the researcher concluded the importance of electronic educational websites that:

- they obtain a huge amount of useful information in different specializations.
- they reach a larger number of audiences and followers around the world.
- they Speed designing programs compared to video and CD-ROM systems.
- they simplify designing the content of existing curricula via the Internet.
- they give teaching and learning a global character and moving out of the local framework.
- they quicken teaching and learning. The time taken for online teaching is less than traditional teaching and learning.
- they obtain diverse opinions from experts and specialists on various scientific issues.
- they change the teacher's style from the traditional style to being a mentor, guide, and designer.

• they help the student to acquire the skills of designing educational websites and using computers.

Third: Types of educational websites

Educational websites are divided as follows: (Hamdi Amira, Ibrahim Ashoush, and Ibrahim Al-Qadi 2019: 692; Walid Youssef and Ahmed Al-Attar, 2019: 39; Iman Ibrahim, 2020: 89)

A- Static Web Pages.
B- Interactive websites (Web Page Interactive).
T- Websites with software applications.
D- Websites based on design programs.
C- Ready-made websites for academic courses.
H- Semi-ready sites.

Fourth: Characteristics of educational websites:

Ali Al-Ahmari (2018: 32), and Abdullah Al-Hassan and Abdul Rahman Al-Zahrani (2018: 101) suggested that educational websites are characterized by the following:

- Integration – Interactivity - Merging
- Individuality - Use of Hypermedia - Variety
- Accessibility - Globality - Engagement
- Navigation - Flexibility - Accuracy.

Fifth: Components of educational websites:

In the light of a plethora of studies, the components of educational websites were identified in the following elements (Hamdi Amira, Ibrahim Ashoush, and Ibrahim Al-Qadi, 2019: 682; Walid Youssef and Ahmed Al-Attar, 2019: 29; Iman Ibrahim, 2020: 79; Hasnaa Al-Tabbakh and Aya Ismail, 2020: 192; Maher Sabry, Howaida Abdel Hamid, Yasser Al-Jabarti, and Dalia Al-Ashqar, 2020: 42):

A- Written texts. B- - Sound
C- Pictures Still. D- Pictures: Motion.
E- Line drawings F- Animation.
G- Hyperlinks.
H- Tools Communication & Interactive.
- Synchronous interaction tools. - Asynchronous interaction tools.
I- Tools of displaying the course.

According to Mustafa Al-Sheikh et al. (2019), information systems students who participate in a hypermedia program linked to the internet that combines scientific content and educational activities achieve the best outcomes in terms of academic achievement and skill performance when it comes to creating and designing interactive websites. Furthermore, Abdullah Al-Hassan and Abdul-Rahman Al-Zahrani (2019) reported that students studying teaching and learning technologies at the College of Education, University of Jeddah, reported a positive influence from augmented reality and surface-deep learning as a categorical variable in improving their website design skills. The pupils in the deep learning method group benefited from the outcomes.

In addition, Maher Sabry, et al. (2020) revealed the superiority of the third experimental group (flexible support pattern/internal control center) over the rest of

the other experimental groups in all research tools for cognitive achievement, skill performance, and product evaluation of educational website programming skills.

The anticipated advantages and usability of technology have an impact on learner trends and attitudes regarding its use. These attitudes have an impact on learners' intents, both positive and negative, which is reflected in the decision to actually use technology. Through its impact on projected usefulness and expected ease of use, the Technology Acceptance Model (TAM) also shows that external influences influence behavioral intents and tendencies to utilize technology. (Zeinab El Arabi (2022); Adenuga, K. I., Mbarika, V. W., & Omogbadegun, Z. O. (2019).

The concept of Technology Acceptance (TAM):

Technology acceptance was described by Siham Al-Jariwi (2020) as the views that female university students have about technology, and how those beliefs affect their behavioral dispositions toward using three-dimensional electronic learning environments. In other words, people decide whether or not to use it and develop an attitude about it. The student's performance on the specially designed Technological Acceptance Scale (TAM) is used to gauge it. According to Osegbo & Nwadinobi (2019), the tool was created to track how users perceive technological innovations based on particular characteristics, which in turn influences their inclination to utilize those innovations in the future.

Osegbo & Nwadinobi (2019) concluded the advantages of Technological Acceptance (TAM) as follows:

The Technology Acceptance Model (TAM) is characterized by the following:

- It takes into account the orientations of individuals.
- Flexibility to suit educational institutions and their conditions.
- It provides a full description of the dimensions of acceptance of technological innovations.

This is what Zainab Ismail's study (2022) found The Technology Acceptance Model (TAM) is distinguished by the fact that it takes into account the beneficiaries' orientations and is flexible enough to suit the conditions of educational institutions, and provides a complete description of the dimensions of accepting technological innovations.

Also, Liao, S.; Hong, J, C.; Wen, M. H. & Pan, Y. C.(2018) stated that the goal of the Technology Acceptance Model (TAM) is to include the acceptance of modern technology in various fields. Hence, this model has become one of the good models in the field of information systems and technologies due to its wide spread. In the field of research and application in the Western environment, it has also been successfully tested in various fields and regions.

Methodology:

In light of the previous presentation **the research problem** lies in the existence of deficiencies among second-year students in the Department of Educational Technology in some technological skills and website design. This is according to an exploratory study conducted by the researcher on a sample of (30)male and female students from the Department of Educational Technology (outside the sample of the main experiment). Therefore, the current research attempts to overcome this problem by designing a ubiquitous learning environment based on the interaction

between feedback (corrective/explanatory) and learning style (cooperative/individual). This is done to benefit from the advantages of ubiquitous learning and to consider the individual differences of learners.

It is clear from the above the importance of the ubiquitous learning environment that has been made available to students through the Moodle learning management system and feedback in its various forms, including corrective feedback and explanatory feedback, which the researcher implemented through chat rooms and the educational forum in the Moodle learning management system. This allowed the researcher to provide students with detailed information about their level of progress, not just informing them of the correctness or incorrectness of their answer, but also explaining the reasons for the error and providing them with the correct answer to the question, which reduces the occurrence of the error afterwards. The ubiquitous learning environment through the Moodle learning management system and feedback (corrective/explanatory) and learning style (individual/collaborative) played an important role in the design of educational websites and their use in the educational process. This is due to what they provide in terms of communication and interaction tools between the teacher and the learner, and the learners and each other. They also provide diverse learning resources from multimedia that consider the individual differences between learners and make them available to learners Anytime and anywhere.

The significance of educational websites and their integration into the learning process most likely stems from the means by which they facilitate communication and interaction between students and teachers as well as between students and one another. Additionally, they offer a variety of multimedia learning resources that are accessible to students at any time and from any location, taking into consideration the specific variances among the students. Therefore, attempts are made to give educational institutions the chance to give students the opportunity to create electronic learning websites. This study's significance stems from its observation of educational technology students' performance at the College of Specific Education, as well as from its sessions and conversations with them.

It was determined that rather than focusing on honing their talents in educational website design, students are more interested in learning broad ideas and fundamental knowledge. To overcome and build educational website design skills and technology acceptability, there is also a variation in the results of studies, as some studies have shown that individual learning is better than collaborative learning, while others have shown that collaborative learning is better than individual learning. the researcher turned to this study as a serious and accurate endeavor to provide the courses in an eye-catching and engaging electronic digital format. Students learn, comprehend, and apply the ideas of technology acceptability and instructional website design as a result of this, to enable students to know, understand and apply the concepts of educational website design skills, technological acceptance, and to measure the impact of feedback interaction (corrective/explanatory), and learning style (individual/collaborative) in the learning process.

The research limits consisted of two types of feedback (corrective/explanatory) and the two types of learning Style (individual/cooperative) in a ubiquitous learning environment to develop the skills of designing educational websites and technological acceptance.

