

A Conception Proposal for the Design of an Electronic Adaptive Training Environment Based on Systems Approach to Develop the Skills of Design and Management of Electronic Courses for University Professors in Times of Crisis

Preparation

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Abstract

The goal of this project was to produce a proposed idea for developing an electronic adaptive training environment based on a systems approach to help university faculty members in crisis construct and manage electronic courses. The descriptive approach was used to achieve the study's objectives and the study was applied to a random sample of faculty members at the University of Bisha, which consisted of (65) faculty members from the disciplines of educational technology, computers and information at the University of Bisha to represent the basic study's sample and to determine the exploratory sample, which amounted to (40) members to verify the basic study's findings. Among the psychometric features of the instruments are: Preparing a recommended vision for the construction of an electronic adaptive training environment based on a systems approach to improve the abilities of building and administering electronic courses, among other materials and tools produced by the researcher. The current study produced a number of outcomes, the most notable of which are: an electronic adaptive training environment based on a systems entrance to develop skills in designing and managing electronic courses, in light of a list of prepared and codified standards, as well as a list of skills for designing and managing electronic courses.

Keywords: instructional design, input systems, electronic courses, electronic adaptive training

Introduction

The development of higher education institutions has become an urgent necessity in the current era of scientific and technological developments in various fields of science, where the reality of higher education is not limited to the classroom environment or real laboratories only, but technology has produced e-learning environments that contain all the elements of the educational process, but electronically. From afar, the learning community can deal with all of them and achieve the desired learning outcomes without the need for the traditional environment, which requires all educational institutions to keep pace with this development and use it in their various programs that they provide to students.

In light of these developments and scientific developments in the field of technology and communications, the Internet emerged in the twentieth century as one of the most important technologies that were used in all fields, most notably education, which prompted educators to search for educational methods and models to provide an interactive and dynamic learning environment with multiple sources and processing. educational problems in a traditional training environment; The most prominent of them was the creation of an alternative, adaptive electronic training environment using the capabilities of education and information technology to take advantage of them in keeping pace with the rapid developments of the emergence of new concepts, including adaptive electronic training environments.

Many studies have shown the superiority of adaptive electronic learning environments in the development of many dependent variables, as well as the importance of electronic teacher education using information and communication technologies, so that the teacher can keep pace with rapid developments. and successive. E-training represents a fertile

field for continuous professional development, due to the flexibility it achieves in the place and time of learning, the great diversity in the training resources available and the provision of a large number of interactive and activities during the training. This appears in a good number of studies such as: (Attia, A. 2010) and one study (Brusilovsky, P. 2003). And one study (Burgos, D., Tattersall, C., & Koper, R. 2006) and one study (Burns, P., Roe, B. and Ross, E. 2008) and one study (Carla, R. Landsberg 2015). and Study (Bra, P., Smits, D., van der Sluijs, K., Cristea, A., Glahn, C., & Steiner, C. 2013). And one study (Elgazzar, Abdellatif E. 2014) and one study (Gonzalez-Sanchez, J., Chavez-Echeagaray, M.) and one study (Vanlehn, K., & Burleson, W. 2011) and one study (brahim. S.M. 2016), Robert, A. Sotilare (2015), a study by (Shih, Y., Huang, R., & Chen, S. 2013), a study (Yassin, et al., 2018), a study (Vassileva, 2012) and a study by Ibrahim (2010) and the study by Al-Hafiz (2014), the study by Shaban (2015), the study by Muhammadi (2016), the study by (2016) Ibrahim, the study Al-Attar, Khamis and Asr (2017), Imam study (2017), Jassim et al. study (2018), Al-Shehri study (2019).

Ting's Jeffery Yang, Carolyn Yang At critical thinking levels, Hugh Gamble, Yu-Wan Hung and Tzu Yun Lin (2013) underlined the necessity of an adaptable learning environment. Claire Stüwe conducted a follow-up research two years later, in 2015, to demonstrate the program's effectiveness in raising teacher achievement. Al-Muhamadi's (2020) study under the name of "Design of an adaptive learning environment based on artificial intelligence and its effectiveness in developing the skills of digital technology applications in scientific research and future information awareness among female students talented in the secondary stage" showed that there were statistically significant differences at the level of significance (0.05) between the mean scores of the students of the study sample in the pre and post application of the achievement test in the cognitive aspects related to the skills of applications of digital technologies in scientific research and all the differences were in favor of the post application, with statistically significant differences at the level of significance (0.05) between the mean scores of the students in the sample of study in the pre and post application. The report card had the performance aspects related to the skills of digital technology applications in scientific research and the same to test future information awareness and all the differences were in favor of the later application. The study recommended that a plan for continuous training and development be implemented in order to use artificial intelligence applications in learning and teaching courses for talented female students in secondary school in Saudi Arabia, which has an impact on their cognitive, performance and informational awareness levels.

One of the important goals that the National Transformation Program 2020, which is one of the national programs that realizes Vision 2030, aspires to achieve in the educational system is to produce a generation of learners who are reinforced with values and basic skills; familiarity with modern technology and in the context of producing effective training environments in line with Vision 2030 and the objectives of the National Transformation Program 2020, several pillars are important to consider, the need to spread the culture of individual learning as a guide to unlimited learning, in addition to the role of E-training and ensuring the quality of e-learning in terms of measurement and evaluation.

The Third International Conference on E-Learning, titled "Creative Learning in the Digital Age" (April, 2016), recommended that individual differences in learners' needs and learning methods be taken into account when designing electronic training environments and that consideration be given to designing electronic training environments that include methods that take different training methods into account. As a result, specialists and educators in the Kingdom should reconsider how they educate and train their employees in a way that raises the level of scientific culture - in all of its forms - so that students can contribute to the booming economy industry and adapt to the scientific and technical changes brought about by this economic transformation. The third distinction in science and mathematics education and learning, titled "A Scientifically Educated Generation for a Prosperous Economy" (March, 2019), aims to emphasize the importance of this role and what we can contribute as specialists and educational institutions to help the Kingdom achieve Vision 2030.

Research Problem:

The global interest in reaching a qualitative leap in teaching and learning processes has grown in the last decade. This is accomplished by establishing an educational learning environment that piques practitioners' interest in the educational process, replicates their many senses and stimulates them to interact, share experiences with peers, master skills and solve issues in novel and creative ways. This necessitates reconsideration of the educational system, including its objectives, content, teaching strategies, techniques, educational activities, evaluation processes and roles played by teachers and faculty members inside and outside the classroom, by those in charge of educational work in the public and university sectors, in light of modern-day necessities and the breakthrough in renewable technologies. This

necessitates educating teachers and faculty members in new procedures and approaches that are in step with educational advancements and meet the needs of the twenty-first century.

According to the UNESCO study (Unesco, 2004), e-learning gives various chances for poor nations and aids them in achieving their educational goals at the systemic level. According to Barakat (2005), there is a lot of interest in E-training for in-service teachers because of two main factors: the growing need for retraining and continuous development of skills to deal with crises and challenges and the tremendous technological progress that has allowed for a lot more educational materials to be taught.

It is not hidden from everyone what the globe is going through at this moment of unprecedented crises in modern history. Its effects can be seen in all aspects of life around the world and education was one of the sectors most affected by the crisis, given the speed and scope of the educational turmoil caused by the closure of schools and universities to prevent the spread of the COVID-19 virus among its members, which UNESCO Director-General Audrey Azoulay described as "never before have we witnessed such a level of disruption in the field of education."

