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Distance Learning at the University and the Digital Divide: The Issue of Equality of Educational Opportunities

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Abstract:

This study examines the intersection of distance learning and the digital divide within universities, focusing on the challenge of educational justice. Through a literature review, the research identifies that while digital transformation expands access to knowledge, its success depends on infrastructure, technical competency, and pedagogical quality.

The findings reveal that the digital divide extends beyond mere hardware access to include disparities in digital literacy and effective usage skills. Technical and economic barriers, combined with weak student-teacher interaction, often hinder the effectiveness of this model. Ultimately, the study concludes that achieving equality of opportunity is impossible without addressing these inequities. University institutions must proactively bridge the digital gap to provide a fair and inclusive learning environment that ensures all students can benefit equally from technological advancements.

Keywords: Distance Learning; Digital Divide; Educational Justice; Digital Transformation;Pedagogical Interaction; Equality of Opportunity .

I. INTRODUCTION

Within the framework of the digital transformation that the world has witnessed since the beginning of the twentieth century, numerous technologies have emerged forming the basis of the digital economy. This transformation has impacted educational systems, making distance learning one of its most prominent manifestations within the university. The adoption of distance learning systems in universities aimed to maintain educational continuity, especially in light of crises that forced various countries around the world to seek alternatives ensuring the persistence of learning and avoiding academic interruption. This model has constituted a modern educational revolution, relying on the employment of information and communication technologies (ICT)—particularly the Internet—to develop and improve traditional teaching methods. This is achieved by providing electronic educational content via multimedia, allowing the student to interact with it at any time and place, and contributing to the enhancement of communication channels between students and the teaching faculty.

However, it should be noted that this transformation was not accompanied by equality in digital capabilities among students, giving rise to what is known as the digital divide. The adoption of distance learning in university education—despite its advantages regarding flexibility and expanding access to knowledge—was not always the result of prior academic and pedagogical preparation. Rather, it was often imposed as an obligatory choice, which revealed a series of imbalances within the university structure. These include the reshaping of the relationship between student and professor and the emergence of a type of communicative disconnection compared to in-person education.

In this context, the issue of the digital divide has emerged as one of the most prominent challenges facing this educational model. Students vary in their possession of technological means and digital skills, which directly affects the principle of equality of educational opportunities. This raises profound questions about the extent to which educational justice is achieved within the university in light of this digital transformation.

Accordingly, distance learning is no longer merely a technical alternative but has become an educational and social phenomenon that warrants analysis, particularly regarding its implications for equality of educational opportunities amidst the digital divide within the university environment. Consequently, the generalization of distance learning in the university poses a pivotal problematic related to its ability to achieve the principle of equality of educational opportunities in light of digital disparities among students. Although this educational model aims to universalize access to knowledge, reality reveals the existence of a digital divide reflecting inequality in the possession of technological tools, weak infrastructure, and varying digital skills, which may lead to the reproduction of new forms of inequality within the university setting.

From this standpoint, the main question of the study can be formulated as follows:

- ✓ To what extent does distance learning in the university affect the equality of educational opportunities in light of the digital divide?

To answer this problematic, we pose the following sub-questions:

- ✓ To what extent are the determinants of success for distance learning available in the university in light of digital disparities?

- ✓ What are the most prominent challenges facing the implementation of distance learning in the university, and how do they affect the progression of the educational process?
- ✓ How does the digital divide affect the achievement of equality of educational opportunities within the university?

