

دور منصات التعليم عن بُعد في تحسين الوصول إلى التعليم في المناطق النائية

The Role of Distance Learning Platforms in Improving Access to Education in Remote Areas

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المستخلص :

هدفت هذه الدراسة إلى استكشاف دور منصات التعليم عن بُعد في تعزيز الوصول إلى التعليم في المناطق النائية، من خلال تحليل أسس نجاحه، واستعراض أنماطه وتحدياته. وقد أظهرت النتائج أن التعليم عن بُعد مثلاً حلاً مرناً لتجاوز الحواجز الجغرافية والاجتماعية، وتقليص الفجوة التعليمية بين الريف والحضر، وتمكين الفئات المهمشة. كما كشفت الدراسة أن فاعلية هذا النمط ارتكزت على قوة البنية التحتية، وتدريب أطراف العملية التعليمية، وتصميم محتوى تفاعلي، مبرزة أهمية النمط المختلط (الدمج) لتحقيق التوازن بين المرونة والتفاعل، مع ضرورة مواجهة تحديات الفجوة الرقمية وضمان الملاءمة الثقافية للمحتوى. وأوصت الدراسة بتبني سياسات داعمة لتطوير البنية التحتية التكنولوجية في المناطق النائية، وتأهيل المعلمين، وإطلاق مبادرات تشاركية بين القطاعين العام والخاص لضمان استدامة التعليم الرقمي وتطوير بيئاته استناداً إلى النظريات التربوية المعاصرة.

الكلمات المفتاحية: التعليم عن بُعد، منصات التعلم الرقمي، الوصول إلى التعليم، التعلم المدمج.

Abstract:

This study aimed to explore the role of distance education platforms in enhancing access to education in remote areas, by analyzing the foundations of their success, and reviewing their patterns and challenges. The results showed that distance education represented a flexible solution to overcome geographical and social barriers, reduce the educational gap between rural and urban areas, and empower marginalized groups. The study also revealed that the effectiveness of this model was based on the strength of the infrastructure, the training of the educational process stakeholders, and the design of interactive content, highlighting the importance of the blended model to achieve a balance between flexibility and interaction, while addressing the challenges of the digital divide and ensuring the cultural appropriateness of the content. The study recommended adopting supportive policies to develop technological infrastructure in remote areas, qualifying teachers, and launching participatory initiatives between the public and private sectors to ensure the sustainability of digital education and develop its environments based on contemporary educational theories.

Keywords: Distance Learning, Digital Learning Platforms, Access to Education, Blended Learning.

Introduction:

Access to quality education is a fundamental human right and one of the main challenges facing many countries, particularly in remote areas. These regions often suffer from a lack of infrastructure, transportation difficulties, and a shortage of qualified educational staff, making traditional education inaccessible to many students (Mozelius, 2022). With the emergence of modern technology and the development of distance learning tools, digital education platforms have emerged as innovative solutions to bridge the educational gap and provide equal learning opportunities (Nyabanyaba, 2022).

This study aims to examine the role of distance learning platforms in improving access to education in remote areas, highlighting the benefits of these platforms, the challenges facing their implementation, and proposed strategies to enhance their efficiency.

Study Problem:

Despite rapid technological advancements and the increasing reliance on distance learning as an alternative to traditional education, remote areas still suffer from poor access to quality education due to the digital divide, lack of infrastructure, and socioeconomic challenges. Despite the existence of advanced digital learning platforms, their effectiveness in improving educational opportunities in these regions remains unclear, necessitating scientific study and investigation.

Hence, the problem of this study is encapsulated in the following main question:

How do distance learning platforms contribute to improving access to education in remote areas, what are the most prominent challenges they face, and what are the possible strategies to enhance their effectiveness?

Study Questions:

To answer this main question, the study seeks to answer a set of sub-questions:

1. What benefits do distance learning platforms offer to remote areas?
2. What are the technical, social, and economic challenges facing the implementation of distance learning in these areas?