Despite the change to e-learning platforms in various nations across the world amid recent health and natural disasters, this is the first time that many educational institutions in our Arab world have been forced to move to a new teaching style that has not been paved before. This abrupt change in the educational system, which has never been taught before, may produce a slew of issues, including employee discontent and fear of failure, which leads to an uptick in crises and difficulties at all levels.

From the above and through the researcher's monitoring of what is currently happening in the Corona pandemic crisis and the problems it has caused at all levels, especially education; The inability of the current educational system to overcome these crises, its inability to continue the educational process in its natural form and the inability to complete the achievement of its objectives, especially after the suspension of studies; the lack of real attendance of students and teachers; As a consequence of the lack of sufficient training for teachers to deal with the current situation electronically; Which generated many problems, this present research came to answer the following main question: What is the scenario proposed for the design of an electronic adaptive training environment based on input systems to develop the skills of design and management of electronic courses for students? teachers in universities in crisis?

Study questions:

The study's primary question is broken down into the following sub-questions:

1. What criteria should be used to create adaptive electronic training environments based on system entry?
2. According to experts and professionals in the area, what are the e-course design talents of faculty members at the University of Bisha?
3. What, in the opinion of experts and professionals in the area, are the e-course management skills of faculty members at the University of Bisha?
4. What is the recommended design concept for creating an adaptable electronic training environment based on a systems approach to help university faculty members in crisis build and manage electronic courses?
5. What is the proposed scenario to design an adaptive eLearning environment based on a systems approach to develop the e-course design and management skills for university professors in crisis?

Research Significance

The importance of current research revolves around the following:

1. The research results can contribute to providing an adaptive login-based eLearning environment, which is a good alternative in crisis situations that prevent the achievement of desired learning outcomes.
2. The results and recommendations of this research are expected to contribute to providing teachers with new information and knowledge on the adoption of educational and technical standards to design and manage electronic courses.
3. Draw authorities' attention to the implementation of what was recommended in the research, starting with the notion of developing adaptive training environments based on system entry.
4. Assist university employees in becoming more familiar with adaptable electronic training environments, including their different capabilities, simplicity of use and advantages in the educational process, in order to meet the expectations of the twenty-first century.
5. This study can open the way for further research and use of the design model suggested in this study to be employed in the development and design of electronic courses.

Research Objectives

The goal of this study is to:

1. Reveal the criteria for building adaptive electronic training environments based on system entry.
2. Looking for e-course design skills for University of Bisha faculty members from the perspective of professionals and specialists in the sector.
3. From the perspective of experts and professionals in the sector, revealing the abilities of developing electronic courses required by university faculty members.
4. From the perspective of experts and professionals in the sector, revealing the abilities essential for university faculty members to manage electronic courses.
5. Develop a proposed vision to design an adaptive E-training environment based on a systems approach to develop e-course design and management skills for university professors in times of crisis?

Research limits

- 1- The goal of this study was to build a proposed idea for constructing an adaptive training environment based on a systems approach to help university faculty members in crisis learn how to design and manage electronic courses.
- 2- The study was confined to a sample of University of Bisha faculty members.
- 3- During the first semester of the academic year 1442 AH, the research tools (a list of criteria for building an adaptive E-training environment/skills in designing and managing e-courses) were put to use.
- 4- The proposed instructional design model's content was confined to faculty members' need for abilities in building and managing electronic courses.

Keywords for your search: The terms used in the search are defined as follows:

- Instructional design: Hassan defined it as a science and technology that seeks to describe the best educational methods for achieving and developing desired educational outcomes under specific conditions and this science is a link between theoretical and applied sciences in the field of education (Hassan, 2012).
- Electronic adaptive training: According to the researcher, "an adaptive electronic training system via the Internet, to provide specialized training courses remotely for faculty members at the College of Education - University of Bisha - with the goal of raising their level of skill and technical performance, in a period of time consistent with the needs of each of them, in light of system entrance"
- Systems Approach: Muhammad Al-Heila defines the systems approach as: a systematic approach and a practical method to plan, implement and evaluate any work or activity to achieve the best level of results.
- Electronic courses. Courses designed and produced electronically and administered through electronic learning management systems (BlackBoard) and include a set of knowledge and skills that have been prepared, formulated and produced, to be distributed and presented using electronic learning tools, which leads to bypassing the concept of the traditional teaching and learning process, it allows the teacher to support and help the student at any time, either synchronously or asynchronously.

Theoretical framework and previous studies:

In light of the above, the current research literature addresses the following issues:

The first axis: adaptive E-training environments (standards, fundamentals, design models, design stages) and studies and research related to this axis.

The second axis: e-courses, their concept, types, steps to build them, how to design and manage them and studies and research related to this axis.

"If we wish to go beyond the existing horizon of multimedia software, it is vital to first establish the basic properties of digital environments," writes Morey (1997: p. 68). With the rapid and renewed development that this technology is experiencing, there is no doubt that information technology is one of the most prominent manifestations of the modern era and its importance has increased even more, at all international, institutional and personal levels, with the emergence of the COVID-19 pandemic. One of the most significant talents necessary for the workforce in the twenty-first century, in any public or commercial organization, is familiarity with its usage and application in everyday life. "Educational systems throughout the globe are increasingly under pressure to employ modern communication and information technology to give students the knowledge and skills they need in the twenty-first century," according to UNESCO (UNESCO, 2002).

The acceleration of the pace of interest in education, its improvement and development and its link to modern technologies that are related to the needs of society led to the development of educational technologies to achieve an

education that transcends place, time and abilities. materials and the differences in the abilities and needs of individuals, so that the relationship between modern technology and learning is characterized by strength, flexibility, capacity and compatibility with everything new, up to e-learning , which has become a model of integration between education and technology (Al-Etrebi, 2019 AD).

Those working in education, whether public or private, must thus unleash current educational techniques that contribute to the growth of their teaching abilities in order to effectively transmit their educational message. Faculty members at universities and other institutions of higher learning must create successful learning environments that fully use the potential of e-learning. Repeating face-to-face teaching methods or transferring masses of material in the same way in an e-learning environment, according to Garrison, is a recipe for failure (Garrison, 2011). The issue is not limited to the deployment of a network of computers, but also includes the creation of a contemporary teaching and learning environment, which includes significant changes in the design and construction of curriculum, teaching techniques and learning theories (Asiri, Al-Muhya, 2011).

The added advantage of e-learning is the ability to create a one-of-a-kind survey community. Any design of a cognitive, educational and socially integrated environment (Garrison, 2011). As a result, the goal of this research was to create an electronic adaptive learning environment based on a systems approach to help university faculty members in crisis learn how to design and manage electronic courses. Adaptive training is an interactive learning environment that automatically prepares and presents learning courses and activities for instructors based on their qualities and requirements. Interactive learning systems can increase learning results, take less effort, shorten learning time and lead to better learner satisfaction by taking into account individual characteristics and diverse learning settings.

The first axis/ adaptive training environments:

Adaptive learning environments are characterized by “making the content more dynamic and interactive, placing the learner at the center of the learning process and having the system monitor and track how the learner interacts with the system and the learning process. , in addition to benefiting from the huge amounts of data that students produce” (Kuntz, 2010), which contributes to increasing self-learning and personalizing the learning process (Kurilovas, Kubilinskiene, Daggiene, 2014), and adaptive training environments They are characterized by facilitating access to training resources, training services and training opportunities from anywhere and at any time. It is also dynamic in monitoring and managing training needs and the training process, supporting and improving students' abilities in self-management, self-regulation and self-assessment. Zhao Du, Lantao Hu and Yangqit Liu also mention that such environments help trainers maintain communication and benefit from expert and peer meetings and social forums through social software tools (2013).

