E-learning in Iraq: Practice and Difficulties

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Abstract

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Abstract

Various ancient civilizations, such as the Mesopotamian civilization, Greeks, Egyptians, Chinese, and many others, and then the Islamic civilization, were all concerned with education as a key factor for the advancement of nations. Even today, interest in education and teachers is one of the priorities of developed countries. The spread of the Internet, the development of technology, and the need to continuously learn new skills to keep pace with these developments have all resulted in innovative changes in teaching and learning. That is why e-learning has become the most common, easiest, and fastest gateway to education. This research attempts to study e-learning, its history, characteristics, benefits, and difficulties through an exploratory study conducted according to a questionnaire organized via Google Forms and sent to 33 educational staff in Baghdad via social media programs. The Google Form helps obtain answers in an automated manner and analyzes the answers using charts to facilitate researchers' work in discovering gaps in e-learning to develop them in the future and reach actual solutions by integrating artificial intelligence with them.

Keyword: adapting curriculum, artificial intelligence, E_learning, education process

التعلم الإلكتروني في العراق: الممارسة والصعوبات

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الملخص:

الحضارات القديمة المختلفة كحضارة وادي الرافدين، اليونانية، المصرية، الصينية وغيرهم الكثير، ومن ثم الحضارة الإسلامية، اهتمت بالتعليم بوصفه عاملاً أساسياً لتقدم الأمم. وحتى اليوم يعد الاهتمام بالتعليم والمعلم من أولويات الدول المتقدمة.

إن انتشار الإنترنت وتطور التكنولوجيا والحاجة إلى تعلم مهارات جديدة بشكل مستمر لمواكبة هذه التطورات، أدى إلى تغييرات مبتكرة في مجال التعليم والتعلم، حيث التعلم الإلكتروني أصبح الأكثر شيوعاً ومن أسهل الطرق التعليمية وأسرعها.

يحاول هذا البحث دراسة التعلم الإلكتروني، تاريخه، خصائصه، فوائده وصعوباته، من خلال دراسة استطلاعية أجريت وفق استبيان تم تنظيمه عبر Google Form وإرساله إلى ٣٣ من الكوادر التعليمية في بغداد عبر برامج التواصل الاجتماعي. وتساعد نماذج جوجل في الحصول على الإجابات بشكل آلي وتحليل الإجابات عن طريق الرسوم البيانية لتسهيل عمل الباحثين في اكتشاف الثغرات في التعلم الإلكتروني بهدف تطويرها مستقبلا والوصول إلى حلول فعلية من خلال دمج الذكاء الاصطناعي معها.

الكلمات المفتاحية: التعليم الالكتروني، الذكاء الاصطناعي، تكييف المناهج، عملية التعليم.

Introduction

In the 21st century, technology started to play a crucial role in daily life and the rapid development of technology, communication and the Internet has reflected in the development of the educational process and the training system (El-Bakry & Mastorakis, 2009:503; Basak, et al., 2018: 191). The new educational methods found a way for supporting traditional learning by providing the learning materials via the World Wide Web (WWW) that made the educational process more flexible, accessible, and convenient for each learner (Jochems, et al.,2004:1; Leung, 2003:124). E-learning is not just about uploading the materials on the web, but also about individualizing the learning process, by classifying the learner and providing the materials and learning schedule according to each learner (Jethro, et al.,2012:203).

E-learning in order to be more effective and able to achieve the goals of education must have the elements of face-to-face learning, distance education, and a form of structured training and practical work (Jochems, et al.,2004:5) .In 2020, during the COVID-19 pandemic and quarantine, schools and other learning environments in the world have been closed, according to a UNESCO report in August 2020: this large disruption in the educational system has affected nearly 1.6 billion learners in the world and impacted to more than 94% of the students ("Policy brief education during covid-19 and beyond", 2022, https://unsdg.un.org). In addition, we have witnessed the UNESCO has published a list of free applications and platforms for use by parents, teachers and students. Instead of the school system ("One five learners kept out school UNESCO mobilizes education ministers face Covid 19-crisis", 2022, https://www.unesco.org) UNESCO urged the countries to use distance learning for continuation of the educational process in such circumstances, so the countries began to take the procedures according to their availability to support the teachers and students to complete their educational career. Some countries provided educational TV channels, while, others offered free platforms to spread knowledge and train teachers and students how to use them as well as equipping communication devices for both teachers and students.