To answer these questions, we have divided the study into the following sections:

II. Conceptual Framework

1. The Concept of Distance Learning:

Distance learning is a new educational paradigm that allows for the transfer and delivery of information and educational materials through various electronic means, without the need for the student to attend the classroom regularly. (Al-Qader, 2022)

- It has been defined as the process of transferring knowledge to the learner at their place of residence or work, rather than the learner moving to the educational institution. it relies on delivering knowledge, skills, and educational resources to the learner via various media and technical methods, even if the learner is separated from the instructor. Technology is used to bridge the gap between both parties to achieve a type of communication that resembles direct interaction. (Osama, 2021)
- Kassab Khalifa defines e-learning as a method of education using modern communication mechanisms and tools, such as computers, networks, and multimedia, in addition to search mechanisms, electronic libraries, and internet sites and portals—whether remote or otherwise. It is a teaching method using all types of modern technologies to deliver information to the learner in the shortest time and with the least effort. (Khalifa, 2020, p. 22)
- It also refers to the use of modern technology, which primarily relies on the skills necessary to deal with the internet, for electronic interaction between students and professors without being restricted by the boundaries of time and place. (Asmaa, 2022)

❖ Operational Definition:

Distance learning, in the light of this study, refers to that educational model implemented through the employment of information and communication technology to transfer educational content and provide it to students via various electronic media, without the need for physical presence inside the classroom, while allowing for interaction between the professor and the student via digital platforms. This model is measured by the availability of technological means (devices, internet), the level of usage of these media in the educational process, and the degree of electronic interaction between students and professors, which affects learning effectiveness and the achievement of equality of educational opportunities in light of the digital divide.

2. The Concept of University Education:

It is one of the primary means for providing students with knowledge, information, scientific thinking, and research skills, as well as forming positive attitudes and

developing their ability to select and choose in the face of this knowledge explosion and scientific progress. It contributes to forming or creating a knowledge society—or at least transitioning toward one—because the ultimate goal should be producing educated individuals capable of dealing with the knowledge and information they receive with independent thinking, creativity, and a focus on deep mental work. (Hayat, 2018)

- This term refers to the type of education that takes place in university colleges—those colleges that represent the top of the educational ladder in any country—through which specialists and high-level scientific and professional cadres are prepared. It can be defined as a formative stage that occurs after secondary school in university institutions, utilizing a style that differs somewhat from secondary education. (Khadija, 2021)
- From another perspective, it can be said that it is an organized educational and pedagogical system implemented in universities, colleges, and institutes, aiming to prepare human cadres who are scientifically, research-wise, and professionally qualified to contribute to solving societal problems and keeping pace with scientific and technological developments. (Al-Rahim, 2025)

❖ **Operational Definition:**

University education, in the light of this study, refers to that organized educational system that takes place within university institutions, aiming to provide students with scientific knowledge and develop skills of thinking and scientific research, alongside building their capacities for analysis and selection amidst the knowledge explosion and technological progress. This education is also measured by its ability to prepare scientifically and professionally qualified students, capable of interacting with digital knowledge, benefiting from distance learning, and contributing to building a knowledge society in light of current digital transformations.

3. The Digital Divide:

The term is used to denote the gap separating developed and developing countries, which was created by the information and communication revolution. It represents the distance between the state of widespread internet usage in developed nations—including the resulting changes in interaction patterns—and that of other nations. (Al-Hawash, 2024)

- Mamdouh Al-Gharib El-Sayed defined the digital divide as the deficiency in the actual ability of individuals and communities to acquire an appropriate share of tools, means, and experiential patterns associated with information and communication technology. It further includes the inability to exploit these resources to create a product that helps elevate the lives of both the individual and the collective. (El-Sayed, 2021)
- It can also be said that the digital divide is the inequality in obtaining opportunities and contributing to information, knowledge, and networks, as well as the lack of benefit from large-scale productive developmental capacities. This is due to a set of socio-economic factors, particularly deficiencies in infrastructure, high access costs, and unequal potentials for benefiting economically and socially from activities. (Mohamed, 2020)
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❖ **Operational Definition:**

The digital divide, in the light of this study, refers to the existing disparity among students in the ability to access information and communication technology and use it effectively in the educational process. This is manifested in the variations in the availability of electronic devices, the quality of internet connection, and the level of digital skills possessed. This disparity also encompasses the ability to employ these means in acquiring knowledge and interacting with distance learning, which is linked to economic, social, and structural factors, and directly affects the opportunities to benefit from learning and the achievement of equality of educational opportunities within the university.