3. What are the effective strategies for improving the performance of distance learning platforms in remote environments?
4. How can distance learning contribute to achieving sustainable development in educationally underserved areas?

Study Objectives:

This study aims to achieve the following:

1. Analyze the role of distance learning platforms in improving access to education opportunities in remote areas.
2. Identify the main challenges that hinder the effectiveness of distance learning in peripheral environments.
3. Explore the educational and social benefits achieved by digital platforms in these areas.
4. Propose development strategies to enhance the quality of distance learning and achieve educational sustainability.
5. Employ modern educational theories in interpreting and guiding the application of digital education in remote environments.

Study Significance:

The significance of this study stems from the pivotal role played by modern technology, especially distance learning platforms, in reshaping the educational process and expanding its scope to include segments and areas that have long suffered from educational marginalization, such as remote areas. In light of the challenges associated with traditional infrastructure, there is an urgent need for alternative educational solutions that rely on digital tools to compensate for the shortage in human and material resources.

The importance of this study also lies in its endeavor to shed light on the existing educational gap between urban and peripheral areas, and to analyze how digital platforms contribute to bridging this gap and achieving educational equity. Furthermore, the study provides a practical framework for decision-makers, educators, and those interested in educational development, by proposing implementable strategies to overcome the technical, economic, and social challenges that hinder the effectiveness of distance education.

Moreover, the study contributes to enriching contemporary educational literature by integrating theoretical and practical dimensions, thereby enhancing the scientific understanding of the impact of digital education in supporting sustainable development in marginalized communities.

Study Methodology:

This study adopts a descriptive analytical methodology based on reviewing previous literature and recent studies related to the application of distance learning platforms. Data was collected from academic articles, international reports, and case studies to provide a comprehensive overview of the topic.

1. Objectives of Distance Education

Distance education represents a radical shift in educational delivery, aiming to meet student needs by providing flexible and equitable educational opportunities. This type of education seeks to achieve key objectives, which can be summarized as follows:

1.1. Enhancing Access to Education Opportunities

One of the main objectives of distance education is to expand access to education to include groups that were deprived of it due to geographical, social, or economic barriers.

- According to a UNESCO (2020) report, distance education has contributed to improving school enrollment rates in remote and rural areas by providing digital platforms that offer high-quality educational content.
- Moore & Kearsley (2012) indicated that distance education helps provide equal educational opportunities, as any individual can access educational resources from anywhere in the world.

Practical Examples:

- Programs like Coursera and edX offer educational courses from international universities that are easily accessible online.
- In India, the use of online education has improved university enrollment rates in rural areas by 25% (Keegan, 1996).

1.2. Supporting Lifelong Learning

Distance education aims to promote the idea that learning is not limited to a specific age group or time period but is a continuous process throughout an individual's life.

- According to Knowles (1975), distance education allows adult learners, especially workers and parents, to continue their education without sacrificing their jobs or family responsibilities.
- An OECD (2020) report confirmed that distance education contributes to empowering individuals to learn new skills and continuously develop their knowledge, helping them adapt to rapid changes in the labor market.

Practical Examples:

- Using platforms like LinkedIn Learning and Udemy to provide specialized professional training courses for individuals of all ages.
- In Canada, the government relies on distance education programs to develop the skills of the workforce in industrial and technological sectors.

2. Components of Distance Education

Distance education is characterized by the integration of several key components that contribute to achieving its objectives and ensuring its effectiveness. These components include educational technologies, educational materials, the role of learners, and the role of teachers. This integration aims to provide a comprehensive learning environment that meets the needs of all parties involved in the educational process.

2.1. Educational Technologies

Educational technologies form the backbone of the distance education system, as they rely on a set of digital tools and interactive platforms that facilitate communication between teachers and learners.

- **E-learning Platforms:**
 - Platforms such as Google Classroom and Moodle are essential tools for managing the distance learning process. These platforms provide integrated learning environments that allow teachers to upload educational materials, manage lessons, and assess student performance (Ally, 2004).

