



The Role of E-Learning in Supporting Self-Learning

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Abstract:

This research aims to demonstrate the role of e-learning in supporting self-directed learning and to reveal the extent of its contribution to meeting learners' educational needs and enhancing their independence in learning. It stems from the following question: How does e-learning contribute to supporting self-directed learning? What are the most prominent challenges and requirements for success in achieving this? This research is divided into three main sections. The first section is dedicated to the conceptual framework of e-learning and self-directed learning and its importance. The second section addresses the mechanisms by which e-learning contributes to supporting self-directed learning through content, digital resources, and the roles of the teacher and learner. The third section examines the advantages of e-learning, its challenges, and the requirements for its success. The research concluded that e-learning supports self-learning through flexibility, access to resources, consideration of individual differences, and development of independence, but its effectiveness remains linked to the integration of technical, human, educational, cultural, and economic requirements.

Keywords: E-learning; Self-learning; Digital content; Digital resources; Independent learning.

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Introduction:

The field of education has witnessed rapid transformations due to technological advancements and digitization. This has made the use of modern communication technologies an urgent necessity to enhance the efficiency of the educational process and achieve its objectives, shifting from a knowledge-transmission-based approach to a learner-centered one that empowers students to construct their own knowledge. Therefore, e-learning is considered one of the most prominent modern educational methods, relying on computers, networks, digital media, and internet resources to support the teaching and learning processes.

Based on this premise, our research, entitled "The Role of E-Learning in Supporting Self-Learning," comes in response to the transformation of education towards more learner-centered approaches. Self-learning is crucial in empowering learners to become active participants in their own learning, responsible for their own development, capable of constructing their knowledge independently, and self-reliant in its acquisition. The central question of this research is: How does e-learning contribute to supporting self-learning? What are the most significant challenges hindering its success, and what are the requirements for its effective implementation?

This central question encompasses a number of sub-questions, the most important of which are:

- 1- What is the concept of e-learning and self-learning? What are the different types of each?
- 2- What are the mechanisms by which e-learning contributes to supporting self-learning?
- 3- What are the challenges of e-learning, and what are the requirements for its success in supporting self-learning?

The importance of this research stems from the significance of self-directed learning in light of the knowledge explosion and scientific and technological advancements, and its role in fostering learner

independence, the ability to take responsibility for one's learning, and lifelong learning. This research aims to demonstrate the role of e-learning in supporting self-directed learning, identify its mechanisms of contribution, and examine the roles of electronic content, digital resources, the teacher, and the learner in this process. It also seeks to identify its advantages, challenges, and requirements for success.

The research adopts a descriptive-analytical approach in addressing its topic and analyzing relevant studies to highlight the role of e-learning in supporting self-directed learning and the requirements for achieving its effectiveness.

Section One: The Conceptual Framework of E-Learning and Self-Directed Learning:

1- The Concept of E-Learning:

E-learning is defined as "learning based on the use of internet technologies and web pages. It includes the exchange of information for educational purposes and communication from anywhere and at any time. E-learning also refers to the use of modern technology that assists in the teaching and learning process." (Tariq, 2018, p. 13)

It is also defined as "a method of education using modern communication mechanisms such as computers and their networks, multimedia including audio, video, graphics, search engines, electronic libraries, and internet portals, whether remotely or in the classroom. The important point is the intention to use technology in all its forms to deliver information to the learner in the shortest time, with the least effort, and with the greatest benefit." (Abdul Latif, 2005, p. 20)

It is also one of the modern teaching methods that employs modern communication mechanisms, whether remotely or in a classroom. (Magdi, 2016, p. 14)

