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Philosophy of e-learning vs m-learning

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Abstract: Aims. This study aimed to provide an in-depth analysis of e-learning and m-learning philosophy in the context of technology use in education. This research aimed to provide a deep and defined understanding of the impact of e-learning and m-learning philosophy in the context of education today.

Methodology. The methodology used for this research was a literature review, which was oriented by a systematic and analytical approach, to identify, analyse and evaluate the relevant writings and studies in the field of e-learning and m-learning philosophy. Initially, the field of the study was identified and defined, including the main topics and concepts related to e-learning and m-learning philosophy. Through the content analysis, the main trends, differences, and challenges arising from these two learning modalities have been identified.

Results. The results of the literature review served as a basis for further research in the field of education and technology, aspiring to contribute to the development of a comprehensive teaching approach that aligns with the needs of our rapidly advancing technological era.

Scientific Novelty. One innovative aspect was the increased analysis of the synergy between e-learning and m-learning. This analysis went beyond a simple examination of the benefits and challenges of each, but also explored the shared opportunities that arose from their combination and matching, that could serve as a model for the development of a common learning approach.

Conclusion. In conclusion, e-learning and m-learning philosophies serve as attractive paradigms for the use of technology in education. E-learning offers opportunities for research and advanced learning through online resources, while m-learning encourages active participation and the use of

mobile technology for a personalised learning experience. These paradigms have a profound impact on students' critical and analytical skills, promoting a more dynamic and interactive approach to learning.

Keywords: Educational systems, learning, philosophy, students, technology in education.

Introduction

In the current era of the 21st century, technology plays a crucial and irreplaceable role in the daily life, assuming a central position. As such, it necessitates professionals, educators, and students to engage in introspection and reconsider their underlying principles to effectively utilise technology for the purpose of reconfiguring or amending the educational system and training protocols. In addition, these technological devices play an important role in helping students and teachers get the most out of them. However, the terms electronic learning (e-learning) and mobile learning (m-learning) are used interchangeably or complementary to mean technological learning. E-learning is an alternative to traditional education and can also be a complement to it. On the other hand, further learning is complementary to both traditional and e-learning. M-learning allows learners to interact with their learning resources when they are away from their normal place of learning environments. E-learning and digital education approaches are evolving and changing the landscape of teaching and learning at all levels of education worldwide. The innovation of new learning technologies is helping e-learning and digital education to meet the needs of the 21st century. Due to the digital transformation of everyday practice, the process of learning and education has become more conscious and accessible at anytime from anywhere. New generations of digital natives are growing up with a range of skills through their engagement with the digital world. In the age of information and technology, the philosophy of learning has fundamentally changed, increasingly focusing on the digital environment and the use of technology to meet the goals of education. In this context, the clash between the philosophy of e-learning (electronic learning) and m-learning (mobile learning) becomes an important and topical topic. These two concepts bring fundamental challenges and changes to the way we teach and learn in modern times (Shohel & Mahruf, 2022).

In the age of information, communication technology, the philosophy of learning has fundamentally changed, more and more focusing on the digital environment and the use of technology to fulfill the goals of education. In this context, the clash between the philosophy of e-learning (electronic learning) and m-learning (mobile learning) becomes an important and topical theme. These two concepts bring fundamental challenges and modification to the way of teaching and learning in modern times.

E-learning, or electronic learning, represents a break from traditional classroom learning, using technology to transmit information and develop knowledge. Whereas, m-learning is about the use of mobile devices, such as smartphones and tablets, to have easy and quick access to information and learning.

This contrast between the philosophy of e-learning and m-learning brings deep questions and reflections about their impact on the learning process, as well as on students' abilities to adapt to an increasingly technological learning environment. Issues of student safety, privacy, and mental health also come to the fore when talking about these new learning paradigms.

In this scientific paper, these two concepts were deeply explored and the advances and challenges they bring to the education system were analysed. Furthermore, the study also investigated how these advancements affect students' reception of information and their development of critical and analytical skills in this modern educational setting. Through this in-depth analysis, the aim was to understand how the philosophy of e-learning and m-learning affect the quality and efficiency of the learning process,

shedding light on the challenges that may arise and proposing the most appropriate path to improve learning in the time of fast technology development.

Research Problem

The rapid growth of technology requires researchers to identify and analyse usable flows and innovation in the field of e-learning and m-learning. Issues of technology usability and efficiency are central to further developing a teaching philosophy that meets the needs of learners and educators. Studies so far have shown some contradictory results about the impact of e-learning and m-learning on the behavior and cognitive development of students. Some researchers consider that technology improves student engagement and motivation, while others argue that it can have negative impacts on communication skills and depth of learning. So, a basic problem in researching the philosophy of e-learning and m-learning is the lack of a rough and common definition of these two concepts. Some researchers use these terms as synonyms, while others distinguish them based on their modalities. This gap in definitions can lead to difficulties in comparing the results of studies.