- Abdullah (2021) indicated that these platforms help organize lessons and instant communication with students, which enhances educational interaction.
- In Saudi Arabia, the "Madrasati" platform presented an effective model for education management during the COVID-19 pandemic, combining synchronous and asynchronous learning (Al-Sharif, 2021).
- Blackboard is widely used in universities to provide rich educational content and enable interaction between students and teachers.
- **Direct Communication Tools:**
 - Such as Zoom and Microsoft Teams, which enable live virtual classes and interactive group discussions. Moore & Kearsley (2012) indicated that these tools reduce the psychological gap between students and teachers. Al-Zahrani's study (2019) also showed that these tools enhance student interaction with teachers and reduce the psychological gap between them.
- **Mobile Applications:**
 - Such as Kahoot and Quizizz, which add an element of entertaining interaction to the educational process, thereby enhancing student engagement.

Challenges:

- The necessity of a strong technological infrastructure, especially in remote areas.
- The need for technical skills among users to ensure the effective use of these tools.

2.2. Educational Materials

Educational materials are the primary pillar of distance education, as they are digitally designed to meet learners' needs and provide interactive learning experiences.

- **Electronic Texts:**
 - Such as digital books and articles, which learners can access online. UNESCO (2020) indicated that text materials contribute to providing education at low costs and with quick access. Abdul Rahman (2020) also pointed out that digital materials contribute to improving student comprehension through simple texts and visual media.

- **Interactive Videos:**

- Interactive videos are an effective tool for explaining concepts clearly. Anderson's study (2008) indicates that the use of multimedia enhances student comprehension by up to 60%. Al-Sharif's study (2021) clarified that the use of interactive videos helps students better understand complex topics.

- **Digital Assessment:**

- Such as electronic tests and interactive activities, which provide immediate and accurate assessment of student performance (Youssef, 2021).

Key Characteristics of Educational Materials in Distance Education:

1. Customizable to suit different student levels.
2. Easy to access anytime, anywhere.
3. Use of interactive media to motivate students.

2.3. Learners: Their Role in the Educational Process

Learners are the fundamental element in any educational system. In distance education, learners bear greater responsibility for managing their time and pursuing their studies.

- **Learners' Primary Role:**

- Active participation in educational activities such as online discussions, completing assignments, and attending virtual classes. Youssef (2021) emphasized that distance education enhances learners' independence and motivates them to acquire new skills through self-initiative.
- Developing self-directed learning skills, as Knowles (1975) indicates that distance education encourages learner autonomy and motivates them to acquire knowledge independently.

- **Challenges:**

- Some students feel isolated and unable to interact effectively with teachers and peers.
- The need to develop time management and organizational skills.

Practical Examples:

- Programs like Coursera and edX heavily rely on learner autonomy and active participation.

2.4. Teachers: Their Role in Designing and Delivering Materials

Teachers play a vital role in designing the educational process and ensuring its quality, as their role shifts from merely transmitting information to facilitating learning.

- **Designing Educational Materials:**

- Teachers prepare educational content in a way that is compatible with the requirements of distance education, focusing on interactive media and simple texts.
- Anderson & Dron (2011) indicated that teachers should consider learners' needs and digital preferences when designing content.
- Al-Sharif (2021) noted that preparing educational materials requires continuous teacher training to ensure the design of digital content that meets learners' requirements.
- In distance education, the teacher becomes a facilitator of learning rather than being the sole source of information (Abdullah, 2021).

- **Communicating with Students:**

- Teachers ensure continuous interaction with students by responding to their questions and monitoring their progress.
- Email, online forums, and instant messaging are used to facilitate this communication (Moore, 1993). Saleh (2020) also confirmed that teachers focus on continuous interaction with students via digital tools such as email and online forums.

- **Assessment and Feedback:**

- Distance education requires the use of diverse assessment methods such as electronic tests, which helps improve student performance (Youssef, 2021).

Challenges:

1. The need for continuous training to develop teachers' skills in using digital education tools.
2. Time management to ensure effective monitoring of all students.