4. Educational Justice:

Gohar et al. defined it as the state providing every individual with education that suits their abilities, ensuring they enjoy the educational services provided such that this distribution is fair to all without discrimination or bias.

- It has also been defined as giving everyone working in the educational field their full right with satisfaction, love, and objectivity. (Et al., 2017)
- It means that every individual in society receives their legitimate right to education without restriction or condition, considering education as a fruit that everyone must enjoy within a framework of transparency, neutrality, and integrity. (Et al., 2021)

❖ **Operational Definition:**

Educational justice, in the light of this study, refers to providing equal and fair educational opportunities for all students within the university, ensuring that each individual receives an education consistent with their abilities and aptitudes, without discrimination based on economic, social, or geographical factors. Educational justice is measured by the extent to which students enjoy the same level of educational services, the possibility of utilizing educational resources—especially digital ones—and interacting with distance learning under equal conditions, thereby achieving the principles of transparency and neutrality and enhancing equality of educational opportunities amidst the disparities imposed by the digital divide.

5. Concept of Equality of Opportunities:

Opinions and interpretations regarding the meaning of equality of educational opportunities have varied due to its multiple aspects and dimensions.

- It means that every individual obtains opportunities equal to those of other members of society in enrolling in the education available in their community, without there being a difference in the type of educational service provided, enabling them to truly benefit from the education programs offered by the state. (Meknassi, 2018)

❖ Concept of Equality of Educational Opportunities:

According to United Nations reports, equality of educational opportunities is considered one of the pillars upon which educational policies are built, and countries strive to achieve it as a principle that reinforces the right to education for all. While educational opportunities are widely available in some countries in general, there remain disparities in the ability of all groups to benefit fully from these opportunities. Social and cultural barriers, along with visible inequalities in accessing quality education, remain among the most significant difficulties facing public policies. According to the definition by Mohammed Mohammed Morsi, "Equality of opportunities in education does not only mean ensuring everyone's access to education regardless of gender, race, class, religion, geographical environment, or socio-economic conditions; rather, it means providing available educational opportunities for free and providing the physical and human resources that facilitate full utilization of educational opportunities, as well as the individual's right to pursue education appropriate to their abilities, aptitudes, and needs." (Samir, 2023)

In another definition of equality of educational opportunities, researcher Najlaa Mohammed Hamed emphasized that it is "the provision of equal educational opportunities among all learners so that the economic and social status does not influence an individual's chances of reaching the educational level that suits their abilities, talents, and educational achievement." (Hamed, 2024)

❖ Operational Definition:

Equality of educational opportunities, in the light of this study, refers to the extent to which all students enjoy equal chances to access and benefit from university education, without the influence of economic, social, or geographical factors. This is achieved through the availability of physical, technical, and human resources that ensure they can pursue learning under equal conditions. This concept is measured by the students' ability to access digital educational tools, benefit from distance learning, and interact with educational content, allowing them to achieve comparable educational outcomes consistent with their abilities and aptitudes amidst the disparities imposed by the digital divide.

6. Digital Transformation:

Digitization refers to the process of converting data and processes from analog technologies into machine-readable formats. Digital technology involves the use of digital techniques and linking them closely, leading to new changes and improvements in current activities. (Titko.j, 2019)

Digital transformation is defined as the organizational change through the use of digital technologies and innovative business models to improve performance. Thus, it expresses the radical change in the way business is operated and services are delivered to customers by integrating digital technology into all areas and aspects of work. This aims to achieve improvement in institutional performance, the quality of advanced services, and the enhancement of competitiveness. (Jalloul, 2023)

❖ Operational Definition:

Digital transformation refers to the transition the university is undergoing from traditional patterns of education to educational models based on the employment of information and communication technology. This is done through the adoption of

distance learning and the use of digital platforms and electronic media in presenting educational content and facilitating interaction between the professor and the student. This transformation is measured by the availability of digital infrastructure, the possibility of internet access, and the level of digital skills possessed by actors in the educational process, which reflects on the degree to which students benefit from this educational model and the achievement of equality of educational opportunities among them.