Research Focus

The focus of the research was the identification of the specific changes that technology brings to the content of the lesson. For example, how does the approach and presentation of information on an electronic or mobile platform differ compared to traditional classroom learning. The research investigated how e-learning and m-learning affect classroom dynamics and student-teacher relationships. What was the role of the teacher in a technological learning environment and how did the interactivity and communication between the participants change. The final part of the research focus was devoted to proposals for the most suitable path towards an innovative teaching philosophy, using technology in a smart and effective way. These included suggestions for designing new educational policies, developing teacher training, and improving technology platforms for students.

Research Aim and Research Questions

This research aimed to provide a deep and defined understanding of the impact of e-learning and m-learning philosophy in the context of education today. Through the analysis of technological impact, classroom dynamics, and the development of students' critical skills, the research sought identifying the challenges and opportunities that these new learning paradigms brought. By including these aspects, the aim was to understand how technology adapted to the changed educational context. Through concrete proposals for the improvement of learning, the research aimed to contribute to the development of an innovative and effective teaching philosophy, addressing the needs of today's time and preparing the ground for an advanced education suitable to the demands of rapid technology development.

1. How does the philosophy of e-learning differ from that of m-learning in the context of the use of technology in education?
2. What are the main challenges facing the philosophy of e-learning compared to m-learning, and how can they be addressed to improve the effectiveness of e-learning?
3. How does technology affect the content and presentation of information in the context of m-learning, and what benefits does this modality bring compared to e-learning?
4. How does the classroom dynamic change in the use of technology in these two learning concepts?
5. What roles do teachers and students play in these different learning environments?
6. What are the influences of e-learning and m-learning philosophy on students' critical and analytical skills?

Theoretical Overview

E-learning typically involves the deliberate utilisation of networked information and communication technology for educational purposes. Various terms, such as online learning, virtual learning, distributed learning, and network and web-based learning, are employed to characterise this method of teaching and learning.

The term e-learning goes beyond the definitions like online learning, virtual learning, distributed learning, networked, or web-based learning. The "e" in e-learning, representing "electronic," encompasses all educational activities conducted by individuals or groups, whether online or offline, synchronously or asynchronously, using networked or standalone computers and other electronic devices. Additionally, M-learning, or mobile learning, involves using portable devices that enable learning in diverse environments and while on the move, rather than being restricted to a traditional classroom setting or tethered to a desk. While mobile learning is inherently electronic, it specifically focuses on handheld devices and portable technology, making it a distinct subset of e-learning (Chitra & Raj, 2018).

Significant changes in lifestyles, leisure activities, and preferences for entertainment have also had a profound impact on the way learning is approached. The education sector has undergone a significant revolution due to evolving demographics, shifting industry expectations, and a new generation of individuals eager to harness the transformative power of knowledge, while being less constrained by geographical distances. Although traditional classroom learning continues to have a significant impact, it is no longer the only option available. The Internet has emerged as a powerful equaliser, making distance learning and self-paced learning programs more efficient than ever before. Presently, educational institutions and leaders have the capability to deliver training to students through a myriad of innovative methods. The key lies in leveraging technology in creative ways that align with the unique circumstances of learners (Bial, 2015).

Types of e-learning

An individualised self-learning through online e-learning involves a single learner accessing educational materials, such as online databases or course content, via the Intranet or Internet. This could entail a student studying independently or conducting research on the Internet or a local network.

Offline Paced Individualised E-Learning refers to instances where an individual learner utilises learning resources, like a database or computer-aided learning package, offline, without a connection to an Intranet or the Internet. An example of this is a student working with materials stored on a hard drive, CD, or DVD.

Synchronous group-based e-learning pertains to situations where groups of learners collaborate in real-time through an Intranet or the Internet. This may involve text-based conferencing, as well as one- or two-way audio and video conferencing. For instance, students might engage in live chat sessions or participate in audio-video conferences.

Asynchronous group-based e-learning involves groups of learners working on an Intranet or Internet, where interactions between participants occur with a time delay, not in real-time. Examples of this include online discussions through electronic mailing lists and text-based conferencing within learning management systems. (Patel, 2016).

The effectiveness of an e-learning course is improved through several factors. First, the content should revolve around the learner, addressing their specific needs, roles, and professional

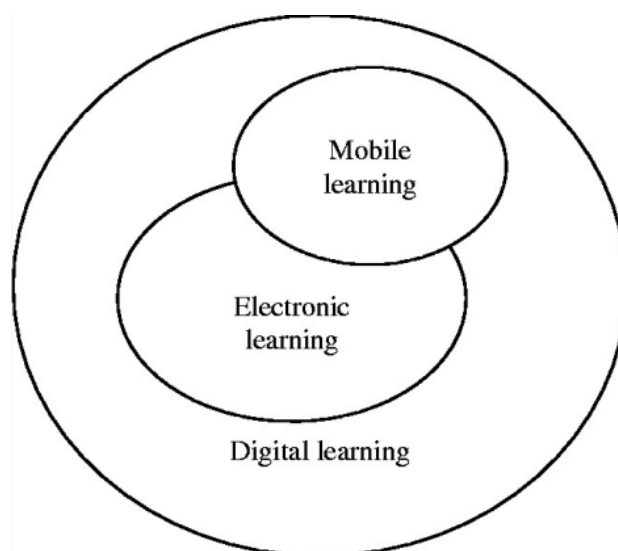
responsibilities. This entails delivering skills, knowledge, and information pertinent to their context. The e-learning content should be organised into segments, facilitating the absorption of new knowledge and enabling flexible scheduling of learning sessions. To enhance the learning experience, teaching methods and techniques should be employed in a creative manner to captivate and motivate learners. Ensuring regular interaction with students is crucial to maintaining attention and fostering effective learning. In self-study courses, customisation options should be available to align with the individual interests and needs of students. In instructor-led courses, tutors and facilitators should have the capability to monitor individual student progress and performance (FAO, 2021).