The research sample consisted of (60) male and female students from the Department of Educational Technology at the Faculty of Specific Education, Tanta University; randomly selected. They were divided into four groups: a group (corrective/individual feedback), a group (corrective/cooperative feedback), and a group (explanatory feedback/ Individual) and group (interpretive/cooperative feedback) during the second semester of the 2022/2023 academic year. An educational website was designed on Moodle according to the ADDIE general education design model, which consists of five stages: Analysis stage, Design stage, Development stage, Implementation stage, and Evaluation stage. The researcher chose this model in designing the ubiquitous learning environment because it is the basis for all other educational design models emanating from it. It also includes all the basic stages found in other models, and it is characterized by ease, clarity, and comprehensiveness. The researcher made some modifications to the model to suit the nature of the current research.

The first stage: The analysis stage

This stage goes through the following steps:

1- **Identifying the problem and assessing needs**: Identifying the problem among educational technology students at the College of Specific Education, they have deficiencies in the skills of designing educational websites.

2- **Determining the characteristics of the learners**: The characteristics of the learners were determined. They are students of educational technology at the College of Specific Education, as their cultural, social and material levels are similar, and their physiological and emotional characteristics are similar and they belong to one stage.

3- Analysis of situations, resources and constraints in terms of:

-Available capabilities**:** The college provides a laboratory equipped with an Internet connection.

- The tribal requirements include the availability of physical capabilities, such as computers, tablets, smart mobile phones, headphones, and the Internet.

The second stage: The design stage

The instructional design of the ubiquitous learning environment for the experimental groups was done according to the general model of educational design ADDIE. This stage consists of the following steps:

1- Determine the general goal It is the design of a Ubiquitous learning environment based on feedback (explanatory/corrective) and the learning style (individual/cooperative) to develop the cognitive aspect and skill performance of some technological skills and technological acceptance.

The researcher prepared a list of initial criteria for designing a Ubiquitous learning environment, and it consisted of three main criteria, and (54) sub-indicators fall under those main criteria. Then, it was presented to a group of arbitrators to express their opinion on it in terms of the importance of those standards, the correctness of

their formulation, the importance of the indicators, their belonging to each criterion, and their suitability to the Ubiquitous learning environment. Then the researcher made the arbitrators' amendments by reformulating (4) indicators, and then the list became in its final form. Appendix (2)

2- Determine the educational objectives for the learning content: Cognitive goals and skill goals are determined and formulated in a behavioral form that is measurable and observable. The researcher prepared a list of these objectives in their form and then presented them to a group of arbitrators in Appendix (1) to express their opinion on them and determine the accuracy of the objectives, the correctness of their formulation, and their achievement of the general objectives. Considering the arbitrators' amendments by reformulating two objectives, the researcher reformulated them and thus became a list of cognitive objectives in Its final image is Appendix (3).

3- Analyzing the educational content and determining its topics: In light of the educational objectives, the educational content was determined that covers those objectives and develops some of the technological skills of second-year students.With an oathEducational technology, where the content covered (5) main topics, including designing a website usingGoogle site, create a G-mail account, Google Docs application, Google Presentation application, Google Drive application.

4- **Creating the ubiquitous learning environment's user interface:** The Moodle learning management system was chosenMoodle to design the previously mentioned Ubiquitous learning environment, as the Moodle learning management system supports dealing with educational content, provides the possibility of communicating with learners, easy navigation within the environment, and provides tools for interaction between the student and the content and between students and each other through chat rooms, educational forums, and e-mail between Students and teacher.

5- **Source design**: And the media for the Ubiquitous learning environment, including still and moving images, educational videos, and recording a voiceover, after which the recordings were added to the content.

6- Designing learning activities: The activities that the learner interacts with were designed after each lesson, and the time for each activity was determined. It also includes an assignment that the student performs and uploads to Moodle, and the learner receives appropriate feedback that shows him the extent of his progress or provides him with an explanation of his mistakes and how to remedy them. Then he can move on to the next lesson.

7-Designing an electronic content scenario: In this step, the electronic content screens were described as a Ubiquitous learning environment, including texts, graphics, as well as audio and videos, according to the types of feedback (corrective/explanatory) and the learning style (individual/cooperative). Appendix (5)

8- Designing learning strategies and interaction methods (Educational interactions) Educational interaction strategies were designed by employing the learning environment deployed in the Moodle learning management systemMoodle provides feedback, so that students interact with the educational content through two types of feedback as follows:

- **Interaction through interpretive feedback with the individual learning style**

The student interacts individually with the educational content and educational activities through an individual-style interpretive feedback group and collects data on learning time, the specific time for each educational task, and determines the extent of the student's learning difficulty and thus provides interpretive feedback through the learning environment and directs the student to learning resources. It enables him to discover the error in his answer and correct it himself by trying again.

- **Interaction through corrective feedback with the individual learning style**

The student interacts individually with the educational content and educational activities through an individual-style corrective feedback group and collects data on learning time, the specific time for each educational task, and determines the extent of the student's learning difficulty and thus provides corrective feedback that explains to him the error of his answer and provides him with the correct answer.

- **Interaction through interpretive feedback with the cooperative learning method**

The student interacts collaboratively with the educational content and educational activities through an individualized explanatory feedback group and collects data on learning time, the specific time for each educational task, and determines the extent of the student's learning difficulty and thus provides interpretive feedback through the learning environment and directs students to learning resources. It enables them to discover the error in their answer and correct it themselves by trying again again in cooperation with each other and helping each other in solving the difficulties they faced in the content.

- **Interaction through corrective feedback with the cooperative learning method**

Students interact collaboratively with educational content and educational activities through a cooperative-style corrective feedback group. It collects data on learning time, the specific time for each educational task, determines the extent of learning difficulty for students, and thus provides corrective feedback that shows them the error of their answer and provides them with the correct answer. Whether through the teacher or through their cooperation with each other as students.

9-Designing environmental assessment tools: The evaluation tools were a cognitive achievement test to measure the cognitive aspect, a note card to measure the students' skill performance, and a technology acceptance scale to measure the extent to which students accept the skills they studied or not. The following is a simplified presentation of these tools:

a-Cognitive achievement test

***Test setup:** A cognitive achievement test consisting of multiple-choice and true-false questions was designed to measure the students' cognitive achievement. The test consisted of (25) test instructions in its initial form, then it was presented to the experts and arbitrators to express their opinion on it in terms of the suitability of the question to the educational objectives and the correctness and soundness of the wording. Test questions. After that, the researcher made wording amendments to some of the questions considering the opinions of the arbitrators, and thus the test became in its final form, Appendix (3).

***To calculate the validity** of the test :The cognitive achievement test was applied to a sample consisting of (20) of educational technology students outside the main research sample, and after application, the validity of the vocabulary was calculated using Cronbach's alpha coefficient method.Cronbach's Alpha (calculating the overall reliability and validity of items), which is the internal consistency model based on the rate of intercorrelation between items and the test. The overall reliability coefficient and validity of items is equal to (0.796), which is a high reliability coefficient.

***Then calculate the reliability** of the test: Reliability using split-half, as this method consists of applying the test once and then dividing it into two equal halves. The correlation coefficient is calculated between the scores of these two halves, and then the reliability coefficient of the test is predicted. The overall reliability coefficient of the test using the Spearman/Brown split-half method was equal to (0.871) in the event that the two halves of the test are equal in length, and in the event that the two halves of the test are unequal in length. In addition, the overall reliability coefficient of the test using the Guttman split-half method is equal to (0.871), which indicates a high overall reliability coefficient for the test as a whole.