3. Importance of Distance Education in Remote Areas

Distance education plays a crucial role in improving the quality of education in remote areas that suffer from a lack of educational institutions and poor infrastructure. Distance education is considered the ideal solution to bridge educational gaps in these areas.

3.1. Bridging the Educational Gap

Distance education contributes to narrowing the educational gap between urban and rural areas by providing educational opportunities for students in hard-to-reach places.

- According to UNESCO (2020), distance education can contribute to raising education rates in rural areas, as it allows students to interact with teachers and attend lessons regardless of their geographical distance.
- In Algeria, the use of distance education platforms helped improve access to education in remote areas by up to 30% (Mohamed & Hassan, 2022).

3.2. Empowering Marginalized Groups

Distance education provides equal opportunities for marginalized groups such as women and individuals with disabilities, as they can benefit from education without the need to move to traditional educational institutions.

- Al-Sharif's study (2021, p. 29) showed that distance education significantly contributes to empowering women in rural areas to pursue their education without being exposed to social obstacles such as family restrictions or social values.
- Distance education also helps people with disabilities access specialized education without the need to travel or move to special education centers.

3.3. Promoting Community Development through Improved Education

Distance education contributes to improving the educational level of remote communities, which contributes to promoting the economic and social development of these areas.

- **Economic Development:** Abdullah (2021, p. 54) confirms that distance education helps develop professional skills for students in remote areas, which contributes to improving their ability to participate in the labor market.

- **Social Development:** Distance education contributes to reducing social disparities and provides equal learning opportunities among different social groups.

4. Theoretical Challenges of Distance Education

Despite the significant benefits that distance education offers, it faces a set of challenges that may affect its effectiveness.

4.1. Digital Divide and Weak Infrastructure

The digital divide is one of the main challenges facing the implementation of distance education.

- **Digital Infrastructure:** In many rural and poor areas, students suffer from a lack of internet access or the necessary devices to pursue distance education. Al-Zahrani (2019, p. 19) emphasized that weak internet connectivity constitutes a major barrier to the use of digital education platforms in some regions.

4.2. Psychological and Social Challenges

Many students in distance learning environments suffer from psychological and social isolation due to the absence of direct interaction with teachers and peers.

Moore & Kearsley (2012) indicated that the absence of face-to-face interaction with others can lead to a lack of motivation among students and make them feel isolated, which hinders academic achievement.

4.3. Challenges of Maintaining Motivation and Engagement

Students often find it difficult to maintain self-motivation in a distance learning environment, as it requires self-commitment and initiative in following educational content.

According to Al-Obeid (2020), a lack of social and psychological motivation can lead to a decline in student performance, which necessitates the use of innovative teaching strategies to maintain their effective participation.

5. Technical Challenges

5.1. Weak Digital Infrastructure

Weak digital infrastructure is one of the most prominent technical challenges facing distance education. In many areas, whether in Arab countries or in some developing countries, students face difficulty accessing the internet at sufficient speed, or they may lack the necessary electronic devices to participate in online lessons. The most prominent of these challenges include:

- Weak internet connection, especially in rural and remote areas.
- Lack of appropriate digital devices such as personal computers or smartphones.
- Scarcity of supporting educational software (such as interactive tools) that contribute to improving the distance learning experience.

Examples:

In Saudi Arabia, students in some rural areas faced difficulty following lessons due to poor internet connection, which affected their academic achievement (Al-Sharif, 2021).

5.2. Lack of Technical Support

Technical support is a vital factor in ensuring the successful continuity of the educational process. In distance learning environments, teachers and students need continuous technical support to ensure the effective use of digital tools and platforms.

The most prominent of these challenges include:

- Limited availability of immediate technical support in cases of malfunctions or technical problems.
- Absence of specialized technical teams in remote areas to provide support to students and teachers.

Examples:

Studies such as Al-Zahrani (2019) showed that many schools in rural areas face difficulty in securing the necessary technical support for students and teachers.