The mobile learning offers adaptable learning opportunities and combines Information and Communication Technologies (ICT) to deliver education at any moment. In the realm of mobile learning, students can utilise mobile devices to reach educational materials, collaborate with peers, and generate content, whether they are inside or outside the traditional classroom setting. Additionally, the mobile learning addresses educational administration tasks and enhances communication between educational institutions and families (Kumar & Vasimalairaja, 2019).

The mobile learning is recognised for its exceptional convenience and user-friendly features. Its ability to be accessed anytime and anywhere makes it a perfect option for various settings, including while traveling, in educational institutions, at home, or in professional environments. The absence of technical constraints typically associated with smartphone-based learning contributes to its ease of use. Despite these advantages, it's worth acknowledging that mobile devices may not match the performance of desktops in educational contexts. Factors like memory limitations and processing speed issues stemming from operating system design decisions can result in reduced efficiency over time. Nevertheless, considering their primary design emphasis on portability and user-friendliness, mobile devices excel in simpler applications such as email correspondence or phone calls. They prove highly beneficial for activities like note-taking during online study sessions in the comfort of one's home. However, for those requiring a more potent and robust learning environment, desktop computers emerge as the superior option. Desktops permit the installation of various software, enhancing the overall convenience and effectiveness of the learning experience. Their capacity to handle larger files and datasets leads to a more enriching educational experience, as they process information and complex tasks at a faster rate compared to mobile devices in general. While desktops lack the portability of mobile devices or laptops, they remain the preferred choice for individuals seeking a powerful and versatile learning setup. It's important to note that technology serves as a teaching tool, as emphasized by both Lim (2021). It's crucial to emphasise that technology serves solely as a tool for teaching (Orhani, 2021).

Figure 1

e-learning vs m-learning(Basak, Wotto, & Bélanger, 2018)



E-learning is mainly oriented towards teaching students' specific skills or providing in-depth knowledge in a certain field or topic. For example, e-learning may be appropriate when teaching students how to operate machines, perform laboratory tests, or formulate organisational policies. E-Learning takes a structured, formal and time-limited teaching format. m-learning, on the other hand, is used to support a continuous learning process by supplying learners with concise information. This teaching mode can be ideal when the teacher wants to go over a list of tasks or short but important information about a certain topic. Therefore, it can be described as an on-demand, timely and context-aware form of education delivery (Bonghez, 2021).

As expressed by Sanchez-Prieto et al. (2016), m-learning is a learning approach closely associated with e-learning and falls within the category of independent typology. This typology signifies that the instructional and learning processes can occur within an electronic context (Sa'nchez-Prieto, Olmos-Miguelanez, & Garcia-Penalvo, 2016).

Philosophy of e-learning and m-learning

A prominent trend in the progress of information and communication technology (ICT) within education is the swift proliferation of mobile technology. This technology has brought about positive changes in various aspects of people's lives, notably enhancing the perception of the quality and convenience of contemporary living. Mobile devices have seamlessly integrated into the daily routines of individuals, becoming an indispensable component of modern life as people carry them everywhere (Traxler, 2020). Furthermore, the noteworthy functionalities of mobile devices enable the substitution of certain tasks that would typically be executed on desktop or laptop computers (Al-Emran et. al., 2019).

Information and Communication Technologies (ICTs) are recognised as essential tools that play a crucial role in sharing and generating new knowledge across various aspects of social life, including education, private endeavours, commerce, among others (Rivera & Suconota, 2018). Prior to the pandemic, educators primarily employed ICT for tasks such as report writing and assignment completion, while learners mostly utilised it for leisure activities. This highlights that, for many individuals, this tool was exclusively associated with computer use, overlooking the numerous affordable yet high-quality devices that were accessible (Costa, 2020). The utilisation of these tools has brought about significant transformations within knowledge communities. Its influence is substantial in both form and content, proliferating to the extent that the essence of knowledge has permeated society at large, generating impacts across various environments. Schools, as integral components of