E-learning environments can be classified according to the methods used in the learning process. Among the most important types are the following:

a- Synchronous E-Learning: This relies on direct interaction between the teacher and the learner through the transmission of images and sound via technology. It is a teaching method or technique that depends on the World Wide Web to deliver and exchange lectures and research topics between the learner and the teacher at the same time as the actual teaching of the material. That is, the lecturer and the student are present at the same time, and communication between them takes place directly, but physical presence in the same place is not necessary. This type of education relies on instant messaging rooms and virtual classrooms. Among its advantages are that the learner receives immediate feedback, and costs, effort, and time are reduced. (Al-Mallah, 2010, p. 112). B- Asynchronous E-Learning: This is indirect e-learning. In this type of e-learning, trainees receive the learning material in the form of e-books or written files on Microsoft Office applications. This material is transferred via email, and the trainee reviews and studies it. If there is a test, they answer it electronically and submit it to the evaluating body. (Abdul Raouf, 2015, p. 125). This type of learning does not require the lecturer and students to be present at the same time or in the same place. Its advantages include allowing the learner to choose a suitable time to complete, review, or refer back to the material at a later time. Its disadvantages include the inability to provide the learner with immediate feedback from the lecturer.

C. Blended E-Learning: This type of education combines e-learning with traditional education by integrating home-based learning activities with classroom-based activities. This approach allows students to enjoy the benefits of studying at home while still attending the classroom (Hudhaifa & Mazhar, 2015, pp. 76-77). This type of education blends synchronous and asynchronous learning.

The diversity of e-learning environments demonstrates that this educational model provides flexible alternatives to suit the different circumstances and needs of learners. Furthermore, the variety of learning methods contributes to flexibility and ease of access to knowledge. This diversity also allows for the utilization of the advantages of direct interaction and self-directed learning, which ultimately improves the quality of the educational process and its outcomes.

1.2- The Necessity of E-Learning in Light of the Knowledge Explosion:

Today, with the technological advancements the world is witnessing in various aspects of life, we are in need of developing traditional education towards digital and technological education. Furthermore, "the prevailing educational trend in many current educational institutions still relies on traditional rote learning methods, which diminish the student's role as learner and create a passive learner who waits for their turn to participate; and only at a time determined by the teacher, according to their own vision. This may lead to the suppression of their talents and the extinguishing of their creative spark." (Al-Adwan & Zaid, 2016, p. 13).

The current era imposes upon us a set of requirements that make e-learning an indispensable strategic option. These requirements include the need for lifelong learning, the need for flexible learning, and the need for communication and openness to others. In this context, the current trend is to make education unconstrained by place and time, to be lifelong learning, learning based on current needs, as well as being self-directed, active, and effective. (Reham Mustafa, 2012, pp. 4-5).

2- The Concept of Self-Learning:

Knowles (1975), citing et al. (2010, p. 1765), defined self-learning as "a process in which the learner takes the initiative, with or without the help of others, to diagnose their educational needs, formulate the learning process, select and implement appropriate learning strategies, and evaluate their results."

Shaheen (2011, p. 45) defines it as "the educational activity undertaken by the learner of their own volition with the aim of developing their aptitudes, potential, and abilities, responding to their inclinations and interests, in a way that achieves the development and integration of their personality and successful interaction with their community through self-reliance and confidence in their abilities in the teaching and learning process. In this process, we teach the learner how to learn and where to obtain their learning resources." It is also the method by which the individual independently experiences different educational situations to acquire information, attitudes, and skills, thus shifting the focus from the teacher to the learner. (Kariman & Abdel Rahim, 2014, p. 10).

The importance of self-directed learning lies in the fact that it makes the learner the center of the educational process, an active and effective element who does not wait for information and knowledge to reach them, but rather seeks to acquire it themselves through their activities and by drawing upon their prior experiences to process what they receive and extract what is appropriate. This allows them to build representations that define and guide their behavior patterns in different situations. (Rahmani, 2018, p. 271). It is clear from the foregoing that self-learning is one of the most important aspects of keeping pace with the rapid scientific and technological advancements the world witnesses daily in all aspects of life. These advancements, in turn, impose new demands on education that go beyond simply imparting knowledge and information to new methods that rely on the learner constructing their own knowledge. One manifestation of this is the student's self-directed learning, thus fulfilling the principle of lifelong learning. Hence, the role of self-learning emerges as a learning style that enables the student to learn at all times throughout their life, both inside and outside of school. It serves as an indicator of personal independence, self-reliance, decision-making ability, and taking responsibility for constructing their own knowledge.