III. Distance Learning in the University between Implementation Requirements, Digital Divide Challenges, and its Reflections on Equality of Educational Opportunities

1. Distance Learning between Accessibility and the Digital Divide:

Distance learning began as a means to expand learning opportunities for broad groups of underprivileged and marginalized individuals who, in many societies, lack access to traditional education. The digital revolution of the twenty-first century revived hope in learning possibilities, as it appeared—on the surface—that the spread of low-cost smart devices equipped with internet services had significantly contributed to solving the problem of access to education.

In this context, several researchers have noted that the development of new media, particularly digital media, has enhanced the use of communication technologies in delivering distance education. This has contributed to a renewed interest in open learning through the emergence of Open Educational Resources (OER) and Massive Open Online Courses (MOOCs), which aim to broaden the base of educational beneficiaries. Furthermore, government policies and educational institutions seek to support these trends by adopting digital solutions to address learning problems, especially in developing countries.

However, this perception—which assumes that providing digital infrastructure and physical access to the internet is sufficient to solve the digital divide—remained the dominant discourse for a long time. This stage is often referred to as the "first level of the digital divide," which is associated with unequal access among social groups. Yet, reality reveals that this issue is more complex; it is not merely about the availability of technological means but extends to how they are used and effectively utilized.

In this framework, numerous studies—particularly in developing countries with diverse characteristics, such as India in terms of area and population density—confirm that physical access to the internet does not necessarily guarantee positive educational outcomes, nor does it lead automatically to the optimal use of technology in learning. This necessitates continued research into the dimensions of the digital divide, moving beyond the issue of availability to studying patterns and quality of use. (Ashuni, 2024)

It is clear from the above that betting on distance learning as a means to achieve equality of educational opportunities cannot succeed by relying solely on providing technological tools. Rather, it requires a deeper understanding of the dimensions of the digital divide, especially regarding individuals' ability to use technology effectively. This means that the persistence of this gap, even with the spread of the internet, may limit the achievement of educational justice and lead to the reproduction of new forms of disparity within the university system.

2. Determinants of Success for Distance Learning in the University Amidst the Digital Divide:

In the university education sector, especially in low-income countries, it is evident that the available digital infrastructure reflects the volume of investments and resources

allocated to this sector, which in turn reflects the general situation these countries face. In this context, the adoption of distance learning within universities requires considering a set of essential factors to ensure its effectiveness.

These factors consist, firstly, of technological factors, which require an appropriate digital infrastructure in terms of coverage, speed, and cost, as effective distance education necessitates possession of electronic devices and a good internet connection. UNESCO has warned of the risks of deepening educational disparities due to the absence of these means or weak digital qualification among users. Furthermore, distance education cannot be effective unless professors possess the necessary digital skills and the ability to design educational activities and provide support and feedback to students.

These factors also include the quality of the distance education system, through the provision of training programs directed at both professors and students to enable them to use electronic media efficiently. Cultural aspects also emerge, particularly regarding the status of language as a fundamental element in interaction via digital platforms. Additionally, self-efficacy factors play an important role for both the professor and the student in terms of the ability to adapt to and benefit from this educational model.

Trust and security factors are no less important, whether in the design of platforms or the adopted software, given their role in enhancing the use of this educational model. Finally, design and content represent a primary element in supporting distance learning; the provision of appropriate digital content, alongside internet penetration, facilitates the transition from traditional education to e-learning as a necessary option in light of current transformations. (Madani, 2024)

In their entirety, these factors reflect that the success of distance learning is not solely tied to the availability of technology but extends to organizational, cultural, and human dimensions. This explains the persistence of the digital divide and its impact on the equality of educational opportunities within the university.