In Iraq, before COVID-19, E-learning was used in some schools only to send homework online and give feedback about the student's performance during the day to the parents. After the incurrence of the pandemic, E-learning has been used more widely across the world and so in Iraq as well. This research paper aims to elaborate how E-learning is used in Iraq and is consistent with the most used educational applications and platforms, the pros and cons of E-learning, characteristics and also challenges faced by educational staff and students according to the point of view of the questionnaire sample. The questionnaire was keen to identify the methods used by teachers in Iraqi schools to support e-learning, the applications that were used, the problems they faced, and the defects in those applications.

Finally, the research would shed light on the possibility of utilizing artificial intelligence to develop E-learning and overcome challenges and move from traditional education to interactive education, which is more effective and beneficial for students to consolidate information and enhance their skills and also to reduce the teacher's effort and give him more time to develop his educational and pedagogical skills.

Literature review

Peng Gao, Jingyi Li and Shuai Liu (2021) were interested in preparing a comprehensive overview of previous studies conducted on intelligent e-learning and its applications. In this regard, they had selected eight research papers and divided them into two sections. The first section was concerned with presenting four papers that are focusing on intelligent algorithms used for solving technical problems in E-learning, including fuzzy system, man-machine cooperation, index update, and edge computing. The second section, included four papers that are also focusing on the educational problems in the intelligent e-learning models such as adapting curricula according to individual differences and other problems by providing the service and movie recommendation, evaluation of teaching quality, and semantic classification.

The researchers Ammar Y. Alqahtani and Albraa A. Rajkhan (2020) have met several distance learning managers to get a full idea about this problem. The managers evaluated the criteria associated with each E-learning system and they used the Analytic Hierarchy Process (AHP) to consider the quantitative and qualitative features necessary for making an effective decision based on several criteria. Although the process of this method can been criticized in different fields including resource allocation, and management, in education it has been used for making important and responsible strategic decisions. Also those researchers used the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method to essentially determine the distance of both the positive and the negative alternatives of an ideal solution.

In 2020, Rissia Priyahita (2020) has tried to discuss the possibility and impact of applying artificial intelligence (AI) technology in e-learning and how different factors affect the educational process and Information and Communication Technology (ICT) in Indonesia. the research had explained the obstacles that prevent the application of E-learning, its characteristics, and it has divided the benefit to the several categories: 1-Flexibility, 2- Accessibility, 3- Independence, 4-Efficiency (Time and Cost), finding a lack of E-learning as a concept, and also referring to Artificial Intelligence and its applications in E-Learning, as well as trends against applying it in Indonesia.

Pham Thanh Nga, LL.M (2020) has explained the way of changing teaching and learning processes and the practices implemented by lecturers and students too, via Big Data and Artificial Intelligence (AI) technologies to improve E-learning quality. The researcher has analyzed and evaluated the current teaching and learning methods

trying to propose many solutions for enhancing the quality of online learning in the future.

Bashir Molod Tawfiq (2019) in his article has aimed to define the pros and cons of E-learning, its different kinds and characteristics. He also explained the difference between the traditional education methods and E-learning and has asserted that the success of E-learning depends on the teacher and learner alike and how much they are familiar with ICT technologies.

Basak, Marguerite Wotto and Paul Be´langer (2018) have defined in a study a different type of technology learning, i.e, E-learning (Electronic Learning), M-learning (Mobile Learning), and D-Learning (Digital Learning) showing their differences vs. similarities to choose appropriate teaching and learning ways and techniques which should be explained to teachers, researchers, trainers, learners, etc.

E-learning

Educators are constantly looking for best methods to provide an interactive learning environment to attract student's attention. Technical developments have contributed to the emergence of e-learning to consolidate the educational process of the individual (Tawfiq, 2019:269). E-learning is a new educational system that has spread recently and is based on digital electronic tools (El-Bakry & Mastorakis, 2009:503; Basak, et al., 2018: 191). Accordingly, e-learning provides flexibility in location and schedule for student and teacher.(Goh, et al,2020:140) The main purpose of E-learning to be an alternative to and better than the traditional face-to-face learning method.(Leung, 2003:124)

The fact that many students who for some reason cannot access education, was the essential reason behind converting the traditional education into distance learning since the 1700s that witnessed the first step in a non face-to-face education. In the 1970s the learning process developed to electronic education via post, telephone, radio and TV. The network and the electronic connection certainly was the beginning of the transportation of information. By 1969 Arpanet was the first network allowed the sharing of educational materials, spearheaded by DARPA, the Defence Advanced Research Projects Agency in the United States of America. (Montebello, 2018:6)