***Then calculate transactions** The ease and difficulty of the test, and the researcher found that they ranged between (0.231 and 0.740) and are interpreted as not being very easy or very difficult, and therefore the test vocabulary remained the same (25) items.

*** Calculating time:** It is necessary to answer the test questions, by collecting the time taken by the first student to answer all the test questions, and the time taken by the last student to answer all the test questions, then calculating the average time, and the time was (30 minutes), in light of the results of the exploratory experiment.

*After calculating the statistical coefficients, Codifying the test by verifying its validity and reliability. The cognitive achievement test in its final form became Appendix (3), so that the test included (25) items. The maximum score for the test was (25) and a criterion for correction was set. Rubric.

B- Skills performance observation card

The researcher prepared a card to note the skill performance of some technological skills and website design, with the aim of measuring and evaluating the performance of the students of the second year of educational technology at the College of Specific Education (research sample) in the skill performance of some technological skills and website design.

***To prepare the observation card**: The researcher developed clear instructions for the card while specifying the student's performance standard so that it would be clear to observers other than the researcher. She followed the method of skill analysis, as the educational content consists of a series of steps or sub-skills that must be performed in a specific sequence until the goal is achieved. The researcher relied on She drafted the elements and paragraphs of the note card based on the list of skills she came up with (Appendix 4). She identified the main skills and analyzed them into a group of sub-skills, arranging them according to the sequence of their performance. Then, she formulated the card items in the form of short behavioral phrases that describe one behavior. Direct observation includes the skills included in

the electronic test design course The card paragraphs were formulated in a manner consistent with its objectives, nature, and the performance to be evaluated on the other hand. The researcher followed a method to estimate the students' levels in performing each skill as objectively as possible. Used Scale (performed the skill completely = 3, performed the skill partially = 2', performed the skill very poorly = 1, did not perform = zero) In each statement, the student gets:

- Three degrees when the skill is performed correctly and directly without errors (performed the skill completely).
- Two marks when he performs the skill correctly, even though an error occurs that he discovers and corrects himself (he partially performed the skill).
- One point when performing the skill, with an error that he corrected with the help of the teacher (the skill was performed poorly).

- Zero if the required skill is not performed.

* **The validity and reliability** of the observation card: After completing the preparation of the initial image of the observation card, the researcher presented it to a group of experts, specialists, arbitrators, and professors in the field of educational technology to verify the veracity of the card and express an opinion on it in terms of the validity and soundness of the formulation and sequence of those skills. Then the researcher conducted a the amendments recommended by the arbitrators were subsequently finalized (Appendix 5).

***To calculate the stability of the card**, the researcher used the method of agreement between observers in calculating stability, and the number of times agreement between observers was determined using the Cooper equation.Cooper The percentage of agreement indicates the stability of the note card, and the percentage of agreement between observers ranged between (0.86%, 0.89%), which are high agreement rates, which indicates the stability and validity of the note card for application and use.Then I calculated the ease and difficulty coefficients for the card and found that they ranged between (0.213 and 0.737) and were interpreted as not being very easy or very difficult. Thus, the researcher arrived at the final image of the note card. (Appendix 5).

C- Technology acceptance measure

***Preparing the scale**: The researcher prepared the technology acceptance scale with the aim of determining technology acceptance skills (Technological Acceptance) that is required to be developed and to measure the extent of their acceptance of its use among second-year students in the Department of Educational Technology in a Ubiquitous learning environment based on the interaction between the feedback style (corrective/explanatory) and the learning style (cooperative/individual). The researcher looked at some measures of technological acceptance and preparing a scale for the current research consisting of (20) items distributed among (8) main skills.

- **Estimating the scores of the technology acceptance scale,** Student evaluation levels on the technology acceptance scale are graded according to the five-point Likert scale (5:1). **Strongly agree = 5; OK=4; Neutral=3; galleries=2; Strongly disagree=1**The grades within the scale are estimated as follows: minimum grade = 20 grades, maximum grade = 100 grades.

***Validity and reliability of the scale:** To ensure the validity of the scale, it was presented in its initial form to a group of experts and specialists to seek their opinions about the extent to which the statements are related to technological acceptance, and the accuracy of the linguistic formulation of the statements, and after making modifications, it was placed in the final form (Appendix 6).

***To calculate the validity** of the internal consistency of the scale: This method depends on the consistency in students' performance on the components of the technology acceptance scale, and when it is homogeneous, each component in it measures the same components that the scale measures (as a whole), and it is calculated using the correlation coefficients between the score of each subcomponent and the total score of the scale. (as a whole), and the results are as follows:

Table (1) Pearson correlation coefficients between vocabulary and the scale as a whole

Pearson correlation coefficient	Single	Pearson correlation coefficient	Single	Pearson correlation coefficient	Single	Pearson correlation coefficient	Single
0.823**	16	0.794**	11	0.799**	6	0.846**	1
0.852**	17	0.816**	12	0.789**	7	0.794**	2
0.789**	18	0.852**	13	0.823**	8	0.816**	3
0.846**	19	0.848**	14	0.852**	9	0.823**	4
0.848**	20	0.799**	15	0.846**	10	0.789**	5

It is clear from the previous table that all correlation coefficients between each item and the technology acceptance scale as a whole are strong direct correlation coefficients, which are significant at the level of (0.01). This indicates that the individual items have a high degree of internal consistency for the scale.

***The researcher calculated the reliability** coefficient for the technology acceptance scale using the retest method. The researcher applied the scale to the sample of the exploratory experiment and its consistency (20)Student from Second year students from the Department of Educational Technology, then the scale was re-applied again after a time interval of two weeks, and the researcher used the statistical package (SPSS V.27) to calculate the reliability coefficient for the scale as a whole (0.846), which is a high reliability coefficient and thus we can trust the results provided by the scale.

***Discrimination coefficients were calculated** for the technology acceptance scale and found that they ranged between (0.20) and (0.81). Thus, the scale's items are considered to have an appropriate ability to discriminate.

* **The ease and difficulty coefficients** for the scale were calculated and the researcher found that they ranged between (0.19 and 0.79) and are interpreted as not being very easy or very difficult.

***Calculating the time of the technology acceptance scale**: The researcher estimated the time of the technology acceptance scale considering the observations and monitoring the students' performance in the exploratory experiment by calculating

the average of the total times through the sum of the times of all the students divided by their number. The time to answer the items of the scale was (20) minutes.

The third stage: The development stage

1- **Producing a Ubiquitous learning environment:** At this stage, the learning environment distributed on the Moodle system was produced Moodle is the subject of research according to the feedback (corrective/explanatory) and learning style (cooperative/individual), the content was divided into educational lessons, and educational activities were produced. As well as pre- and post-tests and scales. And upload it to the site. A group of programs were used for this, such as PHP for dealing with interactive web pages, Html 5 for structuring and displaying the content of environment pages, CSS 3 for designing and developing web pages, Adobe PhotoShop CS6 for processing images and static drawings and writing on them, Moodle 2.7 for producing questionnaires, scales, and pre- and post-tests within an environment. Learn the spread.

2- **Exploratory experimentation**: The Ubiquitous learning environment and research tools were tested on (20) educational technology students at the College of Specific Education, divided into four groups from the research community, and from others other than the original group, in order to ensure the ease, flexibility, and clarity of using the environment and to identify the shortcomings that exist in the environment. To work on addressing it, and to apply research tools in order to ensure its validity and reliability and determine the time periodtoTake the test and determine the level of ease and difficulty.

3- **Modification and development**: Based on the previous stage, which is the exploratory experimentation stage, the deployed learning environment was presented to a group of arbitrators in order to benefit from their opinions and directions regarding the suitability of the environment to the research topic and to identify the shortcomings to address them. And its objectives, content, and activities used in it. The researcher made the appropriate amendments, and it was modified and is now in its final form.