daily life, stand out as particularly potent spaces where technology exerts a substantial influence (Balart & Cortés, 2018). The evolution witnessed in these technologies could manifest as an educational aid capable of enhancing the quality of student instruction and fundamentally altering the manner in which information is acquired, processed, and interpreted (De la Hoz, Martínez, Combata & Hernández, 2019). ICTs initially emerged beyond the educational context but were subsequently acknowledged within it, recognising the teaching as an essential facet of human existence. The integration of these tools with a novel knowledge environment aims to empower students as the central figures in their own learning experiences, aligning with the principles of the constructivist theory. Within this instructional framework, the aspects of time and flexibility assume significant roles (Grande, García, Corell, & Abella, 2020). ICTs and their advancements progress swiftly, reshaping the landscape of knowledge. In this regard, it is comprehensible that pedagogy, as a discipline, confronts diverse challenges and necessitates more thorough investigation (Bruner, 2018). The educator needs to define their role, arrange methods for students to acquire cognitive skills, and endeavor to apply these skills in diverse scenarios. As traditional in-person education resumes, classrooms will need established virtual components that enhance knowledge through the effective use of various technological resources, involving both students and teachers (Salinas, De Benito, Pérez & Gisbert, 2018).

Nowadays, students commonly utilise mobile devices for studying while in motion (Adov, 2020). This increased mobility, reducing dependence on fixed locations for work and study, allows for both formal and informal learning contexts (Zhou & Li, 2018), thereby altering the dynamics of how students acquire knowledge.

The use of mobile technology influences these attitudes toward acquiring information (Pinto et al., 2020). Attitudes play a crucial role in the successful adoption of mobile technology. They are instrumental in determining the feasibility of implementing this technology (Bacca-Acosta & Avila-Garzon, 2020; Mauricio & Genuino, 2020). The adoption of m-learning is significantly influenced by the attitudes of students (Yunkul & Cankaya, 2017). This aligns with conclusions drawn in other research, indicating that students' attitudes impact the acceptance of m-learning. These attitudes play a substantial role in predicting students' intention to use mobile technology and influence their behavioral intentions (Binbasioglu & Turk, 2020). In general, current literature has uncovered varied outcomes concerning students' attitudes towards m-learning (Botero et al., 2018), including negative ones (Mikroyannidis et al., 2018). and positive attitudes (Bacca-Acosta & Avila-Garzon, 2020). Yet, over the recent years, numerous studies have demonstrated positive sentiments toward m-learning (Salhab & Daher, 2023; Martínez et al., 2020; Fabian, Topping & Barron, 2018).

Many research studies have assessed the level of acceptance and adoption of m-learning technologies in the field of education (Chen, 2017; Dumpit & Fernandez, 2017). Mobile learning (m-learning) impacts both the teaching and learning processes and has garnered considerable academic focus, especially with the rising adoption rates in Higher Education Institutions (HEIs) since the emergence of cloud computing. M-learning is favored for enabling instructor/peer participation without the need for physical networking in Knowledge Sharing (KS) or collaboration. However, it encounters challenges related to mobility/communication, as well as issues like battery life, environmental concerns such as scalability/availability, and security matters like privacy. This underscores the need for enhancements in the capabilities of mobile devices (Alghabban et al., 2017; Arain et al., 2018; Li & Wang, 2018). Furthermore, m-learning has been adapted to address the preferences of millennial students, integrating conventional classroom teaching and e-learning, along with active participation in social media for Knowledge Sharing (KS). This approach aims to make KS accessible at any time and from any location, fostering collaborative learning during study sessions at the learners' convenience. Despite these developments, the theoretical foundation supporting the utilization of m-learning in the

context of teaching and learning is insufficiently explored, and there is a notable absence of comprehensive pedagogical understanding (Li & Wang, 2018).

The advantage of e-learning is the convenience for both students and teachers (Adeoye et al., 2020). To be more precise, the convenience of engaging in meetings through personal electronic devices and the option to participate from a remote location (Essilfie et al., 2020). According to Patra et al. (2021), e-learning systems offer convenience not just for conducting classes but also for various tasks and activities such as presentations, tests, and assessments conducted beyond the traditional classroom setting. E-learning is recognised for its user-friendly nature (Konig et al., 2020). Besides convenience, success in e-learning for both students and educators is built on factors such as innovation, knowledge sharing, and quality (Salloum et al., 2019).

The e-learning setting offers numerous benefits, including the removal of constraints related to time and space, offering learners abundant learning resources in various formats (such as images, audio, and video), and enabling self-paced learning (Al-Fraihat et al., 2020; Huang & Chueh, 2022; Li et al., 2021). The varying effectiveness of e-learning in terms of learning outcomes can be attributed to several factors. Factors contributing to challenges in virtual environments can be attributed to various individual student characteristics, concerns about the perceived distance in the virtual setting, a lack of confidence and trust in online communities, and the absence of non-verbal cues like facial expressions and body language (Rasheed et al., 2020; Szopiński & Bachnik, 2022).

The primary distinction between mobile learning and e-Learning lies in the fact that e-Learning incorporates more sophisticated features, contributing to a more efficient learning experience for learners (Lim, 2021). Certain research has highlighted the pedagogical challenges students encounter on e-learning platforms. For instance, Ayu (2020) found that some students faced difficulty comprehending the e-learning materials (Ayu, 2020). Muller et al. (2021) asserted that e-learning hinders comprehensive learning (Muller et al., 2021). As highlighted by Adilbayeva et al. (2022), university teachers currently employ a blended approach, integrating traditional pedagogical teaching methods with information and communication technology (ICT) (Adilbayeva et al., 2022). Nevertheless, there is an increasing need for digital tools, indicating a necessity for teachers to acclimate to these tools. Consequently, e-learning necessitates a tailored pedagogical approach that aligns with its environment and addresses specific user requirements. Simply put, the conventional pedagogical frameworks may not be the most effective in an e-learning setting (Nouraey, Bavali & Behjat, 2023).