In 1990 e-Learning applications were declared as the CBT (Computer-based Training). After 1997 with the development of technology and associating to the Internet, the LMS (Learning Management System) developed rapidly and in 1999 the e-Learning applications were transited to a web-based.
(El-Bakry & Mastorakis, 2009:501)

E-learning can be divided into several types according to different criteria:

▪divided into two types based upon the way of sharing the material
(El-Bakry & Mastorakis, 2009:503; Leung, 2003:125):

1. Electronic-based: In this type the learning system tends to use the electronic technology for delivery of learning material via audio, video, interactive TV, CD-ROM and other.

2.Internet-based: It is a type of learning that the web has been the backbone of (Rana& Lal, 2014:21), The educational system via the Internet. As a result of such transformations, the flexibility of the learning process has increased and the educational system became indefinite and is available to everyone, anywhere and anytime.

- According to the interaction between the learner and the instructor where E-learning can also be divided into two types (Tawfiq, 2019: 274):

1.Student-led Learning: What distinguishes this model is that the learning process is controlled by the learner. In this type of e-learning, all instructions and orders must be provided through the education's materials because there is no supervisor available to help learners when facing difficulties, and there is no mechanism that allows students to communicate with each other and exchange opinions, but the learner has absolute freedom to choose the appropriate time for learning and the appropriate speed in completing educational course units, so he enjoys complete independence.

2.Teacher-led learning: This form is using the web technology to provide distance traditional classes for learners, and these classes adopt a variety of online technologies such as audio and video conferencing, chatting, screen sharing, and voting, where the instructor usually presents slides and provides clarifications, and the learner hasn't the freedom and independence like the previous type.

- It can also be divided into two types based on synchronization in the learning process.(Nowakowska-Grunt, et al., 2020:284; Tawfiq, 2019:274):

1.Asynchronous learning: It is Non-real time interaction distance learning, It is considered as an indirect education that does not require the presence of instructor and learners on the Internet at the same time, since the interaction and exchange of information takes place between the learners themselves and the teacher at successive times, and this type of education is the most common because there is freedom to choose the appropriate time for learning and also the learners have lots of interaction and communication with each other and they can receive guidance at the same time. It represents self and an interactive way of learning.

2.Synchronous learning: Synchronous form has provided real-time communication for all participants. This means that the instructor and the learners must be available at the same time, so their reactions can be seen at once.

The most important purpose of e-learning is to be similar to or better than face-to-face education. To achieve this end, e-learning should be more flexible and accessible to learners as compared to traditional education; these benefits go beyond the learners and also help institutions to save cost and time. Therefore, the educational process of teaching and learning can take place anywhere and at any time. We think that these advantages of E-learning are a solution for many people, who cannot enroll in traditional education for any reason.(Leung, 2003:128; Alqahtani & Rajkhan, 2020: 2) In addition, educational institutions can implement E-learning technologies in order to increase the numbers of students registered in

classes without worrying about seating limitations and so on.(El-Bakry & Mastorakis, 2009:503)

Although there are many benefits of E-learning for both the students as well as educational institutions, there are still different limitations to it, including: 1-Problems in the telecommunications infrastructure, 2-Both the teaching staff and the learners need to be familiar in the field of using the internet and computer and other smart devices, 3-The interaction between the learner and instructor becomes less, so reducing this interaction makes the learners need to learn the study material alone without a mentor, absolutely this lack is having many impacts on the values of learning and teaching process.

(Leung, 2003:126; El-Bakry & Mastorakis, 2009: 509)

There are many challenges that e-learning must overcome to obtain the best results and gain a perfect educational system, or at least be similar to traditional education, such as: Technological Challenges, Educational Challenges (often in teaching and learning activities) to change the traditional teaching styles and the Cultural Challenges represented by the need to cultivate individuals towards using modern devices in the learning process away from the traditional tools, whether being students or instructors. (Rana& Lal, 2014:2 ; Ahmed, D. T. et al., 2011:3)

E-learning in Iraq

During the past two decades, the Middle East region witnessed remarkable developments in the field of technology used in the educational system and the trend towards e-learning to attract the largest number of students. Iraq has fallen behind because of the conflicts it had gone through.