4- **The final output of the Ubiquitous learning environment**: After completing the formative evaluation processes and making the required modifications, the final image of the Ubiquitous learning environment was prepared for the four experimental groups and prepared for display.

The fourth stage: The implementation stage

1- **Dissemination of an online learning environment:** At this stage, the site was inspected and published to be ready for use, and the researcher uploaded the educational content, lessons, activities, and assignments for the learning environment spread on the site. HTTP:// ubiquitouslearning.com

2- **Learning environment application:**In this step, the Ubiquitous learning environment was applied according to the previous feedback and learning methodPreparing the college's computer lab, so that it is functional and ready for application, randomly dividing the students into four groups with (15) male and female students in each group, following the learning method (individual/cooperative) and feedback (explanatory/corrective), and directing

the students to learn from the environment while training them on Log in using each student's password and username.

The fifth stage: The evaluation stage

1- Evaluating the learning aspects of the content of the deployed learning environment

By guiding the student researcher The educational activities that they must accomplish and upload them to the website, then follow up on their progress through the Moodle system. Then the researcher applied the research tools, which are (the cognitive achievement test, the observation card, and the technology acceptance scale) later after completing the learning, and the results were recorded and through it it was confirmed that the Established goals.

2- Analyzing, discussing, and interpreting the results: The researcher used statistical analysis software PSs to measure means, standard deviations, and One Way Anova for each of the cognitive achievement test, note card, and technology acceptance scale, and interpret and discuss the results.

All previous steps were followed up and reviewed through feedback, Revision, and Modification.

Results

Through the Ubiquitous learning environment based on the interaction between the two types of feedback (corrective/explanatory) and the learning style (individual/cooperative) and its impact on developing the skills of designing educational websites and technological acceptance prepared by the researcher, and the various multimedia elements it contains, and by taking into consideration the researcher To divide the whole into parts and take into account the interconnection between the part and the whole, the students in the research sample showed good results in cognitive achievement, after applying the cognitive achievement test to answer the first research hypothesis.

The first hypothesis: "The first hypothesis: There are no statistically significant differences at the level (≤0.05) between the average scores of the pre- and post-applications for students in the experimental groups in the test. Cognitive achievement related to educational website design skills is due to the effect of the interaction between the two types of feedback (corrective/explanatory) and the learning style (individual). /cooperative)."

Table (2): The mean and standard deviation for the four groups in the pre and post cognitive achievement test

No.	Group name	Number	application	mean	Standard deviation
1	Corrective feedback/individual learning	15	Pre-	4.1333	1.598
			Post-	21.667	1,718
2	Corrective feedback/Cooperative learning	15	Pre-	4	1.685
			Post-	22.467	1.487
3	Explanatory feedback/individual learning	15	Pre-	3.933	1.952
			Post-	23.333	1.598
4	Explanatory feedback/Cooperative learning	15	Pre-	4.133	1.773
			Post-	26.067	1.487

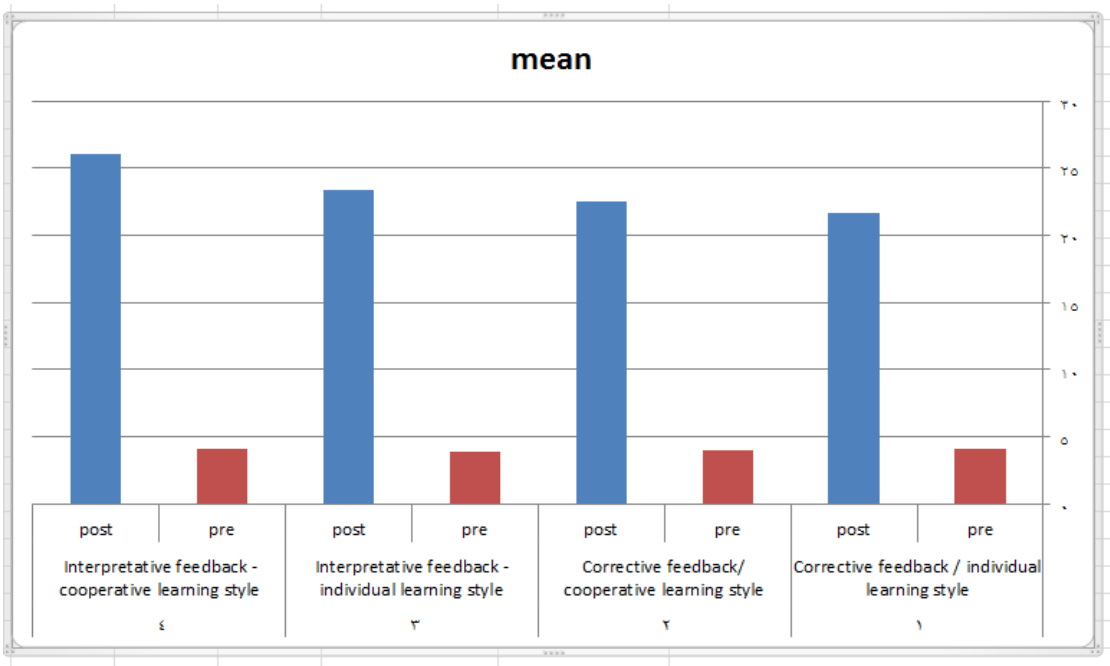

Fig (1): The means of the four groups in the post-application of the cognitive achievement test

It is clear from the previous table and graph that there is a very slight difference in the average scores of students' performance in the cognitive achievement test for the pre-application, as the lowest average performance in the cognitive achievement test was for the pre-application for the four groups, and the lowest average score was (3.933) and is for the explanatory feedback group/ Individual learning style, while the largest average performance in the cognitive achievement test was for the post-application of the fourth experimental group (explanatory feedback / cooperative learning style), which is (26.067). It is also clear that the lowest standard deviation was for the post-application of the fourth experimental group (explanatory feedback /cooperative learning style) which is equal to (1.487), while the largest standard deviation was for the post-application of the third experimental group (explanatory feedback/individual learning style) which is equal to (1.952).

Table (3) One-way Anova analysis for the four experimental groups in the pre-cognitive achievement test

Measurement	Source of variance	Total sum of squares	Freedom degrees	Mean of squares	F	Significance
The pre-cognitive achievement test	among groups	,45	3	,15	,057	,982
	Within groups	146,4	56	2,614		

The previous table reveals that the four experimental groups are not statistically significant among themselves because the differences between the pre-means are very small, which indicates the acceptance of the null hypothesis. This indicates that

the four experimental groups, before the beginning of the experiment, were approximately equal in the level of knowledge regarding educational website design skills. Their knowledge was low.

Table (4): One-way Anova for the four experimental groups in the post-cognitive achievement test

Measurement	Source of variance	Total sum of squares	Freedom degrees	Mean of squares	F	Significance
The post-cognitive achievement test	among groups	164,85	3	54,95	18,612	,982
	Within groups	165,333	56	2,952		

It is clear from the previous table and the significance value between the (four) experimental groups, where the significance value (**0.000)** The degree is smaller than 0.05, and thus it is considered statistically significant at a significance level of (0.05) This indicates rejection of the null hypothesis and acceptance of the alternative hypothesis. The researcher attributes this to the fact that cognitive achievement was developed in each group separately, and this is evident from the difference in means between the pre- and post-applications, as in the table. (2), and when comparing the groups with each other, it was found to be statistically significant as well. To reveal which groups were due to the significant effect, the researcher used the Tukey follow-up test, as in the following table:

Tukey's follow-up test to determine which groups caused this statistical significance.