3. Challenges of Implementing Distance Learning in the University and its Reflections on the Educational Process:

Since the expansion of distance learning adoption in universities worldwide, a set of challenges and difficulties has emerged that directly affected the progression of the educational process, especially in the recent phase which saw an acceleration in the adoption of this model. These difficulties are attributed to several factors, foremost of which is the weakness of technological infrastructure. Many students suffer from slow internet networks and weak bandwidth, as well as frequent interruptions in both connection and electricity, which hinders regular attendance of lessons and negatively affects the continuity and quality of learning.

There is also the problem of weak technical training among teachers; the lack of proficiency in using modern technological media limits their ability to provide effective educational content and affects the quality of interaction with students, particularly in an educational environment that relies primarily on digital tools. Financial difficulties are equally important, as implementing distance learning requires significant investments from states through the allocation of sufficient budgets for the higher education and scientific research sector to equip digital infrastructure and provide the necessary devices and educational media for all actors in the educational process.

These challenges demonstrate that distance learning is not limited to providing digital platforms alone but requires an integrated environment that includes infrastructure, human qualification, and financial support to ensure effective and inclusive education. (Shehab, 2023)

In sum, these challenges reveal that the implementation of distance learning within the university is not only linked to adopting technology but requires an integrated system encompassing digital infrastructure, human qualification, and financial and institutional support. Weak internet and frequent outages, alongside the limited training of professors,

do not only affect the quality of the educational process but also reflect on the degree of student integration and interaction with this educational model.

Moreover, these constraints indirectly contribute to deepening the digital divide among students, as opportunities to benefit from distance learning vary according to differences in technical and material capabilities. This leads to the emergence of new forms of inequality within the university environment. Some students are able to pursue their studies in suitable conditions, while others face difficulties that limit their ability to achieve academic success at the same level.

Accordingly, the continuation of these challenges without effective resolution may hollow distance learning of its primary objectives, making it a hindering factor rather than a means to achieve equality of educational opportunities. This necessitates serious intervention from various actors to reconsider the mechanisms of its implementation in a way that ensures justice in access to and quality of education.

4. Transformation of the Roles of Professor and Student in Distance Learning and its Reflections on Educational Interaction:

In the context of the shift toward distance learning, the role of the professor is no longer confined to the transmission of knowledge; rather, it has evolved into the function of a facilitator, guide, and mentor of the educational process. Conversely, the student has transitioned from a passive recipient to an active participant expected to interact and engage in the construction of their own learning. Although most universities have adopted this orientation within their modern educational models, these transformations are not occurring with the required speed and effectiveness. Many traditional practices remain present within the university environment, reflecting the persistent influence of the classical educational model.

In this framework, the adoption of traditional educational strategies within a distance learning environment—especially in exceptional circumstances—does not align with the nature of this model, which is fundamentally based on interaction and participation. Restricting the student to listening to the professor for long periods without providing genuine opportunities for discussion or interaction may lead to weak student integration and feelings of boredom. It may even prompt them to view this type of learning as a waste of time, particularly given the availability of diverse digital content across various media.

Educational literature emphasizes that learning based on passive reception does not contribute to achieving active learning, nor does it support the construction of meaningful knowledge for the student; "sitting and listening" are insufficient to produce effective learning. Accordingly, the absence of interaction within the distance learning environment can be one of the explanatory factors for the student's disconnection from the educational process, which in turn may be reflected in their level of academic achievement and deepen the disparities among students, especially given their varying abilities to adapt to this educational model. (Rafrari, 2021)

5. The Digital Divide and its Impact on Equality of Educational Opportunities:

Many studies have linked the digital divide to the inequality of opportunities in accessing educational technologies, information and communication technology (ICT), and internet usage, as well as the lack of skills necessary to manage technological media and associated educational resources—which are essential for a wide range of teaching and learning activities. These imbalances are attributed to several causes, including a lack of awareness and knowledge among some families, in addition to disparities related to geographical regions and other factors.

Some researchers argue that the digital divide is not limited to the issue of access to resources alone; it also encompasses the disparity in possessing skills and the ability to use basic technologies and available digital educational resources. This grants some individuals greater opportunities compared to others who do not enjoy equivalent capabilities in this field. In this context, the economic factor is one of the root causes of this divide; its widening is linked to the financial capacity of learners, teachers, and various actors in the educational process, leading to a broadening gap between financially capable groups and those facing financial difficulties. Well-off parties are more capable of benefiting from modern technologies, while others find it difficult to keep pace with these transformations.