Prior to 2019 and the COVID-19 pandemic, E-learning's use was very limited in Iraq. In terms of academic education, it wasn't used as an educational system, and the certificates awarded for electronic studies or distance education from outside of Iraq were not approved. In schools, especially non-governmental schools, it was used as a support and a communication system between parents and the school to send them important notifications and homework.

During the quarantine and according to UNESCO directives to governments to adopt e-learning as one of the solutions for the continuity and non-stop education and to minimize the damage to the educational system, Iraq had to use e-learning in universities and schools according to the capabilities available then. From now on, electronic study was applied and the preliminary and higher university degrees obtained through electronic education or blended education were recognized.

In addition to schools and universities, other educational institutions have also benefited from the experience of e-learning, for its use opened the way to expand the scope of their work, so after the difficult security conditions that Iraq went through, students always preferred courses that were taken near their place of residence and also preferred lessons given during the daytime, even e-learning helped educational institutions to attract large number of students due to the lack of limitations for a student in terms of place and time, and also the lack of limitations for the institution

itself to provide a place and tools that the students need in classroom. Many computer applications and platforms have been used to support e-learning in Iraq, the most common free apps were the following: WhatsApp, Telegram, Zoom Video Communications, Skype, Google classroom and Google Meet besides other particular platforms or applications related to private institutions.

As we have explained earlier, the important aim of e-learning is to reach the level of traditional face-to-face learning. For this purpose, we have organized a questionnaire via Google Form that was conducted with some of educational staff and it was distributed to many public and private schools in Baghdad and to the various directorates in the Ministry of Education, to obtain their opinions about E-learning in Iraq, the problems they faced, the applications and platforms that were used, and the reason for their use as well.

The idea of using Google Form came to be convenient with the research topic as it relates to e-learning, the Google Form is a questionnaire administration tool offered by Google Company for free. The Form easily can share and collect the answers and also analyze responses via either the built-in analysis tools,or export it to a Google Sheets, the results will automatically update as new responses are received and allow individual or summary view for responses. And for these benefits, the Google Form used for creating the questionnaire.

the soft copy of the questionnaire created and sent to the educational staff via different social media platforms (Facebook, WhatsApp, and email), and the responses have been viewed as charts with the percentage of answers. The thirty three responses have been received and saved in the Form and the analysis of the responses have been represented in this research.

The questionnaire was conducted on a sample of educational staff in different stages of study from elementary, middle and high school in Baghdad, Figure 1 shows the percentage distribution of the study sample.