Moreover, students perceive that the engagement with online learning systems can enhance their academic performance, prompting them to willingly adopt these systems. Consequently, if students perceive online learning systems as beneficial and user-friendly, they are more inclined to persist in their utilisation of these platforms (Chang et al., 2017; Ayele and Birhanie, 2018; Huang and Teo, 2019; Huang et al., 2020). E-Learning brings a multitude of advantages, aiding learners in staying current in the rapidly evolving contemporary environment. It is fundamentally reshaping the way people access information and positively influencing the education system (Vektor, 2020).

Research Methodology

General Background

The methodology used for this research was a literature review, which was oriented by a systematic and analytical approach, in order to identify, analyse and evaluate the relevant writings and studies in the field of philosophy of e-learning and m-learning. Initially, the field of study was identified and defined, including the main topics and concepts related to the philosophy of e-learning and m-learning. This served as the basis for the selection of relevant studies and articles for inclusion in the

review. The resource search was conducted in various databases, including academic libraries, scientific databases, and electronic resources. The selection of sources was based on pre-defined criteria, including the importance, topicality, and relevance of the studies. The literature was analysed using a thematic and critical approach. Common themes and differences between the writings were identified and analysed. Through the in-depth analysis, the responses and definitions of the authors regarding the philosophy of e-learning and m-learning have been highlighted. Information from the literature was systematically systematised and categorised, including the creation of a structured system of themes and sub-themes. This process facilitated the organisation of information and served as a basis for more in-depth analysis. The quality of each study was evaluated based on certain criteria, including methodology, composition of the responsible, and determination of results. This enabled an appropriate assessment of the reliability and applicability of the results obtained from the literature included in the review.

The gathered and analysed information was synthesised into an overall slide, including the key findings, differences, and trends identified from the literature. This synthesis has served as the basis for the design of the literature review in terms of the philosophy of e-learning and m-learning. This methodology has followed a structured and systematic approach to ensure a thorough and focused review of the literature, contributing to the understanding and evaluation of the philosophy of e-learning and m-learning in the field of education and technology.

Research Results

This section presents the results and findings achieved through the data analysis and the implementation of the methodology used in this study concerning the philosophy of e-learning and m-learning in the context of information and communication technology (ICT) in education. The results were organised under main themes emerging from the content analysis of the literature. This results chapter aimed to bring an in-depth understanding of the impact of e-learning and m-learning philosophy on teaching practices, including the observations and perspectives of the subjects involved in the research. The findings achieved through this analysis provided an important basis for better understanding the connections between technology and education, contributing to the field of education and paving the way for further research.

Table 1

Difference between E-learning and M-learning (Chitra & Raj, 2018)

Key Features	E-Learning	M-Learning
Delivery of Content	Education occurs via desktop or laptop computers.	Education occurs using compact, wireless devices that are small and portable enough to be carried in a pocket, purse, or hand.
Access	People need to be comfortably seated in a specific location to participate in the course.	People can access learning materials or information while on the move and are not required to be stationary in one location.
Screen Size & Navigation	With larger screens and seamless navigation using the mouse pointer, the delivery of visuals, graphics, and text can be achieved effectively.	The screens on mobile devices are constrained in size, restricting the capacity for displaying text and graphics. Buttons must be enlarged to facilitate easy use by learners with their fingers.
Content Type	The content can cover a wide range of topics.	The content should center around a singular concept.
Context	It is essential to establish context before incorporating it into the primary module.	Mobile learning (M-learning) is impromptu and context-driven.
My	E-learning modules typically extend from 20 to 30 minutes, facilitating thorough knowledge transfer.	M-learning modules must not exceed 5-7 minutes since learners find it challenging to concentrate on content lasting any longer.

Source: (Chitra & Raj, 2018)

From the table above, it was noticed that research on e-Learning and m-Learning has evidenced small differences in the content delivery, access, screen size, content type, context, and time used for each modality. While e-Learning involved rich and complex learning through desktop devices, m-Learning provided the ability to access knowledge anywhere through mobile devices. e-Learning had a more regular context and longer time for learning, while m-Learning focused on short and spontaneous content. These findings provide insight into the challenges and potentials of each modality, concluding that each has advantages and limitations that should be considered in future strategies and implementations of technology in education.

The results also show that the use of technology has significantly changed the dynamics of the classroom. Students and teachers report a change in approach to learning, including a wider use of Internet resources and learning platforms. Data analysis shows that technology has influenced the development of students' critical skills. The use of technology-based learning methods has brought

about an improvement in students' ability to analyse information and formulate critical evaluations. The results of the research show that there is a clear socio-cultural and economic impact of the use of technology in learning. The experience of technology varies depending on the socio-cultural context and the economic level of the participants in the educational process.