The digital divide is one of the most prominent obstacles preventing the utilization of e-learning advantages and skill development, particularly in developing countries—such as many African, Asian, and Latin American nations. In these regions, disparities manifest in technical capacities, academic achievement levels, and socio-economic conditions between privileged and underprivileged groups. Furthermore, the lack of access to the technologies and basic resources necessary for educational purposes leads to a widening gap in capacities, skills, and educational opportunities available to individuals, thereby limiting their ability to perform an effective role within society.

Studies indicate that the majority of deprived groups are concentrated in developing and lower-middle-income countries, while the groups that benefit most belong to economically developed nations. This confirms that the digital divide does not only affect educational practice but also contributes to deepening socio-economic disparities and reinforcing manifestations of inequality and frustration among the less fortunate. (M. Ollah, 2026)

It is evident from the above that the digital divide represents a complex problematic that transcends a mere lack of technological means to include economic, social, and cognitive dimensions. This makes it a real obstacle to achieving equality of educational opportunities. The persistence of this gap not only affects learning opportunities but also reproduces disparities within society and limits the ability of distance learning to achieve its goals of educational justice.

IV. Conclusion:

In concluding this presentation, it is clear that distance learning at the university represents one of the most prominent manifestations of digital transformation in the educational field. While it has provided vast possibilities for expanding learning opportunities and overcoming traditional constraints, this shift has not been without challenges. Experience has revealed clear disparities in benefiting from this educational model. Its effectiveness has been linked to the availability of digital infrastructure, technical competencies, and the quality of pedagogical practices, while technical, economic, and human challenges have hindered the achievement of its objectives. Furthermore, the shifts affecting the roles of both professor and student have not always been accompanied by effective interactive methods, which has impacted the quality of learning. In light of these data, the digital divide has emerged as a decisive factor in determining opportunities to benefit from distance learning, posing a real problematic regarding the achievement of equality of educational opportunities within the university. This is illustrated by the following set of conclusions reached by the study:

- Distance learning has contributed to expanding access to university education by overcoming the constraints of time and place; however, this accessibility remained relative, as not all students benefited to the same degree, reflecting hidden disparities in opportunities.

- The success of this educational model is contingent upon a set of fundamental conditions, including good digital infrastructure and stable internet access, alongside the possession of necessary technical skills—requirements that are not equitably available to all students.
- The experience of implementing distance learning revealed a series of challenges, particularly those related to weak internet networks, frequent outages, limited technical training, and financial difficulties, all of which directly affect the quality and continuity of the educational process.
- This transformation led to the reshaping of the roles of both the professor and the student, as learning became more self-reliant; however, the persistence of certain traditional practices within the digital environment and the weakness of interaction reduced the effectiveness of this model and affected student integration.
- Restricting the process to passive reception within distance learning, without activating mechanisms for interaction and participation, may lead to a student's sense of isolation and weak motivation, which negatively reflects on the level of academic achievement.
- The digital divide is not limited to the unavailability of technological means but extends to disparities in digital skills and the ability to use these means effectively, creating variations in the level of benefit derived from the educational process.
- The economic factor is one of the most prominent elements contributing to the deepening of this divide, as financial capacity determines the ownership and utilization of technological means, leading to a clear divergence among students in terms of educational opportunities.
- This disparity contributes to the reproduction of new forms of inequality within the university environment, where some students enjoy better educational opportunities compared to others who face technical or material difficulties.
- The persistence of this gap does not only affect academic achievement but also extends to social aspects by reinforcing a sense of injustice and exclusion among the less fortunate groups.
- Consequently, achieving equality of educational opportunities in the context of distance learning remains linked to the ability of educational institutions to bridge this gap by providing an integrated digital environment that ensures fair and balanced benefit for all students.

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