1.2- Types of Self-Learning: There are two types of self-learning:

A- Guided Self-Learning: This type of self-learning is based on learning pre-prepared educational materials for the learner (Atef & Hindawi, 2017, p. 8). The learner undertakes the learning process independently or with the help of others, being active and responsible for their own learning. This requires several cognitive, social, and affective strategies that the learner must possess (Al-Raqas, 2020, p. 365).

B- Unguided Self-Learning: This is a process initiated by the learner using group communication technology. The learner sets goals according to their needs, chooses learning resources, and may

determine the time and place of learning. They also evaluate their results without any guidance from the teacher (Atef & Hindawi, 2017, p. 9). 3- The Importance of Self-Learning in the Teaching-Learning Process:

Education has faced a significant challenge in the information age and the knowledge explosion: how to equip students with the greatest possible amount of information in record time and in the best possible ways. The prevailing university education systems are no longer compatible with the demands of this era and cannot deal with them efficiently. This has necessitated the use of the internet as a means of education and both group and individual learning in order to keep pace with modern developments (Saraya, 2007, p. 123). Consequently, some have called for a review of the existing school structure, while others argue for its continued necessity in light of the rapid access to information via satellite (Al-Farijat, 2014, p. 12).

Based on the above; Self-learning is expected to be of great importance in the age of globalization and the significant scientific and technological advancements humanity is currently experiencing. This is further reinforced by the changes and developments that societies are constantly striving to keep pace with. Developed countries strongly support self-learning methods, as they enhance learners' abilities and skills, ultimately contributing to national progress and development.

The importance of self-learning in the educational process can be summarized in the following points (Shaheen, 2011, p. 45):

- It enables learners to master the essential skills necessary for lifelong self-education.
- It empowers learners to take an active and positive role in their learning.
- It prepares learners for the future and fosters a sense of responsibility for their own learning.
- It trains students in problem-solving and creates a fertile environment for creativity. The world is witnessing a constantly evolving knowledge explosion that cannot be accommodated by learning systems and methods, which necessitates the existence of a strategy that enables the student to master self-learning skills, so that learning continues with him outside the educational institution for life.

Section Two: E-Learning as an Approach to Supporting Self-Learning:

The term "online learning" or "e-learning" refers to the use of internet technologies and digital media to provide integrated educational experiences for distance learners. This enables them to access educational content, resources, and activities, and to interact with teachers and peers without the need for in-person attendance (Al-Mousa, 2018, p. 13). For online learning to be effective, educational institutions must invest in developing high-quality digital educational content using the latest technologies and modern educational practices (Hussein, 2021, p. 91). The quality of the content and the method of its delivery play a pivotal role in the success of this type of learning.

1- Mechanisms of E-Learning's Contribution to Supporting Self-Learning:

Al-Hilah (2004, p. 91) mentions that Williams (1955) identified four reasons why we use the internet for self-learning:

- The internet is a real-world example of the ability to access information independently, from all over the world.
- The internet facilitates multiple teaching methods, as it serves as a library containing all the necessary books.
- The internet helps learners access diverse information from around the world quickly, easily, and at a lower cost.
- In addition to self-learning, the internet facilitates collaborative learning. Given the vast amount of information available online, it is difficult for a student to search through all the resources alone;

therefore, collaborative learning among students is beneficial. Using the internet in self-learning can achieve several key objectives, including:

- Developing curricula and courses to align with the scientific and technological revolution and its innovations.
- Leveraging the internet's capabilities for rapid and accurate self-learning across various educational and pedagogical topics.
- Utilizing the internet's resources and capabilities to present programs in a more engaging and stimulating manner, thereby enhancing students' learning effectiveness.
- Helping students effectively utilize the internet within the educational institution as a tool to facilitate self-learning. (Saraya, 2007, p. 123).
- Facilitating diverse student perspectives: Discussion forums and chat rooms provide opportunities to exchange viewpoints on various topics. This increases the likelihood of incorporating diverse opinions and suggestions into students' own, fostering a solid foundation for learning and developing strong, sound knowledge and opinions through the skills and knowledge acquired via these online platforms.
- Availability of materials throughout the day and every day of the week: This feature is beneficial for individuals with varying moods or those who prefer not to learn at a specific time, as some prefer to learn in the morning and others in the evening. It is also helpful for those with personal responsibilities and burdens, as this feature allows everyone to learn at a time that suits them.
- Continuous access to materials: This feature provides students with stability, as they can obtain the information they need at a time that suits them, without being bound by library opening and closing times. This leads to student comfort and prevents boredom. (Fayyad & Hassoun, 2009, p. 8).