The concept of adaptive training environments

Navigator defines adaptive training environments as “training environments that customize the learning process by re-adjusting and displaying the materials within them to the style and style of each learner.” Imam et al., 2017, p. 106. “A type of electronic training that allows change to take into account the individual differences of the trainee, which differs from others and thus makes the training process more flexible and dynamic,” Azmi, Fakhri, Marwa El-Mohammadi and Manal Abdel-Aal (2017, 315) defined adaptive training environments as: A type of electronic training that allows change to take into account the individual differences of the trainee, which differs from others and thus makes the training process more, making the training process more flexible and dynamic, by adapting the training environment based on the trainee’s satisfaction and satisfaction, with the aim of increasing performance according to a set of specific criteria ”.

Adaptive training environments, according to Bove (2019, 30), are an integrated system that offers digital material based on the characteristics of students in order to give the greatest assistance for mastering the tasks committed to it, in light of the demands of training institutions.

Characteristics of adaptive training environments:

Adaptive e-training, according to Khamis (2016, 241), Mona Yassin, Saeed, Khamis (2018, 419), has various distinguishing properties, the most important of which are:

1. Effectively: which refers to the adaptive educational environment's capacity to meet the goals and generate the desired training outcomes.
2. Efficiency: which refers to the adaptive educational environment's capacity to fulfill goals at the needed pace and with the fewest errors possible.

3. Trainer Properties: This implies that the adaptive learning environment is tailored to the trainee's needs and preferences in order to provide him with comfort and pleasure.
 4. Training Ease: means that the adaptive learning environment is simple to use and assists the trainee in completing the training assignments.
 5. Contentment: when a learner uses the adaptive learning environment in training, he feels at ease, happy and having fun.
 6. Memory ability: refers to the trainee's capacity to recall knowledge after a period of time, as well as the mechanism for performing the tasks allotted to him while training in an adaptive learning environment.
 7. Simplicity and Clarity: it signifies that the adaptive learning environment is straightforward and straightforward, focusing on the subject's unity until it is fully exploited.
 8. Learnability: this refers to the trainee's ability to complete the needed activities and the quantity of errors made throughout the process. As a result, the design of the system interface inside the adaptive learning environment has a bearing on the ability to learn.
 9. Adaptability: the adaptive learning environment's development programs are adaptable, allowing program material to be readily and efficiently updated by deletion or addition.
 10. Interactivity: adaptive E-training facilitates bilateral communication and debate via media, allowing information to flow in both directions.
 11. Concentrating on the student (Trainer-Center-Learning): in the event of collective training, E-training adds to the growth of individual training by providing new ways for the trainee to access knowledge without the assistance of others and therefore the student can obtain information that the other learners do not have in the training halls.
- Hanan Khalil (2018) confirmed that adaptive learning has many characteristics, since it is based on a set of common characteristics and can be presented in the following elements:
- A) Adaptive training management systems require the use of some artificial intelligence methods that can predict and analyze the behavior of students. It also provides learners with all the paths from initial to desired knowledge, where the optimal path is presented according to the learner model and then those paths that do not fit the learner's needs begin.
 - b) A learning system capable of individually modifying any student's learning experience and adapting the information to the student's abilities, educational needs, learning style, educational preferences and past experiences.
 - C) A system that provides feedback to learners and provides a domain map for adaptive content that is tailored to learners' needs, learning style and preferences.
 - d) Addresses the needs of students without being restricted to a specific time or place.
 - e) These systems provide the opportunity to share various content and learning activities.

The adaptive training environment is clearly based on three essential qualities, as shown above:

1. The philosophy of specialization: Adaptive learning systems make it easier for students to enter a rich environment that allows them to train and develop a variety of educational abilities.
2. The process of profiting from student learning: In addition to complicated data systems that assist teachers monitor learners' ideas, behaviors and how they study different curricula, adaptive learning systems are guided by the teacher at the time of teaching.
3. Technology Tool to Apply Philosophy: Providing a successful learning experience by giving adaptive technology platforms for individualized material in real time through a user interface with various tools.

Adaptive Training Environments Features:

Adaptive e-learning offers many advantages and capabilities not found in traditional training, according to Towle and Halm (2005, 2017), Mona Yassin, Saeed, Khamis (2018, 421) and Shaima Khalil (2018, 309). The most important of these characteristics and capabilities are:

1. Richness and Diversity: Adaptive E-training is based on rich media, which refers to dynamic digital materials that give learners training experiences similar to those they would have in traditional training.
2. Suitability: Adaptive E-training is characterized by taking into account the unique characteristics and training needs of trainees, as well as their training competence, pace and subjective pace.
3. Capacity and capacity: As it can transmit all kinds of text, audio, visual and mobile materials, the adaptive E-training system has infinite capacity.

4. **Quality:** The adaptive E-training programs are characterized by the quality of organization, as the delivery of digital content is based on specific foundations and standards of quality.
5. **Quick access:** Adaptive electronic content can be accessed anytime, anywhere and can be accessed quickly, as it eliminates the typical content delivery chain of traditional training and provides equal training opportunities for trainees and those wishing to train regardless of their previous education levels.
6. **Easy to update:** As the adaptive training content is adaptive and dynamic, it is easy to update with the adaptive e-learning system.
7. **Participation:** Adaptive presentation techniques offer a range of ways to apply participatory learning through a variety of messages, which are used as a major form of peer collaboration.
8. **Adaptation:** Adaptive learning environments allow the presentation of educational materials and the way they are presented allows taking into account individual differences, abilities and individual characteristics of the learner and then using learning strategies that are most appropriate to the learning styles of learners.

Principles of learning in adaptive training environments:

Yassin, Saeed, Khamis (2018) referred to the interactive procedures that facilitate the acceptance of the use of adaptive learning in educational institutions:

Intellectual Abilities: Intellectual skills consist of different types of cognitive skills that have interactive effects with support and training support, as these skills represent, for example, verbal skills, logical substitution, visual perception and spatial relationships.

Cognitive Style: Cognitive methods are one of the most useful methods for adaptive education and its goals and they have two dimensions: the independent field versus the non-independent field and the reflexive method versus the automatic method, as trainees with the independent field achieve higher levels using the inductive training method, while non-deductive trainees achieve lower levels. Individuals that are self-sufficient have a high degree of example-based training and they perform better when they employ and adapt to their chosen training techniques.

Self-efficacy: Self-efficacy is a learner's evaluation of his own talents and performance in the work at hand and it changes from one trainee to the next depending on the circumstances. Trainees with arithmetic and verbal self-efficacy use self-regulation and tactics in content training, while trainees with arithmetic and verbal self-efficacy use self-regulation and strategies in content training.

Achievement Motivation: Personal factors such as the individual's knowledge of his abilities and the right to manage and control are thought to impact motivation as a linked network. In computer-assisted training settings, there is a framework for motivating the learner's condition in which there are six degrees of adaptation for trainees regardless of their diverse motivational states and motivation through adaptive feedback, which gives therapies. Adaptive education based on the current condition of learners' specific motives and motivators.

Training Style: Training methods are defined as a set of sensory perceptions, traits and physiological factors that represent a set of fixed indicators of how the trainee receives, interacts and responds to the training environment and the assumptions of adaptive guidance and instructions for the individual training method lead to better training results.

Prior Knowledge: Previous experience or knowledge is a reliable basis for determining adaptation more than any other variables or factors, since the measurement of achievements and past experiences is directly related to adaptive tasks, as most behaviors in adaptive training that must be measured predict the success of E-training using specific training methods.