Table (5): Follow-up variance for the cognitive achievement test using Tukey's multiple comparisons of post-test

No.	Group I	Number	Differences in means	Significance
The post application of the cognitive achievement test	Corrective feedback/individual learning	Corrective/cooperative	-80000,	,582
		Corrective/ individual	-1,66667	,049
		Explanatory/ cooperative	-4,4000	0
	Corrective feedback/Cooperative learning	Corrective/ individual	,8	,582
		Explanatory/ individual	-86667,0	,516
		Explanatory/ cooperative		
	Explanatory feedback/individual learning	Corrective/ individual	1,66667	,049
		Corrective/cooperative	,86667	,516
		Explanatory/ cooperative	-2,73333	0
	Explanatory feedback/Cooperative learning	Explanatory/ individual	4,40000	0
		Explanatory/ cooperative	3,60000	0
		Explanatory/ individual	2,73333	0

From Tukey's multiple comparisons table and follow-up variance previous Tukey We note that both the explanatory feedback group/individual learning style and the explanatory feedback group/cooperative learning style had a significant impact in

showing statistical significance in the scores of the cognitive achievement test post-application in favor of the fourth experimental group, as shown in the previous table, and the researcher explains This is because in the two groups of explanatory feedback/individual learning style, the learner not only knew what was wrong and what was right, but also knew the reason for the mistake and its explanation, and this led to the error not being repeated and the achievement increasing. And in the explanatory feedback group/cooperative learning method, there was a high level of interaction and communication between its members. Also, the interaction and communication between the members of the fourth group and the cooperation among them led to achieving and significantly developing the cognitive aspect of educational website design skills based on this Ubiquitous learning environment, in addition to the learner's He knew not only what was wrong and what was right, but he also knew the reason for the mistake and its explanation, and this led to the mistake not being repeated and his achievement increasing as well.

The second hypothesis: "There are no statistically significant differences at the level of (≤0.05) between the average scores of the pre- and post-applications for the students of the experimental groups in the skill performance note card related to educational website design skills is due to the effect of the interaction between the two types of feedback (corrective/explanatory) and the learning style (individual/cooperative)."

The researcher applied the observation card to measure the skill performance of website design and to answer the second research hypothesis, as shown in the following table:

Table (6): The mean and standard deviation for the four groups in the skill performance observation card for pre and post-test educational website design

No.	Group name	Number	application	mean	Standard deviation
1	Corrective feedback/individual learning	15	Pre-	13.920	2.219
			Post-	43.333	1.988
2	Corrective feedback/Cooperative learning	15	Pre-	13.933	2.017
			Post-	44.067	1.624
3	Explanatory feedback/individual learning	15	Pre-	14.333	1.633
			Post-	46.533	2.066
4	Explanatory feedback/Cooperative learning	15	Pre-	14.733	1.487
			Post-	54.8	2.541

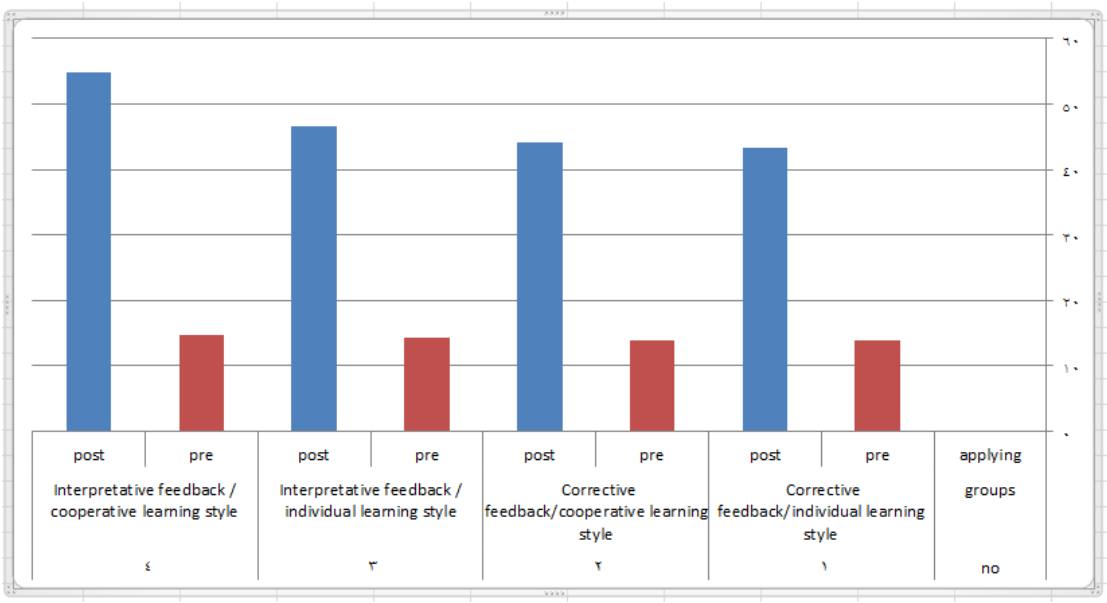

Fig. (2): shows The average for the four groups in the skill performance note card for designing educational websites, pre-post application

It is clear from the previous table and graph that there is a very slight difference in the average scores of students' performance in the skill performance observation card for the pre-application, as the differences in the average performance scores in the observation card were very small between the four groups, and the lowest average was (13.920) scores, which is specific to the feedback group. Corrective/individual learning style, while the largest average performance in the skill performance note card was for the post-application of the fourth experimental group (interpretative feedback/cooperative learning style), which is (54.8) It is also clear that the lowest standard deviation was the post-application of the fourth experimental group (explanatory feedback/cooperative learning style), which is equal to (1.487), while the largest standard deviation was the post-application of the fourth experimental group (explanatory feedback/cooperative learning style). It is equal to (2.541).

Table (7): One-way Anova for the four experimental groups in the pre and post-application of skill performance note card

Measurement	Source of variance	Total sum of squares	Freedom degrees	Mean of squares	F	Significance
pre-application of skill performance note card	among groups	6,6	3	2,2	0,635	,596
	Within groups	194,13	56	3,467		

It is clear from the previous table that the four experimental groups are not statistically significant among themselves, given that the differences between the pre-means are very small and the significance level (0.596) is greater than (0.05), which indicates acceptance of the null hypothesis, and this indicates that the four

experimental groups were equal before the beginning of the experiment. Almost at the level of educational website design skills, their performance experience was low.

Table (8): One Way Anova analysis of variance for the four experimental groups in the post- application of skill performance note card

Measurement	Source of variance	Total sum of squares	Freedom degrees	Mean of squares	F	Significance
Post-application of skill performance note card	among groups	1244,58	3	414,86	95,843	,000
	Within groups	242,4	56	4,329		

It is clear from the previous table and the significance value between the (four) experimental groups, where the significance value (**0.000**) degree, which is smaller than (0.05), and thus it is considered statistically significant at a significance level of (0.05), and this indicates rejection of the null hypothesis and acceptance of the alternative hypothesis. The researcher attributes this to the fact that the skill performance in designing educational websites was developed in each group separately, and this is evident from the difference in means. Table (6) between the pre and post applications. When comparing the groups with each other, it was also found to be statistically significant. To determine which groups were due to statistical significance, the researcher used the Tukey follow-up test to find out which groups were the cause of this statistical significance.