6. Social and Cultural Challenges:

6.1. Cultural Gap in Educational Content

Sometimes, digital educational materials may not be compatible with the local culture of students in some areas. This can cause difficulty in understanding the study materials or lead to students' reluctance to interact with the content.

The most prominent of these challenges include:

- Cultural disparities between available educational materials and students' cultural expectations.
- Lack of local educational content or content that reflects the social and cultural environment of the students.

Examples:

In Egypt, a study by Al-Obeid (2020) showed that some students in rural areas face difficulty interacting with educational materials that do not align with their cultural and social backgrounds.

6.2. Resistance to Cultural and Educational Change

Resistance to change is one of the biggest cultural challenges that distance education may face, as some prefer to continue with the familiar traditional educational system rather than adapt to modern digital methods.

The most prominent of these challenges include:

- Lack of awareness of the importance of distance education among some families or students.
- Negative social attitudes towards e-learning, such as the belief that it is less effective than traditional education.

Examples:

In some Arab societies, the concept of distance education is considered "new," which may hinder its widespread implementation, as Youssef (2021) indicated that some families may reject this mode of education due to entrenched traditions.

7. Economic Challenges:

7.1. Costs of Distance Education

Although distance education can save some costs compared to traditional education, technology costs can be high for some families and students. Distance education requires powerful computing devices, internet connection, and licenses for educational software, which constitutes a financial burden.

The most prominent of these challenges include:

- The need for advanced technical devices that may not be available to some low-income families.
- Costs of internet subscription, especially in areas with poor technical services.

Examples:

A study by Diaz (2021) in the Dominican Republic showed that 45% of families in rural areas could not afford internet costs during the COVID-19 pandemic, which deprived many students of the opportunity for distance education.

7.2. Economic Disparity Among Students

Students in some communities suffer from disparities in their ability to access distance education due to economic differences between families.

The most prominent of these challenges include:

- Some families cannot afford the costs of computers or internet access.
- Disparity in educational opportunities among students from different social classes.

Examples:

In Algeria, a study by Mohamed and Hassan (2022) showed that the economic gap between urban and rural areas contributed to the disparity in students' access to distance learning platforms.

8. Challenges of Maintaining Motivation and Engagement

One of the biggest challenges facing distance education is maintaining student motivation and encouraging them to actively participate in the

learning process. It can be difficult for students to maintain their focus and interest without direct interaction with teachers and peers.

The most prominent of these challenges include:

- Loss of student motivation, especially in virtual learning environments where there is no direct supervision.
- Lack of social incentives and participation that traditional education can offer.

Examples:

A study by Ahmed Obaid (2020) in Egypt showed that the absence of immediate and direct interaction with the teacher led to a decrease in academic motivation among some students, which negatively affected their academic achievement.

Conclusion:

Despite the significant benefits offered by distance education, there are a range of technical, social, and economic challenges that must be addressed to ensure its effectiveness. It requires providing strong infrastructure, continuous training for teachers and students, and encouraging effective participation to maintain the efficiency of the educational process.

Analysis and Discussion of Results:

This section represents the backbone of the study, where data was analyzed according to the five study questions, with the aim of reaching scientifically supported results that highlight the dimensions of the problem and proposed solutions.

Question One: What benefits do distance learning platforms offer to remote areas?

The study concluded that distance learning platforms offer a range of important benefits, including:

Table (2):

Benefit	Explanation
Eliminating Geographical Barriers	Allows access to education from anywhere, especially isolated areas.
Time Flexibility	Grants the learner the freedom to choose the time and place of study.
Reduced Costs	Alleviates transportation expenses and traditional infrastructure costs.
Promoting Educational Equity	Narrows the gap between urban and rural education.
Empowering Marginalized Groups	Opens up educational horizons for women and people with disabilities.
Supporting Community Development	Contributes to raising the economic and social level.

Question Two: What are the main challenges facing the implementation of distance education in these areas?

The implementation faced several key challenges, which can be categorized as follows:

Table (3):

Type of Challenge	Details
Digital Divide	Weak internet coverage and technical infrastructure.
Social Challenges	Feeling of isolation, lack of interaction, low motivation.
Technical Challenges	Lack of experience among students and teachers in using technology.
Economic Challenges	High prices of devices and internet connection.