2- The Role of Electronic Content and Digital Resources in Enhancing Self-Learning:

As a result of the changing perspective on education and keeping pace with the digital age, efforts are underway to integrate modern technologies into this field, such as online learning platforms, virtual classrooms, and digital content into the educational process, making it more effective and engaging for students. This transformation has proven its importance in improving the quality of education and ensuring the continuity of development and innovation in this vital area.

This is also reflected in providing educational materials in diverse digital formats to facilitate access and interaction. This includes various technological forms that can be utilized in e-learning (Al-Issawi, 2024, pp. 685-686), including:

- Electronic learning platforms: These include websites and applications that provide diverse educational content such as lessons, videos, exercises, and tests.
- Social media platforms and online forums: These facilitate interaction and communication between learners and teachers through educational content.
- Digital educational tools: These include software and applications that help organize and manage the learning process, such as learning management systems and interactive applications.
- Educational games: These are considered an engaging and motivating tool for learning, and for actively and competitively introducing educational resources, especially when organized and supervised by the teacher within the same department or between departments of the same level.
- Electronic assessment tools: These are electronic tools that allow for measuring learners' progress and understanding their comprehension of educational materials.
- E-learning support tools: These include a range of educational plans and tools that support learning in general, and for struggling students in particular, based on the assessment completed for the course units.
- Educational videos: These include recorded lectures, educational videos, interactive lessons, etc. Videos help deliver content in a visual and engaging way. (brame, 2016).

E-learning content is characterized by its accessibility anytime and anywhere, which increases the flexibility of the learning process. It can also be customized to suit different learning styles and easily updated to ensure its relevance and accuracy. (Almusawi, 2021).

Therefore, no one can deny the major and important role that the internet plays in the self-learning process. This is evident through its use in many research projects and studies designed by researchers as small learning units, according to educational groups and commands and operating programs defined by programmers to obtain educational content on the subject they wish to access. The internet supports the self-learning approach by developing innovative academic achievement in science and improving attitudes towards it. (Saraya, 2007, p. 122).

3- The Role of the Teacher and Learner in an E-Learning Environment Supporting Self-Learning:

The emergence of numerous technological innovations in the field of education, resulting from the technological advancements brought about by the Industrial Revolution and the Communications Revolution, has clearly impacted the educational system. The roles of the teacher and learner, as well as curricula, their objectives, content, activities, and methods of presentation and delivery, have all changed. (Al-Farijat, 2014, p. 11). This reassessment has not been limited to the roles of the teacher, learner, and curricula, etc.; rather, the scientific revolution has prompted a re-evaluation of the effectiveness of traditional education in light of the knowledge explosion.

Furthermore, the existing relationship between teacher and student is a traditional, vertical one that must be transformed into a horizontal relationship based on participation, interaction, and responsiveness through modern educational methods and the use of advanced digital technologies that make teaching more active learning.

3.1- The Teacher's Role:

The teacher plays a significant role in guiding students towards further learning. In this context, the teacher should "encourage the students' self-development to its fullest extent, push them to seek the truth independently, and arrive at their own interpretations. The teacher should impart the minimum amount of information and give them the greatest possible opportunity for discovery" (Awad, 1997, p. 13).

It is well-established that to ensure the success of the educational process, it is essential to prepare and train teachers to effectively use digital technologies and modern educational tools. This preparation includes training on learning management systems and virtual classroom tools, teaching them instructional design strategies for digital content and interactive activities, training them in modern teaching methods, and providing technical support and resources.

Furthermore, e-learning does not eliminate the teacher's role; rather, it makes it more important and more challenging. Teachers are highly competent individuals capable of managing the educational process effectively and working to achieve the aspirations of progress and technology. The teaching profession has become a blend of roles encompassing leader, research project manager, mentor, and facilitator of the learning process.