Table No. (9) Follow-up variance for the educational website design skills note card using Tukey's multiple comparisons of post-test

No.	Group I	Number	Differences in means	Sig
The post application of the performanc e skill card	Corrective feedback/individual learning	Corrective/cooperative	-.73333-	0.77
		Corrective/ individual	-3.20000-*	0.001
		Explanatory/ cooperative	-11.46667-*	0
	Corrective feedback/Cooperati ve learning	Corrective/ individual	0.73333	0.77
		Explanatory/ individual	-2.46667-*	0.01
		Explanatory/ cooperative	-10.73333-*	0
	Explanatory feedback/individual learning	Corrective/ individual	3.20000*	0.001
		Corrective/cooperative	2.46667*	0.01
		Explanatory/ cooperative	-8.26667-*	0
	Explanatory feedback/Cooperati ve learning	Explanatory/ individual	11.46667*	0
		Explanatory/ cooperative	10.73333*	0
		Explanatory/ individual	8.26667*	0

From Tukey's multiple comparisons table and follow-up variance previous Tukey We note that both the explanatory feedback group/individual learning style and the explanatory feedback group/cooperative learning style had a significant impact in

showing statistical significance in the scores of the educational web design skills note card, the post-application, in favor of the fourth experimental group, as shown in the table. Previously, the researcher explained this by saying that in the two groups of explanatory feedback/individual learning style, the learner not only knew what was wrong and what was right, but also knew the reason for the mistake and its explanation, and this led to the error not being repeated and skills increasing. And in the explanatory feedback group/cooperative learning method, there was a high level of interaction and communication between its members, and the interaction and communication between the members of the fourth group and the cooperation among them led to achieving and significantly developing the performance aspect of educational website design skills based on this Ubiquitous learning environment, in addition to the learner's He knew not only what was wrong and what was right, but he also knew the reason for the mistake and its explanation, and this led to the mistake not being repeated and his skills increasing as well.

The third hypothesis: "There are no statistically significant differences at the level of (≤0.05) between the average scores of the pre- and post-applications for students in the experimental groups on the technology acceptance scale is due to the effect of the interaction between the two types of feedback (corrective/explanatory) and the learning style (individual/cooperative)."

Through the Ubiquitous learning environment based on the interaction between the two types of feedback (corrective/explanatory) and the learning style (individual/cooperative) and its impact on developing the skills of designing educational websites and technological acceptance prepared by the researcher, and the various multimedia elements it contains, and by taking into consideration the researcher To divide the whole into parts and take into account the interrelationship between the part and the whole, the students in the research sample showed good results in technological acceptance, after applying the technological acceptance scale to answer the research hypothesis, as shown in the following table:

Table (10): The mean and standard deviation for the four groups in the pre-post technological acceptance scale

No.	Group name	Number	application	mean	Standard deviation
1	Corrective feedback/individual learning	15	Pre-	33.330	5.107
			Post-	85.1333	3.0441
2	Corrective feedback/Cooperative learning	15	Pre-	32.667	5.589
			Post-	85.9333	3.195
3	Explanatory feedback/individual learning	15	Pre-	32.067	5.689
			Post-	87.1333	2.774
4	Explanatory feedback/Cooperative learning	15	Pre-	33.333	5.108
			Post-	95.133	3.044

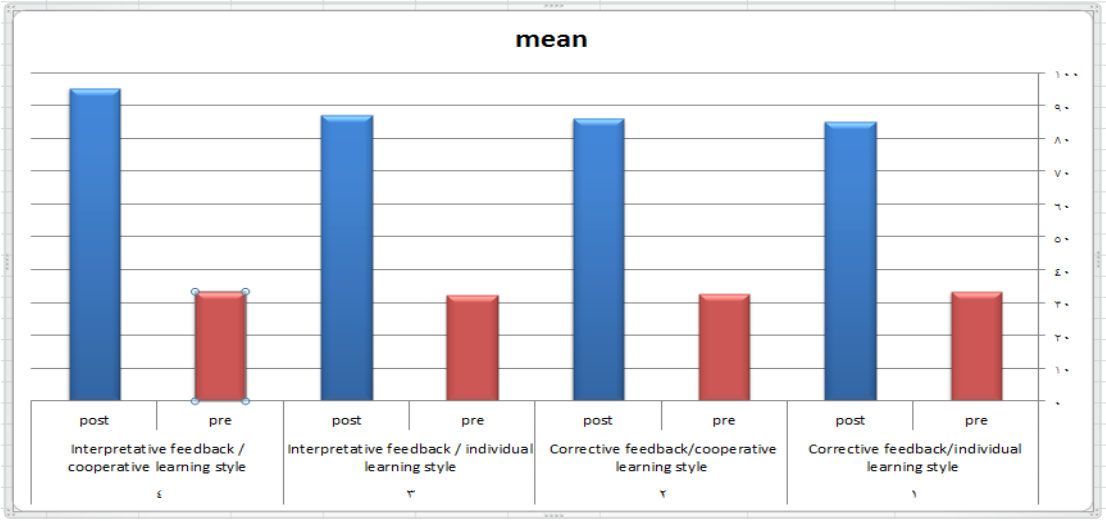

Fig (3): shows the average for the four groups in the pre-posttest technological acceptance scale

The previous table and graph show that there is a very slight difference in the average scores of students' performance in the technological acceptance scale for the pre-application, as the lowest average performance in the technological acceptance scale was for the pre-application for the four groups, and the lowest average was (32.067) scores, which is for the explanatory feedback group/ Individual learning style, while the largest average performance on the technology acceptance scale was for the post-application of the fourth experimental group (explanatory feedback / cooperative learning style), which is (95.133). It is also clear that the lowest standard deviation was for the post-application of the third experimental group (explanatory feedback). /Individual learning style) which is equal to (2.774), while the largest standard deviation was for the pre-application of the third experimental group (explanatory feedback/individual learning style) which is equal to (5.689).

Table (11): One Way Anova analysis of variance for the four experimental groups in the pre-application technological acceptance scale

Measurement	Source of variance	Total sum of squares	Freedom degrees	Mean of squares	F	Significance
The pre-application of the scale of technology acceptance	among groups	16,717	3	5,572	,193	,901
	Within groups	1620,93	56	28,945		

Table (11) illustrates that the four experimental groups are not statistically significant among themselves because the differences between the pre-means are very small, which indicates acceptance of the null hypothesis. This indicates that the four experimental groups, before the beginning of the experiment, were approximately equal in the level of technological acceptance.

Table (12) One Way Anova analysis of variance for the four experimental groups in the post-technology acceptance scale

Measurement	Source of variance	Total sum of squares	Freedom degrees	Mean of squares	F	Significance
The post-application of the scale of technology acceptance	among groups	955,2	3	318,4	34,952	,000
	Within groups	510,133	56	9,11		

The above-mentioned table makes it evident that the significance value between the (four) experimental groups, where the significance value (**0.000**)is less than (0.05), and thus it is considered statistically significant at a significance level of (0.05). This indicates rejection of the null hypothesis and acceptance of the alternative hypothesis. The researcher attributes this to the fact that the measure of technological acceptance was developed in each group separately, and this is evident from the difference in means between the pre- and post-applications. Table (Table10), and when comparing the groups with each other, it was found that they were also statistically significant, and to determine which groups were due to statistical significance, the researcher used the Tukey follow-up test to find out which groups were the cause of this statistical significance.