Factors that stymie adaptive learning system uptake include:

Hanan Ahmed (2015) revealed that a variety of issues obstruct the use of adaptive learning systems, including the following: Despite the existence of numerous ways for modifying content and navigation, most adaptive learning management systems confine content to distinct forms of media such as audio, visual and mobile. Inserting and removing parts of content information, changing parts of content information, changing parts of content information, extended (extra) text and obscuring parts of content information are among the technologies for displaying content, while direct routing technology and adaptive masking are among the navigation techniques, for adaptive link creation, adaptive link arrangement, annotation-based link adaptation and adaptive navigation maps.

According to Obeikan, Ibn Dakhi (2019), adaptive learning environments face a number of obstacles and difficulties when it comes to using them to achieve educational goals, including the following elements:

- 1) If done traditionally in a traditional context, finding the pattern of each individual learner is a very complex and time consuming task.

- 2) The adaptive learning program is very expensive and many countries will not be able to afford it due to lack of resources and cash.
- 3) Due to a technical or software error in detecting the appropriate and correct type of learner, adaptive learning may be harmful.
- 4) The urgent need to train trainers on its procedures before attempting to implement them.
- 5) The human teacher's lack of confidence in the program or the adaptive environment in determining the correct learner's style and learning style.

Wang, Li and Gu went on to say that in adaptive learning environments, the teacher and students are the most important elements involved in cooperative learning activities and the specific organizational patterns of cooperative learning activities can be the main channels for obtaining information about students, with the teacher's ability to implement adaptive actions through activities. Learning in adaptive learning environments is based on cooperative and adaptable learning that it delivers to pupils while taking into account their respective qualities (2004).

Designing adaptable electronic training environments based on the following criteria:

Although e-learning environments offered most sectors of society with flexible training options in terms of time and location, it is clear that they did not deliver instruction tailored to those learners' requirements, talents, traits, or learning styles. It provides unified instruction for all learners, regardless of their degree of experience or ability, with its objectives, tactics and models. As a result, adaptive e-learning environments were an excellent choice (Hidaya, 2019). Researchers (Landsberg, Buskirk, Astwood, Mercado, & Aakre,) classified this kind as "one of the new training approaches that have emerged in connection with the education and training technology revolution, focused on taking into consideration the individual variations amongst trainees in the procedures." The trainees' educational environment, whether in terms of efficiency or performance, in which a unique training environment is developed to meet the demands of each learner individually, which are identified after submitting and answering a series of questions and tasks" (2010).

According to the researcher, it is an adaptive electronic training system that uses the Internet to provide specialized remote training courses for faculty members at the University of Bisha's Faculty of Education, with the goal of raising their level of skill and technical performance over a period of time that is consistent with their individual needs, using a systems approach.

This sort of adaptive electronic training is based on Component Display Theory, one of the learning theories that determines the best way for learning and it proves the value of these systems in: (Source: Sotilare, 2015a)

- Increasing motivation or motivation via gaining attention.
- Adaptation to the learner's past knowledge;
- Adaptation to the learner's qualities and attributes.
- Adapting to the capacity of the learner (intelligence, emotional and social intelligence, adaptability).

As a result, this type of training has a number of benefits that traditional training systems lack, including: richness and awareness; personalization; capacity and capacity; cost savings; convenience; interactive; ease of trading and sharing; quality; ease of preservation; ease of updating; ease of presentation; availability and quick access; and ease of production (Thursday, 2015). It may be summarized in four important elements, according to Education Growth Advisors: Quality with quickness, involvement, subjectivity and the capacity to alter (2013).

Models for creating an electronic adaptive training environment include the following:

Adaptive learning and training settings may be traced back to two major sources: smart education systems and a growing interest in web-based training (Azmi, Elmohamady, Fakhry, Abdel-Aal, 2017). Others suggest that there are three primary components to the adaptive training environment: the domain or content model, the learner model and the adaptive model. These elements must be present in every adaptive habitat (Hidaya, 2019). A fourth component, the "group" model, is added by certain professionals in the subject (Khamis, 2018; Azmy et al., 2017; Lin & Kuo, 2011; Kommers, 2015, 360; Cheung & 48, 8107, Kazemian, 2011; Tadlaoui & Bouamrane, 2013; Tadlaoui & Bouamrane, 2013; Tadlaoui & Bouamrane, 2013).

The domain model, also known as the content model, describes the knowledge, skills and organizational structure of a specific topic or content area, as well as the training outputs that are precisely defined, clarifying the tasks that must be generalized and defining the various types of assessment related to the topics. As a result, electronic information is created and processed within the adaptive training environment based on the adaptive criterion.

The Learner Model is a representation of information that the system requires about the user and it is used in the process of adapting to the user's demands, as well as the required data is acquired.

The Adaptation Model, on the other hand, is in charge of the adaptation process within the training environment, as well as the selection and presentation of learning objects, as well as their presentation to trainees in a number of adaptable methods. Most adaptive electronic learning and training environments employ adaptive models in their programs, since the domain model is used to drive system behavior.

Finally, there are Group Models, which look for features in a group of trainees, are dynamically grouped and rely on finding a group of trainees that have the same qualities, behavior and other aspects.

The observer of this sort of training and its surroundings notices that its features are harmoniously generated by three key factors: the e-learning environment, training systems and a training technique tailored to the individual qualities of each learner. These three traits and components were used to develop a set of criteria for developing an adaptable electronic training environment.

We quickly discuss the four primary kinds of requirements for adaptive electronic training standards established by Wolf (2007):

First: The first category encompasses all ideas for characterizing training material, such as the diversity of course content elements inside the training course's environment, which includes texts, graphics, photos, videos and other media to support various instructional goals (such as content, exercises, tests, etc. or any combination of these types). It also gives various degrees of depth and information for a specific educational or training goal, such as giving several types and levels of educational objectives to improve certain ability.

The educational requirements of the standards largely deal with user profile specifications and trainee qualities, while the second deals with educational concerns or issues.

The third group is concerned with educational or training approaches. They concentrate on the standards' educational requirements, primarily describing the objectives, educational activities and guiding sequence, establishing the interrelationship of the directives to specific educational objectives, determining the directives' appropriateness for learners and assessing and evaluating educational or training progress in relation to proficiency levels.

Finally, the fourth category of requirements for adaptive e-learning standards focuses on adopting and adapting to the educational process: this category of requirements revolves around three ways of adapting to the e-learning process: (a) adapting to instructions, (b) adapting to the guiding sequence of the training program and (c) adapting by providing additional instructions.

(Azmi et al., 2017) adds a few more criteria, which we rank in order of importance:

- 1- The method of examining talents and the nature of identifying them.
- 2- A wide range of accomplishment and summative examinations are available.
- 3- Trainees are exposed to a variety of reinforcement strategies.
- 4- Communication with trainers is simple throughout training.
- 5- Synchronous and non-synchronous techniques of delivering and presenting training information are also available.
- 6- The variety of procedural activities included in the training program, as well as their compatibility with the training technique used with each student, as well as the requirement that the trainees engage with them in order for the training to be active and effective.

Dolenc and Abersek (2015) define adaptive learning management systems as "one of the new generations of learning systems that highlight the individuality of the instructor in the learning process, comparable to what occurs in conventional individual learning from one request with one teacher." The most essential components of this system, according to Bansal (N. 2013), are as follows:

- Learner
- Designer
- UM Generator User Form
- Hypermedia Database
- User Models

The second axis / e-course design skills:

E-learning as a "system" has many keys to success and many reasons for failure. It is true that the skills of the professor of the course, his subject, his students, the support technology and the computer programs used, in addition to the electronic content management system in the educational institution in which he works, are factors that overlap

between Yes. others and positively or negatively affect the success or failure of e-learning in the university (Al-Tahih, 2011). . One of the main pillars that support the success of the trainer in E-training is the nature of the e-course that will be taught, the quality of its design, the security of its content, the ease of revision and other elements of success closely related to education and material and its design. In this axis, we review the concept of electronic courses, their types and the advantages of each type, then the criteria for their design and quality.