In the same vein, several studies have identified the characteristics of the third-millennium teacher, given the requirements and new educational challenges imposed by digital transformation. These include studies by Attia (2014) and Mreihil (2016), where the most prominent new roles of the teacher are as follows (Al-Issawi, 2024, p. 686):

- Their role as a technical expert in the world of educational technologies, understanding their applications in the educational process.
- His role as a trainer aims to equip learners with a range of 21st-century skills.
- His role as an educational researcher involves pursuing professional development and staying abreast of the latest advancements in his field.

- His role as a facilitator and guide for learning is no longer limited to simply imparting knowledge to learners, nor is he the sole controller of knowledge sources and methods of presentation. Therefore, he must be capable of transitioning from traditional to open learning.

3.2- The Learner's Role:

Our students today have a strong inclination towards technology in general, and towards technological learning in particular, through the use of modern digital devices such as computers, tablets, smartphones, and others. Due to their technological environment, students tend towards a learning environment that relies on advanced and modern tools, transforming them from passive recipients to active participants through participation, interaction, and communication via digital media, based on their lived experiences. However, teaching methods in the Arab world generally remain traditional and outdated, especially in this digital age, compared to teaching methods in European countries. Therefore, we must strive to use new teaching methods based on employing technological innovations and integrating them into teaching and learning strategies in educational institutions. Piaget emphasized this idea, stating: "The main objective of education in schools should be to create men and women capable of doing new things, not merely repeating what previous generations have done." (Piaget, 2018, p. 155).

The use of educational technologies contributes to achieving educational goals, based on the premise that the learner is the focus of the learning process. There are some fundamental principles agreed upon by educators and psychologists that can be achieved through the educational applications of learning technologies, as follows (Boukhtala, 2020, pp. 40-41):

- The learner learns independently through hands-on learning and self-regulated learning.
- Each learner learns at their own pace and according to their individual abilities, as significant variations in learning rates are observed among different students using various educational programs.
- Students acquire a greater range of experiences and skills when they organize their learning material, and each step is reinforced immediately through feedback using programmed instruction.
- The learner masters each step completely before moving on to the next.
- The learner's motivation increases when they are given the opportunity to be responsible for their learning and are given self-confidence.

It is evident that e-learning aims to achieve all of these educational objectives. Thus, the learner's position here can be described as active, participatory, and effective in the educational process. They are proficient in the learning process, psychologically comfortable, and do not feel that the teacher exerts intellectual dominance, which would diminish their activity, enthusiasm, and desire to learn. Furthermore, the learner's role has changed as a result of technological advancements; they are no longer a passive recipient but an active participant, and learning has become learner-centered rather than teacher-centered.

Third Section: Requirements of E-Learning and its Effectiveness in Supporting Self-Learning:

1- Advantages of E-Learning in Promoting Self-Learning:

The internet is one of the most widespread and important information and communication technologies, and it has also sparked much debate regarding its impact and various positive and negative repercussions. The following are some advantages that confirm the effectiveness of e-learning in supporting self-learning:

- It facilitates the learning process for students, whether after school hours or in the classroom, thus freeing up time for communication and interaction with the teacher through online communication.
- It shortens distances and transmits information quickly, meaning complete, unconditional, and limitless access to information. (Mudar Zahran & Omar Zahran, 2008, p. 83).

- It instills a spirit of self-reliance, transforming learners into proactive individuals and providing them with opportunities for self-directed learning that enable them to develop and achieve their potential. (Salam et al., 2009, p. 28).

- It provides high motivation for learning, along with interaction between the user and the network through text, audio, and animation. (Istaitieh & Sarhan, 2007, p. 225). - Equality for all, which has a far-reaching impact on education and learning, as students in developing countries are now able to examine the same scientific materials as their counterparts in developed countries. (Mudar & Omar, 2008, p. 84)

- Encouraging collaborative learning, where topics are distributed among students without being bound by fixed class hours. (Sarhan & Majed, 2006, p. 188)

- Considering the individual differences among learners, enabling them to complete the learning process in environments that suit them, and allowing them to progress according to their individual abilities.

- Reducing the administrative burden of courses by utilizing electronic means and tools to deliver information, assignments, and tests to learners and to assess their performance.

- Using diverse and varied methods that are more accurate and equitable in evaluating learner performance.