Teachers identify the benefits of e-learning and m-learning, including improving teachers' preparation, personalising learning for students, and using advanced assessment and evaluation tools. Students identify several challenges, including the lack of sufficient technology infrastructure, the need for more in-depth training for teachers, and security and privacy challenges in using technology in learning. Based on the analysis of the results, this chapter includes conclusions and recommendations for the future. The recommendations provide solutions for the identified challenges and propose practical steps for enhancing the utilisation of technology in the realm of education.

Discussion

The discussion of the results of this research brings an analysis of the differences between E-Learning and M-Learning in the context of information and communication technology in education. This discussion addresses the implications and findings related to the challenges and potentials of each learning modality (Salhab & Daher, 2023). Similar to the research conducted by Wang and Jou (2020), it was revealed that during interviews, the majority of students exhibited favorable attitudes towards mobile learning (m-learning). This positivity stemmed from the perceived advantages of personalized learning, enjoyable educational experiences, and the opportunity for peer interaction. The cognitive aspect of attitudes demonstrated a moderate effect size and was the most prevalent among other attitudinal themes identified through interview and focus group discussion (FGD) analysis. This outcome may be attributed to the cognitive component's association with knowledge, perspectives, and opinions concerning a particular object. Learning, by providing a rich learning experience through desktop devices, has had a profound impact on preparing teachers and students for broad and complex knowledge. However, the requirement to remain in a fixed location to complete courses can impose limitations on individuals who prioritise flexibility and desire access from anywhere (Wang & Jou, 2020).

From the other hand, m-Learning has distinguished itself for an easy possibility of accessing knowledge, using mobile devices suitable for everyday life. However, the small screen and limited learning time can cause challenges in conveying deep and complex content. The findings also indicated a noteworthy distinction in the emotional facet of attitudes between the two groups. The experimental group exhibited higher scores in the emotional component of attitudes compared to the control group, with a moderate effect size observed among the various components. A significant number of students displayed a keen interest in mobile learning (m-learning), contributing to their positive attitudes and successful course completion. This interest led them to engage with and enjoy specific course content, in contrast to the majority of information they used to absorb in traditional teaching methods. This discovery aligns with previous research (Bacca-Acosta & Avila-Garzon, 2020), which highlighted those students' expressed enjoyment and enthusiasm, particularly in written tasks, when utilising mobile devices.

In this discussion, it is important to mention that the context and purpose of learning have an important role in determining the most appropriate learning modality. E-Learning may be best suited for professional training and varied learning, while m-Learning has tremendous potential for spontaneous learning and in areas where accessibility is key.

To capture all the advantages and challenges of each modality, a common and flexible approach should be used in the development of teaching strategies. To optimise the benefits of technology, it is important to incorporate a well-thought-out combination of e-Learning and m-Learning depending on the context and learning objectives. This study contributes to the deep understanding of the implications of the use of technology in education and provides a solid foundation for future developments in this field.

The first research question asked how the philosophy of e-learning was different from that of m-learning when it came to the use of technology in education. To answer this question, the following can be said. The philosophy of e-learning and m-learning differs mainly in relation to the use of technology in education, focusing on different contexts and characteristics of learning. E-learning aims to create a rich and fulfilling environment on a computerized platform, such as laptops or desktop computers. This philosophy addresses learning over a relatively long time, with a focus on rich and expansive content. On the other hand, the philosophy of m-learning is focused on the use of light and responsive devices for movement, such as smartphones or tablets. M-learning brings a more flexible and mobile experience, making learning possible in a short time, but often more appropriate to the needs of users in a special or spontaneous context. The philosophy of m-learning has an orientation more towards contextual learning and is often used to provide immediate and needed knowledge. In this way, the combination of technology with the philosophy of e-learning and m-learning brings two different approaches in describing the paradigm of education, with a deeper and richer approach to e-learning and a more suitable approach to the movement and short-term learning for m-learning. The use of technology in these two contexts serves to fulfill different goals and needs of users in the field of education. E-Learning and M-Learning offer the opportunity to individualize learning by tailoring the learning experience to the needs of each student. The online learning platform provides concrete examples, such as Khan Academy, which uses algorithms to personalise training based on student test scores, providing learning material tailored to each individual. Also, M-Learning improves interaction and collaboration between students through mobile technology. The use of online communication platforms are concrete examples, such as Google Classroom that enables the exchange of information and collaboration in remote learning projects (Khan Academy, 2024; Google, 2024).

The second research question inquired about the primary obstacles confronting the philosophy of e-learning in comparison to m-learning, and proposed ways to tackle them in order to enhance the effectiveness of e-learning. The research question suggests a different approach, asking for a specific analysis of the challenges that e-learning philosophy faces in comparison to m-learning and possible strategies for addressing them. According to this defined question, can give a more focused answer and concentrate on the data provided by the research. this is also parallel to the research findings of Mhlongo, Mbatha, Ramatsetse, Dlamini (2023). The main challenges that the philosophy of e-learning faces with m-learning include the need for a stable Internet connection for users, the challenges of managing rich and complex content, and the lack of flexibility in access. To improve the effectiveness of e-learning, it is important to address these challenges. One solution could be the development of applications and platforms that allow the offline learning, using the latest artificial intelligence technologies to personalize content and investing in robust network infrastructure. This would enable a more flexible and accessible learning experience, thereby improving efficiency and accessibility for e-learning users.