The concept of e-courses:

The specialists knew the electronic courses and shared the general meaning with difference in some details that do not deviate from the meaning of being an electronic course. Ismail (2009, 91) defined it as: "The course based on the integration between the educational material and the technology of the electronic course in its design, creation, application and evaluation and the learner studies its contents technologically and interactively with a teacher. While Abdel Hamid defined it (2010, 52) saying: "All educational activities and materials whose production and presentation depend on the computer". And Allam went on to define them by saying: "Courses that are produced through the integration of multiple technological technologies (images, texts, videos and moving images). The teaching material is presented on the computer screens in such a way that it contains teaching materials and activities that allow the student a kind of privacy in learning and repeats what he has learned freely and at a level that depends on his abilities without taking into account the abilities of the students. of others in order to provide evaluation and feedback immediately after performing the behavior (2016, 147).

According to Hanan Ahmed (2019, 139), "educational materials are designed and produced electronically, administered through the Internet and consist of a set of knowledge and skills that have been prepared, formulated and produced in order to be distributed and presented using e-learning technology, which leads to bypassing The concept of the teaching and learning process within the walls of the classroom and allows the teacher to support and assist the e-learning process." This term is used in the current study in a procedural way.

Types of electronic courses

Ismail (2014, 235) has divided e-courses into three categories:

Accreditation for online courses is not available

They are learning materials distributed on CDs and rely on multimedia in various forms for their design, with only interaction between students and complex tutorials.

Online accredited e-courses:

These are courses that are designed and published on the Internet, rely on multimedia in various forms and include internal and external links to other sites related to the course's subject and are characterized by providing a learning environment rich in various educational resources to assist students in visiting different sites related to the course academic and providing educational services that enhance communication and collaboration.

Criteria for the design and production of electronic courses:

Hanan Ahmed (2019, 143) confirmed that the e-course consists of a set of interlinked elements, each affecting the other. There is also a set of educational and technical standards for the design and production of electronic courses, including standards for the design and production of the following electronic courses:

1. References and sources utilized in the development of the e-course content must be cited and recognized.
2. Providing broad course information, such as a brief synopsis of the course, its aims and requirements, as well as a map showing all of the course's sections.
3. Content: The content must be linked to the objectives and the course must cover all of the objectives, ideas, concepts and behaviors involved, while also ensuring the content's coherence, integration, organization and logical sequence, as well as presenting it in educational modules and small educational units.
4. Text standards: Maintain clarity and utilize no more than three font types and sizes.
5. Image and still graphics standards: they must represent the information and give clear and simple visuals, avoiding the use of photos that are crammed with details and they must be realistic and not overused.
6. Video and animation standards: Educational videos should be presented that are directly connected to the educational material and the screen should not contain more than one video, with the need to decrease them as much as possible to avoid delayed course loading.
7. Creating the course's navigation tools: The tools should be basic and easy to use when navigating between content pieces and every page should include a link back to the main page.

8. Creating links: the course must contain connections to relevant enrichment learning resources and each link must be identified by a distinct color, as well as valid linkages.
9. Accessibility: Icons and buttons should have obvious functions and pages should be connected together.
10. Assistance and Guidance: You must give clear and simple instructions and instructions for dealing with the course, as well as a textual direction or suggestion when the student makes a mistake.
11. Interactive and didactic control: The welcome phrases must be presented at the beginning of the course, with the possibility of choosing between different types of interaction, with the need to provide the course with a means of interaction to receive the queries of the students and the possibility of communication.

Search procedures:

The search procedures were the following:

First: Research Methodology

The research used the following methodology:

- Descriptive Research Approach: By reviewing, studying and analyzing previous research and literature in the field and concluding a proposed vision for designing an adaptive E-training environment.

Second: The research community/faculty members of Bisha University.

- Research Sample: A random sample of Bisha University faculty members, consisting of (65) faculty members from Bisha University's educational, computer and information technology disciplines were selected to represent the sample basic study and the exploratory sample. The sample, which amounted to (40) members, was selected to verify the psychometric properties of the tools. The purpose of selecting the research sample of these disciplines is because it is the most appropriate technically and academically for the production of electronic courses.

Third / research tools:

- 1- Criteria for the design of an adaptive electronic training environment: the researcher developed a questionnaire with a list of determining criteria for the design of an adaptive electronic training environment from the point of view of specialists in the field.
- A- Questionnaire description: It was created using prior studies linked to this study, as well as the researcher's academic and field expertise in the fields of teaching, teaching approaches and e-learning. Where the researcher prepared an initial list of criteria for designing the adaptive E-training environment, which included 90 criteria and it was presented to 12 specialists and experts in the field by giving each expert a judgment on each criterion's degree of importance (high, medium, low) and the frequencies and percentages were calculated for each criteria and the researcher excluded the criterion that did not receive 90% as a degree of importance.

The questionnaire included eleven criteria and was titled: Criteria for creating the electronic adaptive training environment. The questionnaire was created using a three-tiered Likert scale with three levels for the degree of availability of the criterion (available, available to some extent, not available), with the degrees (3, 2, 1) being presented in order: The following were the criteria:

Table (1) summarizes the criteria for designing an adaptive electronic training environment.

m	Standard	number of indicators
1	The first Standard is that it creates an adaptable e-learning environment based on acceptable educational goals for the desired training outcomes.	5
2	The second Standard is to consider the trainee's features and training requirements in an e-learning environment.	4
3	The second Standard is to consider the trainee's qualities and training demands in an e-learning environment. The third requirement is to design the adaptive E-training environment's material in such a way that it accomplishes the stated educational objectives.	6
4	The fourth Standard: Design the content of the training environment according to the learning style (Kolb) in light of the adaptive environment of e-training.	5
5	Fifth Standard: Considering that the adaptive e-learning environment's content provides training activities and skills that are relevant to the learning goals	9
6	The sixth Standard is that the adaptive e-learning environment's interface	8

	design be basic and easy to use.	
7	The seventh criterion: considering that the adaptive e-learning environment includes easy and clear navigation methods.	5
8	Eighth Standard: Design of evaluation methods and tools in the adaptive environment of e-training.	7
9	The ninth Standard: Take into account the design of multimedia elements in the e-learning environment to adapt to the characteristics of the learners	9
10	The tenth Standard: Take into account the resource provision of the logistics environment when designing the adaptive E-training environment.	4
11	Eleventh Standard: The adaptive E-training environment provides a management and communication system that ensures its continuity and success	9
Total		71

The resolution's internal consistency is as follows:

The exploratory sample was used to test the internal consistency of the questionnaire design requirements for the electronic adaptive training environment. The correlation coefficients of each individual's degree with the degree of the criteria to which the item belongs, as well as with the questionnaire's overall score, were determined. The correlation coefficients between the degrees of each of the questionnaire criteria and the overall questionnaire score were also determined and these values varied from (0.69) to (0.88), with all of them being statistically significant at the level of significance (0.01), indicating that the resolution has a good degree of internal consistency.

The validity of the resolution:

The validity of the electronic adaptive training environment design criteria questionnaire was verified using the following methods:

• **The sincerity of the bond is a test:**

Muhammadi's (2015) criteria list was used as a test for the validity of the design criteria questionnaire for the electronic adaptive training environment in the current research. It reached (0.74), which is a statistically significant value at the (0.01) level, which is an indication of the validity of the questionnaire used in the present investigation.