Question Three: What are the effective strategies for improving the effectiveness of distance learning platforms?

The study proposes a set of strategies to improve performance:

- Improving technological infrastructure: Providing high-speed internet and modern devices.
- Designing engaging and interactive educational content.
- Providing continuous technical support for learners and teachers.
- Training teachers on the use of digital tools.
- Enhancing direct communication through tools such as Zoom and Google Meet.

- Implementing formative assessment and individual follow-up.

Question Four: How can distance education contribute to achieving sustainable development in remote areas?

Distance education contributes to several development axes:

Table (4)

Field	Impact of Distance Education
Equity in Education	Providing opportunities for all groups without discrimination.
Skill Development	Preparing cadres capable of working in local and global markets.
Economic Development	Reducing unemployment and increasing productivity in peripheral communities.
Environment and Resource Sustainability	Reducing mobility and providing educational resources digitally.

Conclusion of Analysis:

The analysis results showed that distance education is not an emergency alternative, but a promising strategic solution that can bridge educational and social gaps in remote environments, provided that it is activated through supportive policies, robust infrastructure, and appropriate educational content.

Study Results:

- **Importance of Technological Infrastructure:** The success of distance education largely depends on the availability of technical infrastructure, such as internet connection and suitable digital devices, especially in remote areas.
- **Effectiveness of Blended Learning:** The blended learning model, which combines synchronous and asynchronous learning, has proven highly effective in meeting the needs of diverse groups of learners.
- **Multiple Challenges:** The digital divide, weak infrastructure, and a feeling of isolation are among the most prominent obstacles hindering the efficient implementation of distance education. And a decrease in student motivation in the absence of direct interaction represents an additional challenge.
- **Positive Impact on Remote Areas:** Distance education has contributed to narrowing the educational gap and empowering marginalized groups to

access equal educational opportunities. And Positive impact on social and economic development in rural areas.

- **Need for Content Development:** Designing interactive and engaging content is essential to attract students' attention and motivate them to continue learning.

Recommendations:

1. Enhance Technological Infrastructure:

- Provide high-quality internet and appropriate devices in all areas, especially remote ones.
- Allocate resources to support infrastructure in rural areas.

2. Train Teachers and Students:

- Provide continuous training programs to qualify teachers to use digital education tools efficiently.
- Raise awareness among students and their families about the importance of distance education and how to use its platforms.

3. Design Interactive Educational Content:

- Develop engaging and interactive educational materials that enhance student participation and achieve learning objectives.
- Adopt multimedia means such as videos, educational games, and interactive quizzes.

4. Enhance Interaction in Distance Education:

- Use interactive tools such as live group discussions and online participation platforms.
- Create digital learning environments that reduce the feeling of isolation.

5. Measure Performance and Improve Quality:

- Use digital assessment tools to monitor student progress and improve the quality of education.
- Continuously analyze student data to identify weaknesses and address them.

Suggestions:

1. Launch Initiatives to Support Distance Education in Remote Areas:

- Partnership between governments and private institutions to provide the necessary technical and financial resources.
- Establish mobile digital learning centers to provide support in areas lacking infrastructure.

2. Motivate Student Participation:

- Offer educational incentives such as awards and digital certificates to motivate students to commit and participate.

3. Enhance Local Content:

- Develop curricula that meet students' cultural and linguistic needs, especially in rural areas.

4. Benefit from International Experiences:

- Study the experiences of developed countries in implementing distance education and adopt best practices suitable for the local context.

5. Use Advanced Technology:

- Integrate technologies such as artificial intelligence and virtual reality to enhance the learning experience.
- Develop specialized educational applications that allow easy access to educational content and monitoring academic progress.

These results, recommendations, and suggestions aim to enhance the effectiveness of distance education, especially in contexts facing technical and social challenges, thereby ensuring comprehensive and sustainable education.

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