The answer to the third research question regarding the influence of technology on information content and presentation in the context of m-learning, and the advantages it offers over e-learning, is as follows: technology has a profound impact on the content and presentation of information in the context of m-learning and brings several benefits compared to e-learning. Technology in m-learning brings about a fundamental change in the way content is presented and delivered (Salhab & Daher, 2023).

Mobile applications and platforms provide a personalised and convenient learning experience, using multimedia, graphics and interactive techniques to build a more engaging and effective learning environment. M-learning uses technology to create learning experiences that are more contextual and better suited to the individual needs of users, using sensors and information from the surrounding environment. Mobile applications can use images, audio, video and interactive elements to explain concepts, making it easier to understand and convey information. M-learning offers the opportunity for learning anywhere and anytime, making it easier to use information and learn in free moments or when users are on the go. The use of artificial intelligence and personalisation algorithms can deliver personalised content, tailoring learning to the needs and abilities of individuals. M-learning has the ability to explore virtual reality and describe concepts in a way that is difficult to achieve in e-learning.

The fourth research question inquired about how the dynamics in the classroom change when technology is used in these two learning approaches. We can provide an answer to this question. Likewise, Taylor, 2023 mentions that while e-learning can be used in a classic environment with physical communication, technology adds a new dimension (Taylor, 2023). Teachers can distribute learning materials, communicate with students via e-mail or other platforms, creating an easier communication dynamic. In m-learning, communication can become more interactive and focus on applications or mobile platforms. This leads to a higher level of student participation, encouraging the exchange of information in real time. Also, in e-learning, applications and interactive tools can be used, but this depends a lot on the technological infrastructure available. The experience may be more limited if students only have access via desktop computers. The use of mobile applications and interactive tools can influence a wider use of technology by students, helping to improve the learning experience and making learning more engaging.

The fifth research question asked what role teachers and students play in these different learning environments, the answer is the next. In e-learning environments, teachers play a critical role in designing and directing learning content, ensuring that materials are appropriate for the platform used, and providing help and support. Students, on the other hand, experience a high level of autonomy and responsibility, organising their own learning and active involvement. In m-learning, teachers are tasked with creating interactive content and helping students use mobile technology, while students can be more involved and creative in their learning experience. Classroom dynamics vary depending on the modality, with e-learning favoring autonomy and individual planning, while m-learning encourages active participation and learning in motion. In general, technology forms a partnership between teachers and students, providing tools and opportunities for more interactive and personalised learning. It discusses how teachers can use learning technologies in the classroom and how this can affect teaching methods and student outcomes. Compilation of testimonials from real teachers who have successfully used E-Learning or M-Learning in the classroom is one example, a study of a school in Kosovo that has implemented a program of using tablets in the classroom may include teacher evaluations of advantages and challenges of this method (Orhani, 2021).

An answer can be given to the sixth research question, which explores the impact of e-learning and m-learning philosophies on students' critical and analytical skills. In this way, from the research of Seo, Tang, Roll, Fels and Yoon (2021) we see that it is shown the effects of e-learning and m-learning philosophy on students' critical and analytical skills are complex and closely related to the modalities and characteristics of these technology-based learning environments (Seo, Tang, Roll, Fels, Yoon, 2021). Likewise, it can be said that e-learning and m-learning philosophies have significant impacts on students' critical and analytical skills. In e-learning, the use of multimedia resources and online platforms offer students the opportunity to develop information analysis skills and the use of technology to solve problems. In m-learning, active participation and frequent interaction via mobile devices encourages a deeper understanding and a wider use of analytical skills. The personalisation of content

and the use of artificial intelligence technology also contribute to the improvement of analytical skills through an experience adapted to the individual needs of students. In this way, the philosophies of technology in learning positively influence the development of students' critical and analytical skills in these different learning environments.

The challenges and potentials identified in the study on "Philosophy of E-learning vs M-learning" have important implications for stakeholders in education, including teachers, students and educational institutions. Teachers face challenges in their adaptation to the e-learning and m-learning environment, needing to acquire technological competences and develop efficient teaching strategies in this context. The changing role of the teacher from transmitter of knowledge to teacher guide and counselor can be empowered through the use of technology to personalize learning. Providing ongoing training and opportunities for the development of technological skills and modern teaching strategies. Also, encouraging the exchange of experiences and collaboration between teachers to convey the most effective ways of using technology. Whereas students may face difficulties in adapting to e-learning and m-learning platforms, affecting the inclusion and understanding of the lesson. Students have the opportunity to better adapt to a personalized and dynamic learning, developing analytical and critical skills in processing information. Providing appropriate resources and training for students to use technology in learning. Creating interactive and appropriate learning environments to convey the diversity of student needs. On the other hand, educational institutions must face the challenges of technological infrastructure, staff training, and the development of policies that encourage the effective use of technology in learning. E-learning and m-learning offer opportunities for increasing access to education, improving the quality of learning and advancing educational innovation. Investing in technological infrastructure and providing the resources needed to support online learning. While the challenges identified affect the transition to e-learning and m-learning, their potentials can be harnessed through well-managed investments, permanent training, and the development of appropriate educational policies. This marks an opportunity for a more flexible education, adapted to individual needs and prepared for the challenges of the digitised society.