Scale stability: The reliability of the resolution was verified using the following methods:

• **Re-applying the scale method:**

The stability of the questionnaire used to build the electronic adaptive training environment was tested by administering it to members of the exploratory sample and then re-assigning it after a two-week gap. The following table summarizes the findings:

Table (2)

Shows the stability coefficients by replication method to identify the criteria for designing the adaptive electronic training environment

m	Standards	Stability coefficient by re-application method
1	The adaptive online training environment is designed in light of appropriate educational objectives for the expected training outcomes.	0.79
2	Take into account the characteristics and training needs of the student in the adaptive E-training environment	0.82
3	Design the content of the adaptive e-learning environment in a way that achieves the specific educational objectives	0.81
4	Design the content of the training environment according to the learning style of (Kolb) in light of the adaptive environment of e-training	0.78
5	Taking into account that the content of the adaptive e-	0.83

	learning environment includes training activities and skills appropriate to the learning objectives	
The overall score for the scale		0.80

From the table above it can be deduced that the values of the reliability coefficients for reapplication of the dimensions of the questionnaire ranged between (0.78) and (0.83) and the value of the reliability coefficients for reapplication of the scale as a total amounted to (0.80), all of which are high stability coefficients.

- Cronbach's Alpha method:

The stability of the questionnaire for the design of the adaptive training electronic environment was verified using the Alpha Cronbach method, applying the scale to the members of the exploratory sample.

Table (3)

Shows the stability coefficients by Cronbach's alpha method to identify the criteria for the design of an adaptive electronic training environment

m	Standards	Stability coefficient by re-application method
1	The adaptive online training environment is designed in light of appropriate educational objectives for the expected training outcomes.	0.81
2	Take into account the characteristics and training needs of the student in the adaptive E-training environment	0.82
3	Design the content of the adaptive e-learning environment in a way that achieves the specific educational objectives	0.84
4	Design the content of the training environment according to the learning style of (Kolb) in light of the adaptive environment of e-training	0.82
5	Taking into account that the content of the adaptive e-learning environment includes training activities and skills appropriate to the learning objectives	0.83
The overall score for the scale		0.82

The values of the stability coefficients by the Alpha Cronbach method for the resolution dimensions ranged from (0.81) to (0.84) and the value of the reliability coefficients by the method of re-application of the scale as a whole was (0.82), all of which are high stability coefficients, as shown in the previous table.

2- A list of e-course design and management skills:

Steps to prepare a list of e-course design and management skills:

- Based on the requirements for building an adaptable E-training environment, the researcher created an initial list of competencies for designing and administering electronic courses. There were 103 talents in all, divided into five categories (analytical skills, design skills, production skills, implementation skills and assessment skills).
- The list was presented to specialists and experts in the field (n = 14) to judge the extent to which each sub-skill is related to the main skill through a three-level scale (high/medium/low) and the frequencies and Se percentages were calculated for each skill and the skill that did not have a percentage of 90% was excluded by the researcher based on the degree of importance and the extent of its relevance to specialists and the following table shows the list of skills in their final form in in light of expert judgments
- **Calculation of the list's internal consistency:**

The list's internal consistency was verified by applying it to a survey sample of (40) and the degree correlation coefficients of each item were calculated with the degree of the axis to which the item belongs and with the total score of the list and the degree correlation coefficients for each of the list's axes were calculated. The overall score of the list,

which varied from (0.63) to (0.92) and all of them are statistically significant values at the level of significance (0.01), indicating that the list has a sufficient degree of internal consistency.

Scale validity: The validity of the list of competencies for the design and management of electronic courses was verified using the following methods:

- **Virtual validity:**

The apparent honesty of the list was verified by presenting the list of skills in its initial form to a group of referees and specialists in the field of educational techniques and the production of electronic courses, with the aim of expressing an opinion on the points of the list. list and adequacy of your phrases in terms of scientific accuracy, linguistic formulation and degree of relevance, as well as their relevance in the stages of design and management of electronic courses, as well as to benefit from your opinions when adding or modifying any of the skills, either main or subsidiary and after the arbitration process, the list was put into its final form, since the vocabulary that obtained a percentage of agreement (80%) or more of the opinions of the arbitrators was preserved. list completion; Where the main competencies consisted of the basic stages of the General Design Model (ADDIE), which are five stages, comprising (82) sub-skills and were the following:

- The first step is the analytical skills stage, which consists of twelve sub-skills.
- The second level consists of design abilities, which are divided into fourteen sub-skills.
- Production skills are the third step, which consists of seven sub-skills.
- Implementation skills (application) are the fourth stage, which consists of 37 sub-skills.
- The fifth step is assessment skills, which consists of twelve sub-skills.

- **Overall honesty:**

The factor validity of the e-course design and management skills list was verified by applying it to a sample of (65) teachers and performing a factor analysis of the vocabulary scale using Hotelling's Basic Components method. The correct one was extracted and consequently (5) axes and to obtain a factorial formation that can be explained, a rotation of the factors was carried out using the Varimax method and by studying the graph the number of factors was determined. of the underlying roots and keeping the factors that appear in the steep part of the curve before the curve begins to moderate (Abu Alam, 2003) and use the Guilford criterion, which considers the expression saturated in the factor if its saturation in this factor is greater than (0.3) and maintaining the axes in which three or more expressions are saturated. The factorial analysis resulted in five The values of its latent roots range from (3.32) to (4.89) and together they explain (37.21%) of the total variance between the vocabulary of the scale and the following tables show the vocabulary saturation of the scale on these factors and the latent root The variance ratios for each of the factors listed:

Table (4)

It explains the vocabulary of the first axis of the list of skills of design and management of electronic courses and their saturations in this axis.

m	Vocabulary	saturation
1	Determine the objectives of the course	0.48
2	Determine the educational content of the course	0.57
3	Identification of technological needs, materials and educational resources	0.61
4	Preparing the flowchart for the course	0.70
5	Identify digital learning resources	0.58
6	Define interaction tools	0.43
7	Determine the means of the auto calendar	0.57
8	Determine the communication tools between the elements of the educational situation	0.63
9	Define educational activities and teaching methods.	0.57
10	Define navigation patterns in the course	0.62
11	Determination of calendar methods for the electronic course	0.39

12	Define feedback patterns	0.57
dormant root		4.89
contrast ratio		% 14.82

From the previous table it can be deduced that the first axis of the list of competences to design and manage electronic courses was filled with (12) items and their saturations in it ranged from (0.39) to (0.70) and the value of the latent root of this factor was (4.89) and its contribution to the total variance was (14.82). %, expressions on this axis reflect analytical skills.

Table (5)

Explains the vocabulary of the second axis of the list of e-course design and management skills and its saturation in this factor

m	Vocabulary	saturation
1	Formulation of behavioral goals	0.42
2	Divide the scientific content into small parts.	0.49
3	Design flowchart for the course.	0.38
4	Design of digital learning objects.	0.60
5	Design of didactic activities for the course.	0.66
6	Design of electronic communication tools.	0.42
7	Design of interaction tools	0.41
8	Design of didactic activities for the course.	0.38
9	Design of electronic communication tools.	0.55
10	Design of interaction tools	0.49
11	Own calendar design	0.53
12	Design of didactic activities for the course.	0.41
13	Design of electronic communication tools.	0.58
14	Design of interaction tools	0.47
dormant root		4.07
contrast ratio		% 12.33

It is clear from the table above that the second axis was saturated with (14) items and their saturation on it ranged from (0.38) to (0.66) and the value of the latent root of this axis was (4.07) and the percentage of its contribution to the total variance was (12.33%) and the expressions for this reflect Axis' design skills.