Table No. (13) follow contrast toTechnology acceptance measurePosttest application of Tukey's multiple comparisons Tukey

No.	Group I	Number	Differences in means	Sig
The post application of the scale of technology acceptance	Corrective feedback/individual learning	Corrective/cooperative	-.80000-	0.886
		Corrective/ individual	-2.00000-	0.277
		Explanatory/ cooperative	-10.00000-*	0
	Corrective feedback/Cooperative learning	Corrective/ individual	0.8	0.886
		Explanatory/ individual	-1.20000-	0.698
		Explanatory/ cooperative	-9.20000-*	0
	Explanatory feedback/individual learning	Corrective/ individual	2	0.277
		Corrective/cooperative	1.2	0.698
		Explanatory/ cooperative	-8.00000-*	0
	Explanatory feedback/Cooperative learning	Explanatory/ individual	10.00000*	0
		Explanatory/ cooperative	9.20000*	0
		Explanatory/ individual	8.00000*	0

From Tukey's multiple comparisons table and follow-up variance previous Tukey We note that both the explanatory feedback group/individual learning style and the explanatory feedback group/cooperative learning style had a significant impact in showing statistical significance in the scores of the post-application technological acceptance scale in favor of the fourth experimental group, as shown in the previous table, and the researcher explains This is because in the two groups of explanatory feedback/individual learning style, the learner not only knew what was wrong and what was right, but also knew the reason for the mistake and its explanation, and this led to the error not being repeated and increasing the learner's susceptibility to technology. And in the explanatory feedback group/cooperative learning method, there was a high level of interaction and communication between its members. Also, the interaction and communication between the members of the fourth group and the cooperation among them led to achieving and significantly developing technological acceptance. This is in addition to the fact that the learner not only knew what was wrong and what was right, but also knew the reason for the error. Explaining it, this led to the error not being repeated and increased demand for technology and its use.

Fourth hypothesis: "There is no correlation between the scores of the students of the experimental research groups on the cognitive achievement test related to educational website design skills, their scores on the skill performance observation card related to educational website design skills, and their scores on the technology acceptance scale."

To verify the acceptance or rejection of the previous hypothesis, the value of the correlation coefficient was calculated between the scores of the cognitive and performance aspects of website design skillsEducational e-learning and technological acceptance among the research sampleThe following table shows the value of the correlation coefficient between the scores of the cognitive and performance aspects of website design skillsEducational electronics and technology acceptance The sample has:

Table (14): The value of the correlation coefficient between the scores of the cognitive and performance aspects of educational website design skills and the technology acceptance scale for the first experimental group (corrective feedback and individual learning style group)

Variable	Cognitive aspect	Performance aspect	Technology acceptance
Cognitive aspect	1	.442	.414
Performance aspect	.442	1	.238
Technology acceptance	.414	.238	1

The previous table explains that the correlation value ranged between (0.238-0.442), and this indicates that there is a statistically significant average correlation between the scores of the cognitive aspect and the performance aspect of educational website design skills and technological acceptance. This means that the

greater the cognitive aspect of educational website design skills, the greater the performance aspect. Educational website design skills increased technological acceptance, while the correlation was weak between the performance aspect and technological acceptance.

Table (15): The value of the correlation coefficient between the scores of the cognitive and performance aspects of educational website design skills and the technology acceptance scale for the second experimental group (corrective feedback and cooperative learning style group)

Variable	Cognitive aspect	Performance aspect	Technology acceptance
Cognitive aspect	1	-.398-	0.077
Performance aspect	-.398-	1	0.295
Technology acceptance	0.077	0.295	1

It is clear from the previous table that the correlation value ranged between (0.077-0.398), and this indicates that there is a statistically significant average correlation between the scores of the cognitive aspect and the performance aspect of educational website design skills and technological acceptance. This means that the greater the cognitive aspect of educational website design skills, the greater the performance aspect. Educational website design skills increased technological acceptance, while the correlation was weak between the performance aspect and technological acceptance.

Table (16) The value of the correlation coefficient between the scores of the cognitive and performance aspects of educational website design skills and the technology acceptance scale for the third experimental group (the group of interpretive feedback and individual learning style)

Variable	Cognitive aspect	Performance aspect	Technology acceptance
Cognitive aspect	1	0.549*	0.418
Performance aspect	0.549*	1	0.386
Technology acceptance	0.418	0.386	1

The previous table reveals that the correlation value ranged between (0.386 - 0.549), and this indicates the existence of a strong, statistically significant direct correlation between the scores of the cognitive aspect and the performance aspect of educational website design skills. This means that the greater the cognitive aspect of educational website design skills, the greater the performance aspect of educational website design skills. Designing educational websites increased technological acceptance, while the correlation was moderate between the performance aspect and technological acceptance.

Table (17) The value of the correlation coefficient between the scores of the cognitive and performance aspects of educational website design skills and the technology acceptance scale for the fourth experimental group (the explanatory feedback and cooperative learning style group)

Variable	Cognitive aspect	Performance aspect	Technology acceptance
Cognitive aspect	1	1.000**	0.573*
Performance aspect	1.000**	1	0.465
Technology acceptance	0.573*	0.465	1

It is clear from the previous table that the correlation value ranged between (0.465 - 1). This indicates that there is a complete direct correlation between the scores of the cognitive aspect and the performance aspect of educational website design skills, and a strong direct correlation between the cognitive aspect and technological acceptance. This means that the more the cognitive aspect of website design skills increases. Educational e-commerce increased the performance aspect of educational website design skills and technological acceptance increased, while the correlation was moderate between the performance aspect and technological acceptance.

Discussion:

- It is evident from the previous tables, there is a difference between the pre- and post-applications for the experimental groups in favor of the post-application. Likewise, by comparing the experimental groups, it was found that the explanatory feedback group is the highest group in the pre- and post-average scores. This difference between the two means is statistically significant, and this indicates the rejection of the null hypothesis and the acceptance of the alternative hypothesis. This means that there are differences in favor of the post-application and in favor of the fourth experimental group (the interpretive feedback group), which indicates the development of the cognitive achievement aspect of website design skills.
- As it turns out from the previous tables, there is a difference between the pre- and post-applications for the experimental groups in favor of the post-application. Likewise, by comparing the experimental groups, it was found that the explanatory feedback group is the highest group in the pre- and post-average scores. This difference between the two means is large and statistically significant, and this indicates the rejection of the null hypothesis and the acceptance of the hypothesis. Alternatively, this indicates the development of the skill-performing aspect of designing educational websites.
- Furthermore, there is a difference between, the pre- and post-applications for the experimental groups in favor of the post-application. Likewise, by comparing the experimental groups, it was found that the explanatory feedback group is the highest group in the

pre- and post-average scores. This difference between the two means is large and statistically significant, and this indicates the rejection of the null hypothesis and the acceptance of the hypothesis. Alternatively, this indicates the development of technological acceptance among educational technology students.

- As for the results related to educational website design skills, the results showed that the explanatory feedback style is the most appropriate for students with a cooperative learning style compared to the other three groups. Tukey's multiple comparisons test proved that the fourth group with explanatory feedback and a cooperative learning style had statistical significance in Skilled performance of educational website design skills, and this result is consistent with study Zainab Ismail. (2022), Study by Hassan Shehata, Zainab Khalifa, Hanaa Muhammad, Ahmed Mustafa. (2022) which confirmed that feedback provided at the interpretive level achieved the best results in terms of achievement, skill performance, and learning efficiency.

The results related to the cognitive aspect, educational website design skills, and technological acceptance can be interpreted in light of learning theories as follows:

First: Constructivist theory

Learning does not occur well except when the student faces a problem, educational situation, or real task. Learning under constructivism is an active process that depends on the effort made by the student in defining the educational problem, imposing hypotheses, presenting alternatives, trying out the solution, and evaluating the results to reach the discovery of knowledge himself. The e-learning environment Ubiquitous and based on the interaction between the two types of feedback(corrective/explanatory) The learning method (individual/cooperative) in the Moodle learning management system is based on providing learning through educational tasks supported by educational activities for these tasks to be carried out by the student, while providing the necessary steps to conduct the activities and the necessary assistance if necessary. It also allows interaction between the student and the educational content. The electronic website for designing educational websites for educational technology students at the College of Specific Education, which was designed on the Moodle learning management system, and the feedback pattern is(corrective/explanatory)It has clearly affected the development of cognitive achievement, skill performance, and technological acceptance, especially interpretive feedbackIt provides the student with the necessary information about the correctness of his answer and correcting the wrong answer, in addition to explaining, clarifying and interpreting the reasons for the error;This reduces students' misunderstandings and prevents them from making the same similar mistakes, which increases their achievement and skill performance. Also, the environment Ubiquitous e-learning and It was designed with the Moodle learning management system. It has many interaction tools, including chat rooms, educational forums, and others, which allow providing feedback in both types with great flexibility and in a personal way for each student, especially explanatory

feedback, which has helped in developing cognitive achievement, skill performance, and technological acceptance.