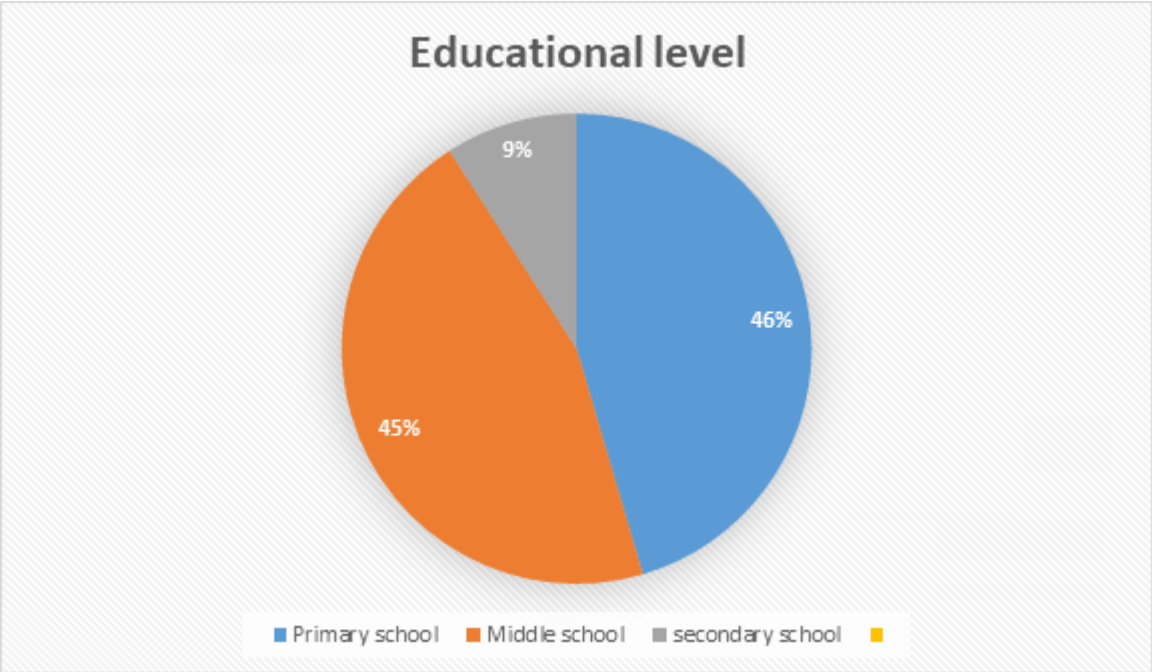

Figure 1: Educational level

The sample was distributed among the various directorates of education, where the percentage of the second Rusafa schools reached 42.4%, and it is one of the largest and most numerous directorates in terms of students. These areas are considered as poor and middle-income areas. The ratio for schools of Karkh I and Karkh III directorates were equal to 27.3%.

According to the survey, e-learning was not able to reach the required level in Iraq. The necessary culture for e-learning and the use of smart devices, and many other problems have caused sufficient interaction of students with e-learning for being away from classroom, as well as the presence of parents with their children when electronic lessons are given, beside the students' preoccupation or distraction when begin online and this is not the case in classroom when the teacher can play a great role in reducing the students' preoccupation and dispersion. On the other hand, the inability of the teacher to deliver the lesson to the student in the required manner, as in the case of traditional face-to-face education, was also one of the reasons for the failure of e-learning or its poor performance.

When life returned to a relatively normal phase post-pandemic, and students returned to school again, teachers did not need to use E-learning, because they found that E-learning has failed to achieve its goals. The opinions of the educational staff revealed that, as shown by the survey, E-learning can be considered as a support for face-to-face education, as summaries can be sent in the class's online group instead of wasting time in writing, in addition, it is possible to communicate with the students and parents to answer all their inquiries. Furthermore one of the most important ways that E-learning supports face-to-face education is the ability to display pictures,

videos and audio clips that assist towards better understanding of study material which was not available before due to the limited capabilities of schools, but this feature is not supportive of teaching completely for some students do not participate in the lesson actually since there is no obligation for the student to attend online lessons or do homework so this is one of the most important problems of E-learning that has resulted in more fatigue for the educational staff to force the student to commit and react to the materials sent in the electronic class especially since the exams are later on to be given in the attendance form.

One of the questions that were asked by the researchers to the educational staff in the questionnaire was about the extent to which students benefit from e-learning. Figure.2 shows their answers concerning the percentage of students' benefit and the extent to which e-learning can help the student.