- Providing a vast and constantly updated repository of scientific content and tests for each course, enabling its development, improvement, and increased effectiveness of teaching methods.

- Providing immediate and effective feedback. - The e-learning system is a renewable system that can be easily developed to achieve its effectiveness. (Abdul-Moneim, 1999, p. 6).

2- Challenges and Obstacles to Employing E-Learning in Supporting Self-Learning:

There are several challenges that hinder e-learning in supporting self-learning. The most important of these are summarized below:

2.1- Disadvantages of E-Learning: - The inadequacy of some e-learning models in developing psychomotor skills.

- The relative focus on the cognitive aspect of the educational process.

- The difficulty in developing the learner's emotional intelligence.

- The development of introverted tendencies.

- The difficulty in preparing teachers pedagogically.

- The focus on the senses of hearing and sight to the exclusion of other senses, which causes a significant deficiency in practical and applied studies.

- The difficulty in engaging in social, sports, and cultural activities that accompany scientific activities, which negatively affects the learner. (Amer, 2013, pp. 176-177).

Based on the foregoing, the impact of these negative aspects on self-directed learning lies in limiting its comprehensiveness and effectiveness, particularly in developing the learner's practical, affective, and social skills. This may weaken their independence and interaction, and limit their ability to fully benefit from the e-learning environment.

Regardless of the advantages and disadvantages of the internet, its use continues to change the way technology impacts educational and professional life. These observers believe that the internet has become a tool for research and discovery for its users, providing learners with the ability to connect with schools, universities, libraries, and other communities, and helping them to transfer and share information with others. (Al-Hilah, 2004, p. 91)

2.2- Challenges of E-Learning in Supporting Self-Learning:

The application of e-learning faces a number of obstacles, which can be summarized in the following points:

A- Technical Challenges:

- Weak Information Technology Infrastructure: Especially in the Arab world, this plays a negative role in disseminating Arabic language content and leads to the limited adoption of many applications that would increase the volume of Arabic content dedicated to e-learning. (Al-Hadi, 2005, p. 89).
- The Digital Divide: This includes technical problems such as difficulty accessing information and sudden network outages due to weak internet speeds. Not to mention the disparity in access to and use of information among individuals, families, and different geographical areas.

B- Human Challenges:

- Computer Illiteracy: This is a problem suffered by a segment of students and teachers, manifested in their lack of knowledge about how to use educational platforms and personal computers. The solution lies in conducting training courses on computer use and digital platforms, given the importance of this measure in enabling student participation in classes and preventing their absence.
- Weak Intrinsic Motivation: Some students suffer from a lack of or weak desire to engage in e-learning. (Al-Khafaji, 2015, p. 87).
- Lack of Effective Training: Some learners and trainees find it difficult to use the various scientific devices adopted in the e-learning process effectively and successfully. (Salem, 2004, p. 312). The lack of experience among those responsible for educational programs, and the shortage of courses and conferences held in this area.
- Human Resources: The need to rely on specialists in the field of managing digital and electronic learning systems.

C- Educational and Methodological Challenges:

- Merely Digitizing Traditional Content: One of the common mistakes in implementing digital education for the Arabic language is merely digitizing traditional content; that is, converting textbooks and paper curricula into digital formats such as PDFs or e-books. This does not constitute e-learning in the modern sense, but is simply transferring material from one medium to another without any fundamental change in the method of presentation or interaction.
- Difference in the methodology of delivering lessons: The methodology by which lessons are delivered remotely may be completely different from the methodology and methods that learners are accustomed to with their teachers in classrooms, which leads to a lack of desire on the part of the student for this type of education, because he desires ready-made lectures, and prefers the traditional method, which is characterized by the lack of effort on the part of the student who is satisfied only with receiving. (Al-Wardi and Al-Maliki, 2000, 66).