Internal learning elements make up a portion of the primary factors that influence the proficient performance of instructional website design skills. Under constructivist learning, the student builds his own knowledge, which is then developed into an integrated body of information at the conclusion of the learning process. The researcher's current research relies on students completing the skills, activities, or educational tasks related to each lesson presented through the electronic educational content until it becomes a part of the ubiquitous e-learning environment provided by the Moodle learning management system and the learning style (individual/cooperative) related to designing educational websites among educational technology students at the College of Specific Education. His knowledge is built at the end of the learning process, and his cognitive structure increases individually first, then the students cooperate in understanding and learning what is troubling them, which increases their achievement and skills in designing educational websites and their technological acceptance.

Second: Dialogue Theory

Learning through dialogue is more active for learners. The student learns through the dialogue that arises about the educational topics that are presented to him through the special electronic educational content.With design skillsEducational websites, which were designed on the Moodle learning management system and were provided in an e-learning environment spread with two feedback patterns.(corrective/explanatory)The learning method is (individual/cooperative), where dialogue takes place between the students and the teacher, especially explanatory feedback, which shows the students the accuracy and correctness of their performance and explains to them the reasons for the error they made. This dialogue that arises in this type of feedback would prevent the recurrence of the error in the future, which It increases students' achievement and the development of their skills and technological acceptance. Dialogue also takes place between the student and his colleagues, where some of them correct each other's performance and explain to each other what they had difficulty understanding in a framework of cooperation, which also increases cognitive achievement and skill performance.

The student does not build his knowledge and skills in isolation from others, but rather builds them through dialogue and discussion with others, where he exchanges opinions, ideas, and evaluation with them. The Ubiquitous e-learning environment has allowed dialogue and interaction between students and each other, between students and their teachers, and between students and the electronic educational content, which was designed on the Moodle learning management system. The interaction between students and the content takes place through questions, tasks, and activities that the learner responds to while studying the content, whether in college or at home. This led to an increase in students' cognitive achievement and skill performance of educational website design skills as a result of their practice and exposure to educational videos that explain knowledge and skills, so their cognitive structure increased more and more. Their achievement, skills and technological acceptance.

Third: Communication theory

The theory holds that teaching students how to find information, hone it, evaluate it, and synthesize it in order to eventually gain knowledge is more important than ever. In the area of specialty, emphasis is also placed on helping students acquire knowledge management skills and the capacity to discriminate between relevant and irrelevant material. Among the general skills it focuses on are personality and social networking abilities; additionally, it practices an educational activity where students are given a task, problem, or activity and are asked to discover a solution. The student must take steps arranged in a manner similar to the steps of the scientific method in research or thinking, using the ubiquitous e-learning environment based on the two types of feedback (corrective/explanatory), on the Moodle learning management system. Students were linked to each other in cooperative and individual groups via a network to practice knowledge and skills related to designing educational websites.

Students select the majority of the content from the sources available in the learning contexts in which they participate, keeping in mind the tenets of communication theory. Students also search for information, knowledge, and skills related to designing educational websites through various educational sources with educational content designed on the learning management system. The cooperative learning group allows. Consultation among themselves within the group to exchange opinions, solve activities and assignments, evaluate each other, help each other, and provide feedback(corrective/explanatory)At the end of each lesson, students need to communicate with each other and with their teacher to solve any required tasks and to acquire the knowledge and skills of designing educational websites, and the Ubiquitous e-learning environment based on two types of feedback (corrective/explanatory) It was designed on the Moodle learning management system, which provides interaction within dialogue and discussion rooms and the educational forum, allowing the acquisition of the required skills and activities. Thus, cognitive achievement, skill performance, and technological acceptance were developed, and this is consistent with many of the educational literature, studies, and research previously mentioned.

Fourth: Social learning theory and social cognitive Theory

The principles of social learning theory and social cognitive represent a framework for the approach to learning, as pointed out by Muhammad Khamis (2013, pp. 19-23), that learning occurs in a social context, and students learn individually or cooperatively, and each of them watches and observes the behavior of others, which contributes to transforming behavior and environmental stimuli into symbols and mental images that are stored in memory, and provides students with the ability to manage, organize, and self-reflect. The student has his own standards and ideas about good and bad behavior, selects his actions, controls his behavior, organizes his moral and social standards with his previous experiences, analyzes his experiences, thinks and adjusts his thinking, and the student gains through a dynamic, reciprocal and continuous interaction between interpersonal influences, personal factors and behavior.

In light of social learning theory and social cognitive, we find that feedback plays an important role in learning, not in strengthening or strengthening responses as is the case in behavioral theories, but rather it is considered a source of information related to its effects. In interpretive feedback, the learner is informed of the accuracy and correctness of his answer, and not only that. Rather, the reason for the correct answer or the reason for the error of the answer is explained, and thus the student avoids the occurrence of the error in the future, which helps students to acquire knowledge and skill. Studies and research have identified mechanisms for applying social learning theory and social cognitive in e-learning, represented by setting goals, as the learning goals or motivation that we set differ. Based on the nature of the educational resources and the standard of individual performance, students set different goals for themselves and respond to their behaviors in different ways according to their own progress, self-efficacy, and cognitive processes. Learning occurs as a result of the interaction between the environment and individuals, reinforcement, feedback, and self-regulation (Schunk, & DiBenedetto, 2020).

Recommendations:

In the light of the findings, the study recommends the following:

• Using corrective and interpretive feedback in ubiquitous e-learning environments.

• Using explanatory feedback in ubiquitous e-learning environments to develop knowledge and skills in various academic courses among students of the College of Specific Education.

• Paying attention to designing educational websites on various educational topics.

• Preparing some activities and exercises in accordance with the ubiquitous learning environment that helps in developing cognitive achievement, skill performance, and technological acceptance among educational technology students at the college.

• Holding training courses frequently for teachers to train them on teaching methods and the use of activities and feedback of all kinds that help in developing cognitive achievement and skill performance in designing electronic educational websites.

• Relying on the results of the current study as approach to designing educational websites in the college's various educational courses to improve the level of students' thought and behavior.

Conclusion:

The development of knowledge and skills for creating educational websites as well as technological acceptance among students of educational technology at the College of Specific Education have been positively impacted by the ubiquitous learning environment, which is based on the interaction between the two types of feedback (explanatory/corrective) and the learning style (individual/cooperative). Since feedback plays a crucial role in electronic teaching and learning settings, it is widely used in the educational process. It also aims to accomplish different learning objectives. It is also a method for assessing the quality of education.

Feedback of all kinds has a prominent place in the educational process, because it is an important component in electronic teaching and learning environments, as it seeks to achieve various educational outcomes, and it is also one of the tools used in evaluating the educational process.

Thanks to its captivating multimedia content and important role in helping students develop their concepts, knowledge, and abilities, educational websites have gained popularity all over the world. Therefore, creating academic courses and posting them to websites must be the primary priorities for all kinds of educational institutions, including colleges and schools. electronic learning resources.

Technological skills and educational websites have become a global trend, because of their significant role in developing students' concepts, knowledge, and skills, with the attractive and interesting multimedia elements they contain. Therefore, educational institutions of all types, including colleges and schools, must turn to designing academic courses and publishing them on websites. Educational.

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