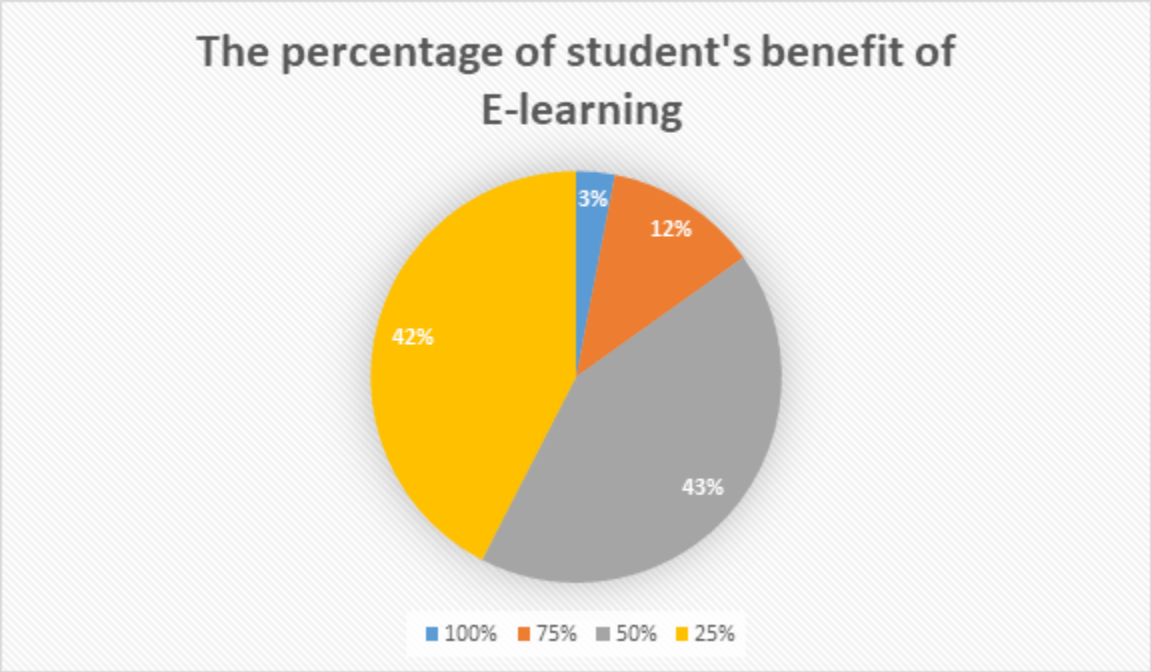

Figure.2 benefit from E-learning

As shown in the chart above, a high percentage of teachers found that the benefits of e-learning were very few and that e-learning was unable to achieve the expected results during that period and in line with the capabilities at that time.

Although a large percentage of teachers, more than 75%, believed that the existence of e-learning is useful for supporting the traditional learning and communication between the teacher and the student, but there are those who thought that the presence of online communicative groups as well as sending assignments and notes through social media platforms have caused the student's reliance on other and not pay attention to the notes given in the class, becoming lazy in recording and

memorizing the important remarks mentioned in the class under the pretext of being proficient later on during the electronic class.

Results

According to the survey, the use of e-learning was a result of the emergence of the epidemic and since its circumstances were surprising, the educational staff was not ready for these sudden conditions including the transition to e-learning, also they lacked adequate resources and training, so all these reasons have contributed significantly to the failure of e-learning and the loss of its value in Iraq. Therefore, today universities seek to train their teaching staff on the use of E-learning systems and encourage them to develop their skills in this field, urging them to be open up to their work environment and to face obstacles towards upgrading the educational reality in our country.

On the other hand, e-learning in Iraq has not completely died out and has found other ways to spread. The educational institutes used the features provided by E-learning methods to attract the largest number of students who want to get knowledge without time or place restrictions at home. Furthermore, E-learning helped raise student awareness in different fields, even if they are in distant countries and possibility of obtaining internationally recognized certificates and to develop their skills in modern fields that may be not available in Iraq or in a specific region.

Regardless which type of E-learning has been chosen, whether Electronic-based or Internet-based, student-led or teacher-led and synchronous or asynchronous, what makes traditional learning still stronger and most common than E-learning is the teacher's ability to adapt the curriculum according to the needs and possibilities of all students to help them achieve success (Gao, et al,2021:2124).

Intelligent E-learning

Today, artificial intelligence technologies have become the focal point in solving almost the majority of human problems, especially complex ones. Due to the importance of e-learning and its wide spread, it has made it necessary for e-learning platforms to be equipped with intelligence to make them more interactive with the learner, while the educational process is based upon the relationship between the learners and teachers along with curriculum and learning process, so E-learning system needs to simulate the human counterpart which has been represented by Artificial intelligence (AI) and integrating the E-learning system with many AI tools and techniques like: machine learning, neural networks, rough sets, fuzzy sets, genetic algorithms etc.

(Montebello, 2018:8;Rana& Lal, 2014:22; Tang, K. Y., et al., 2023:4)

Previously, e-learning systems did not support the concept of adapting educational curricula, and educational programs and curricula were designed to be convenient for all students without the need for adaptation contrary to face-to-face education, that emphasizes on paying attention to individual differences when constructing and teaching curricula.(Montebello, 2018:2)

The key to success in the adaptive e-learning systems is identifying the individual learners' abilities and skills, therefore the AI technologies seek to building an accurate teaching-learning models with capability of automatic developing by imitating the human decision-making process, based on an analysis of the learners information such as personal traits, level of knowledge, hobbies and skills. (Colchester, et al., 2017:53; Gao, et al,2021:2124)

Conclusion

In light of the rapid technical development taking place in the world, the educational system must also be developed as education is the fundamental of the growth and evolution of any society, knowing that the emergence of e-learning was the first step, while the transition to intelligent E-learning may lead to spontaneously develop and adapt to changes in the learning environments that necessary quest and the most important step in this regard.

We hope in the future work to build an integrated educational system with adaptability and development according to the individual capabilities of the student, while reducing the effort of educational staff and automating educational work, albeit partially

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