D- Cultural and Social Challenges:

- Culture of Resistance to Change: Human beings, by nature, dislike changing what they are accustomed to and resist it in various ways. This resistance is not necessarily manifested in an antagonistic attitude towards the internet, but rather in a negative stance towards this change. This stems either from clinging to old educational methods, a reluctance to adapt to modern methods and technologies, or a feeling of apathy and indifference towards new changes. (Jawdat, 2003, p. 240)

E- Economic Challenges:

- Financial Resources: The high cost of infrastructure, including networks, devices, equipment, technology, and software, hinders the full implementation of e-learning projects. (Hijazi, 2013, p. 37)
- #### 3- Requirements for the Success of E-Learning in Supporting Self-Learning:

Based on the challenges mentioned above, the requirements for the success of e-learning in supporting self-learning can be defined as a set of essential and interconnected requirements as follows:

- Providing a suitable technological infrastructure: This involves ensuring the quality of internet networks and providing the necessary devices, platforms, and educational software to guarantee easy access to learning resources and their continuity.
- Developing digital and human competencies: This includes training learners and teachers on the use of technologies and educational platforms, and qualifying specialized personnel in managing e-learning environments.
- Enhancing learner motivation and independence: This involves designing interactive learning environments that encourage initiative, organized learning, research, and time management, thereby supporting learners in taking responsibility for their learning.
- Developing educational content and practices: by moving from simply digitizing traditional content to producing interactive electronic content, and employing teaching strategies and methods that consider the characteristics of self-directed learning, support interaction, and provide feedback.
- Creating a supportive cultural and social environment: by disseminating a culture of e-learning, promoting acceptance of change, and encouraging learners to adopt modern learning styles.
- Providing sustainable support and funding: to ensure the continuity of infrastructure and technological upgrades, and to provide the necessary financial and human resources for the development of e-learning. As Estetiyeh and Sarhan (2007) argue, the success of e-learning requires designing e-courses according to instructional design principles and standards, preparing and qualifying learners to interact with the digital environment, providing synchronous and asynchronous learning modes that facilitate learning, employing interactive technologies, adopting formative assessment and continuous feedback, developing e-courses based on assessment results, and enhancing the role of educational staff through ongoing training.

Based on the above, the success of e-learning, which supports self-directed learning, is not solely dependent on providing technological resources. Rather, it requires the integration of technical, human, educational, cultural, and economic requirements to create a digital learning environment that enables learners to learn independently and effectively.

Conclusion:

This research has reached a number of conclusions, the most important of which are summarized in the following points:

- 1- E-learning contributes to supporting self-directed learning by providing access to knowledge and educational content at different times and places, thus enhancing learning flexibility.
- 2- E-learning helps develop the learner's independence and motivation, transforming them from a passive recipient to an active, engaged learner who is responsible for their own learning.
- 3- Diverse digital resources and content, such as educational platforms, videos, and online exercises and tests, contribute to facilitating access to knowledge and supporting self-directed learning.
- 4- E-learning contributes to addressing individual differences by providing learning according to learners' abilities, paces, and diverse needs.
5. The effectiveness of e-learning in supporting self-directed learning remains contingent upon the availability of a set of integrated requirements, particularly technological, human, educational, cultural, and economic ones.
6. Several obstacles hinder the effectiveness of e-learning, most notably weak infrastructure, the digital divide, inadequate computer skills, and low motivation, in addition to some educational, cultural, and economic challenges.

Based on these findings, the research recommendations can be summarized as follows:

1. Generalizing the use of e-learning in educational institutions to keep pace with the digital age and leveraging it to support self-directed learning both within and outside the educational institution.

2. The necessity of developing the digital infrastructure to ensure continuous access to e-learning resources and to mitigate the impact of the digital divide.
3. Intensify teacher and learner training and develop their competencies in using digital technologies, platforms, and educational tools.
4. Focus on the quality and effectiveness of electronic content, moving beyond simply converting paper content into digital formats.
5. Enhance learner autonomy and motivation through e-learning environments that encourage initiative, research, organized learning, and responsibility for their progress.
6. Develop electronic assessment and feedback methods to help learners monitor their learning and continuously evaluate their progress.
7. Address the technical, human, educational, economic, and cultural challenges that may limit the effectiveness of e-learning and support self-directed learning. These results also open up prospects for subsequent studies that address the effectiveness of different e-learning models in developing self-learning, and the impact of interactive digital content and electronic assessment tools in enhancing learner independence, which contributes to the development of more effective e-learning environments that are responsive to learners' needs.

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