Table (6)

Explains the vocabulary of the third axis of the list of e-course design and management skills and its saturation in this factor

m	Vocabulary	saturation
1	Use a word processing program to write content	0.40
2	Use an image processing program to edit and manipulate images.	0.47
3	Use a video editing program to process the video files in the course	0.37
4	Use audio processing software to adjust and refine sounds on the course	0.45
5	Using an e-course authoring program to include digital learning objects within the program	0.61
6	Taking into account the standards for the design of electronic courses	0.47
7	Inclusion of links inside and outside the course and linking it to external sites	0.39
dormant root		3.32
contrast ratio		% 10.06

From the above table it can be seen that the third axis of the list of e-course design and management skills was saturated with (13) items and their saturation in it ranged from (0.32) to (0.61) and the value of the latent root of this axis was (3.32) and its contribution to the total variance was (10.06). %)and the expressions of this axis reflect the approach of productive skills.

Table (7)

It explains the vocabulary of the fourth axis of the list of e-course design and management skills and its saturation in this factor.

m	Vocabulary	saturation
1	Select and open one of the e-learning management systems	0.39
2	Create an account in the specified e-learning management system	0.39
3	Enter the system environment with the login data	0.48
4	Add new course	0.67
5	Enter the basic data of the course (course name and code)	0.66
6	Assignment of course users (course teacher/students)	0.43
7	Activate course page components	0.51
8	Add or modify course page components	0.53
9	Customizing the look (appearance) of the course page	0.51
10	Adjust course page settings in proportion to the nature of the course.	0.47
11	Upload content in slider content area	0.51
12	Add and prepare assignments and activities	0.51
13	Create and manage a forum in the course	0.54
14	Create a virtual classroom for the course.	0.47
15	Construction of short and final electronic exams	0.61
16	Activate course mail with students	0.39
17	Activate course communication tools	0.43
18	Adjustment and preparation of an evaluation of the course activities.	0.39
19	Create and adjust links and links on course pages.	0.39
20	Add pages to the course	0.48
21	Preparation and activation of monitoring and course reports	0.62
22	Export or import activities, learning resources and tests	0.67
23	Make a backup of the course.	0.43
24	Restore the course from a system backup.	0.51
25	Building new lessons and adding learning objects within them.	0.53
26	Correct various assignments and activities and provide necessary feedback to students.	0.51
27	Preparation and management of questionnaires and opinion polls.	0.47
28	Create and manage sessions within the virtual classroom.	0.51
29	Create groups among course students and adjust their settings.	0.51
30	Create databases within the course.	0.39
31	Provide technical support to course users.	0.39
32	Activate chat rooms and exchange messages between students and the teacher.	0.48
33	Organize course events through the course syllabus.	0.62
34	Activate course announcements.	0.66
35	Recording of conferences within virtual classrooms.	0.43
36	Add or remove users for the course.	0.51
37	Link the course to other courses within the system.	0.44

dormant root	4.07
contrast ratio	% 12.33

The previous table shows that the fourth axis of the list of skills for designing and managing electronic courses was saturated with (37) items, with saturation ranging from (0.39) to (0.67) and the value of the latent root of this axis was (4.07), with the percentage of its contribution to total variance being (4.07). (12.33). percent) and the sentences on this axis **show implementation skills (application).**

Table (8)

Explains the vocabulary of the fifth axis of the list of e-course design and management skills and its saturation in this factor

m	Vocabulary	saturation
1	Poll the opinions of experts in the field about the course and its suitability for use	0.44
2	Making adjustments by experts and specialists to ensure the quality of the course design.	0.57
3	exploratory experience	0.61
4	Determine the strengths and weaknesses of the course after the exploratory experience	0.68
5	Address weaknesses and support strengths	0.48
6	Availability of tests to verify achievement of learning outcomes	0.43
7	Determining obstacles faced by course users	0.53
8	Develop solutions to these obstacles and face challenges.	0.63
9	Develop a mechanism to solve problems that appear to users during use	0.57
10	Construction of an opinion survey to find out the opinions of course users and development proposals	0.62
11	Work on the development of the course in the light of the opinions and suggestions of the users.	0.45
12	Continuous updating of the course.	0.56
dormant root		4.89
contrast ratio		% 14.82

The fifth axis of the list of skills and design of electronic courses was saturated with (12) items and its saturation ranged from (0.44) to (0.68) and the value of the latent root of this axis was (4.89) and its contribution to the total variance was (14.82 percent) and the expressions of this axis reflect assessment skills, as shown in the previous table.

Stability Skills List

The stability of the list of competencies design and management of electronic courses has been verified

- **Alpha Cronbach approach:**

The Alpha Cronbach method was used to verify the stability of the skill list by applying it to the exploratory sample. The Alpha Cronbach coefficient was computed for each item on the list as a whole and for each of its sub-axes and the results are shown in the table below:

Table (9)

Shows the stability coefficients for the list of competencies for the design and management of electronic courses by the Alpha Cronbach method and for its sub-axes

m	The hub	Stability factor by alpha-Cronbach method
1	Analysis skills	0.73
2	Design skills	0.75
3	Production skills	0.70

4	Implementation skills	0.72
5	Calendar skills	0.73
The global score of the scale.		0.74

The values of the stability coefficients by Alpha Cronbach method for the axes of the list of skills of designing and managing electronic courses ranged from (0.70) to (0.75) and the value of the stability coefficients by Alpha Cronbach method for the list as a whole was (0.74), all of which are high stability coefficients, as shown in the previous table.

Fourth, define the model that will be utilized to create the adaptive e-learning environment:

The researcher has looked into a variety of educational design concepts to see which one is best for creating an adaptable e-learning environment. Muhammad Attia Khamis model (2015) and Dick & Carey model, as noted in Abu Shawish, are among these models (2013). The butcher model (Elgazzar, 2014) for educational design, as well as the Khamis model (2015) and the butcher model (2014), are some of the most important and recent models that can be used in the design of adaptive learning/E-training environments, so the researcher drew on them when creating the proposed model to visualize an environment. The steps of the model, as well as adaptive electronic training, may be summarized as follows:

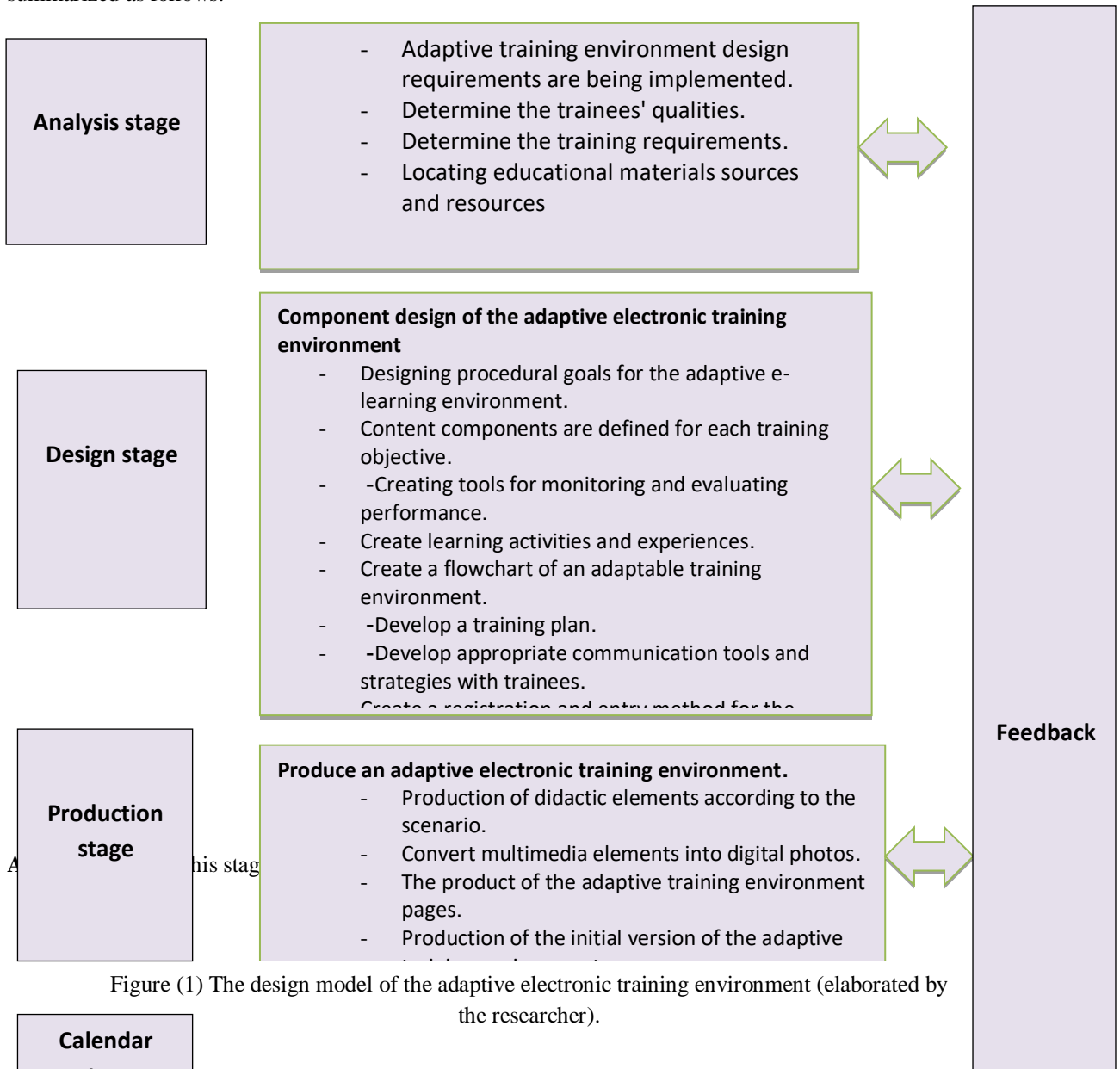


Figure (1) The design model of the adaptive electronic training environment (elaborated by the researcher).

- After preparing a list of criteria for designing the adaptive training environment, peer-reviewing it and formulating it in its final form and at this step, these criteria were relied upon to be the starting point from which the process proceeds of design.
- Determine the training needs of trainees (faculty members of Bisha University), where the researcher noted the need and the need to increase the efficiency of university faculty members in the construction and production of electronic courses and develop their job performance and technical skills to design the learning objects needed to build the e-course.
- Determine the characteristics of the trainees (faculty members of Bisha University) who have the desire and desire to develop their skills and need to know the skills of e-course design, which will contribute to raising their job performance and ability to achieve their educational goals. goals in a better way and with less effort and time.
- Given that the training process is developed electronically and in an adaptive environment, it was necessary to determine the reality of educational resources and resources, which are represented on websites and electronic resources through the Internet and through the management system. of e-learning (BlackBoard), content loading (digital learning objects), learning activities and measurement methods and use of synchronous and asynchronous communication tools.

Stage of creation: The following was determined at this stage:

Components of the adaptive electronic training environment are being designed.

- Creating the adaptive E-training environment's procedural objectives.
Where the purpose of developing an adaptive training environment is to improve abilities in designing electronic courses, which includes five main stages and eighty-two sub-skills, as previously described.
- Defining each training objective's content pieces.

The adaptive training environment aims to fulfill its core goal, which is to improve electronic course design abilities. The training environment's material is divided into five sections to achieve this purpose. Each module includes information that focuses on the five major skills:

- ✓ The first module is called "Analysis Skills," and it has twelve sub-skills.
- ✓ The second module, Design Skills, consists of fourteen sub-skills.
- ✓ The third module covers production skills, which are divided into seven sub-skills.
- ✓ The fourth module is called "Implementation Skills (Application)" and it has 37 sub-skills.
- ✓ The fifth module is about evaluation skills and it has twelve sub-skills.
- Creating instruments for measurement and assessment. Its goal is to provide assessment activities and tests that assess knowledge and cognitive abilities linked to building an electronic course.
- Creating learning activities and experiences. It may be seen in how faculty members connect with the training environment and the experiences they have, as well as how they interact with exercises, user manuals and digital learning objects.
- Creating a flowchart for an adaptable training environment It is the scenario of interacting with the adaptive training environment and the pattern of browsing or "navigating" within it (linear sailing / bifurcated sailing), which is the pattern in which the trainee walks during a training journey and acquires skills and related content, activities and various assessment tests in accordance with the sailing pattern in which the adaptive training environment is designed.
- Design of the training strategy: The adaptive training environment is carried out according to a clear and specific strategy for the study of the modules (content of the training environment), which are:
 - ✓ Read the instructions for use of the training environment.
 - ✓ See the objectives of the training environment.
 - ✓ Study the five modules, respectively, according to the preparation and skills of the apprentice.
 - ✓ Use measurement tools to ensure that the desired objectives for each module and the objectives of the training environment are achieved.
- Developing suitable communication tools and strategies with the trainees. Provide comprehensive assistance to the learner using synchronous and asynchronous engagement and communication tools available in the training environment, such as discussion forums or training groups, virtual classrooms and blogs.

- Creating the adaptive E-training environment's registration and entrance procedure. By activating the user name and password, provide an entrance and registration method for each learner.

Production stage: In this stage the following was determined:

- This stage is the implementation stage and the conversion of all the previous content in its various forms (learning objects) to a digital form through different programs (text editing programs / image editing programs / production programs and video editing/graphic production programs... etc.) so that it can be used in the construction of training environment pages and the content design of the environment, which is represented by the five modules with their activities and various measurement tools.
 - Fill in the initial and initial form of the adaptive training environment, in accordance with the design criteria of adaptive training environments, taking into account the pedagogical and technical aspects of the training environment, rehearse it or present it to a group of experts and specialists in the field for ensure its suitability and suitability to achieve its objectives and making adjustments as necessary, either by adding or removing OR a change to Metula or the components and pages of the training environment, or what referees see and agree to
- Stage of evaluation:** The following was determined at this stage:

- Formative evaluation: This is the process of evaluating the adaptive training environment against a set of criteria.
- This is the last calendar. It is a true assessment of the adaptive training environment's real-world use.

Phase of experimentation and application: During this phase, the following was discovered:

- Experimenting in the field with the research sample.
- This is the last workout.
- Maintenance and support, as well as follow-up and continual improvement.

Study Recommendations:

In light of the results of the current study, the researcher recommends the following:

- 1- The need to use adaptive training environments in the teaching of the different courses in the faculties of education in the universities.
- 2- Interest in training faculty members to produce and design electronic courses in light of approved standards to advance the level of knowledge and skills necessary to fulfill their educational tasks.
- 3- Use adaptive training environments in the development of teachers' skills and the development of their academic performance.
- 4- Carrying out training courses for all university employees through an adaptive training environment with the aim of developing their professional level.

Proposals for research: The following suggestions can be made in light of the researcher's results and recommendations:

- More empirical study on the usefulness of an adaptive training environment in strengthening faculty members' abilities in building electronic courses so that the outcomes may be compared.
- Investigating the efficiency of an adaptive training environment in developing university courses in a variety of scientific and humanitarian subjects.
- Investigating the use of adaptive training environment design standards and determining their influence on faculty members' cognitive and skill development.

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