E-Learning (electronic learning) and M-Learning (mobile learning) are two different learning modalities, each with its own advantages and challenges. The advantages of e-Learning are a wide access, use of multimedia resources, time flexibility, etc. Whereas the limitations of e-Learning are the lack of direct interaction, need for high discipline, etc. On the other hand, the advantages of M-Learning are: Access everywhere, active participation, personalization and context, etc. Whereas the limitations of M-Learning are: Screen limitations, the need for a stable connection, etc. The clear identification of learning goals and the use of technology as a means to achieve these goals affects the construction of a defined strategy for the use of technology that will help in the effective and purposeful use of digital resources. The use of interactive content that encourages student participation and interaction is the use of multimedia materials, simulations, and educational games can improve student engagement and understanding (Salhab & Daher, 2023; Martínez et al., 2020; Fabian, Topping & Barron, 2018).

Combining the strengths of each modality can make for a rich and relevant learning experience. For example, video lectures used in E-Learning can be integrated with M-Learning platforms to allow learning to be followed on the go. The use of virtual and augmented reality technology can improve the student experience, making it more interactive and realistic. Ultimately, a hybrid approach combined between E-Learning and M-Learning can provide personalised, flexible and resource-rich learning, improving the quality and access to education for a wider range of students. This interweaving can address the concerns of each modality and create a learning paradigm suited to the needs of the digitised society. Ensuring a successful integration of technology in traditional and virtual learning can be a technical challenge. Strategy: Representing technical rules and standards for the use of technology,

preparing the necessary infrastructure and providing technical support are critical. Periodic trainings for teachers and students can help in the effective use of technology (Seo, Tang, Roll, Fels, Yoon, 2021).

Conclusions and Implications

In conclusion, e-learning and m-learning philosophies serve as attractive paradigms for the use of technology in education. E-learning offers opportunities for research and advanced learning through online resources, while m-learning encourages active participation and the use of mobile technology for a personalised learning experience. These paradigms have a profound impact on students' critical and analytical skills, promoting a more dynamic and interactive approach to learning. Through the use of various resources and artificial intelligence technology, these philosophies can contribute to the development of a generation capable of analysing, understanding and using information critically in a rapidly changing learning environment. With appropriate care and planning, e-learning and m-learning can provide a successful blend of technology and learning to improve the quality of education and student skills in the digital age.

After examining the insights and analysis presented in this paper on the "Philosophy of e-Learning vs m-Learning", the conclusion that these technology-based learning approaches provide a diverse and transformative perspective on the future of education can be drawn. E-learning and m-learning appear as suitable learning environments for an increasingly digitised society, increasing students' critical and analytical skills. In this journey towards a suitable and technologically advanced education, it can be observed that the use of technology in learning brings a great impact on the future of the educational process, bringing about a fundamental transformation in the way we learn and interact with information. This journey ignites curiosity and optimism, empowering people to harness the potential of technology in shaping a generation that is capable and ready to tackle the challenges of an ever-evolving society. The research conducted on the "Philosophy of e-learning vs m-learning" brings with it some implications and consequences that may have an impact on the field of education and technology use. Some of the key implications include:

- The research emphasises the importance of adapting teaching methodologies to adapt to e-learning and m-learning modalities. This has significant implications for teacher training and their development of skills for using technology in the learning process.
- The research findings underline the importance of a robust and accessible technological infrastructure to ensure an effective use of e-learning and m-learning. This has implications for public policies and investments in the field of education and technology.
- The research conclusions emphasise the positive impact that technology can have on the development of students' critical and analytical skills. This can influence the determination of teaching strategies and the compilation of school curricula.
- The implications of the research drive the need for continued research in this area to define the benefits and challenges of e-learning and m-learning more clearly. They also emphasise the need for further technology development to improve the learning experience.
- The research brings to attention the need for educational systems suitable with the growth of technology. This includes educational policies, curricula and teaching practices that must be in line with the opportunities and challenges that technology offers.

- The consequences of this research include the need to prepare students for the challenges of an increasingly digitised society. This includes developing their technological and critical skills to adapt to this changed environment.

Suggestions for Future Research

This research has provided valuable insights into key aspects of e-learning and m-learning philosophy. To deepen this direction and bring greater contribution to the field of education and technology, some concrete areas of focus for future research are suggested. In-depth research into the efficiency and impact of e-learning platforms can focus on comparing performance differences between different platforms, including aspects of usability, age group suitability, and ways of adapting content. Future research could concentrate on examining the impact of e-learning and m-learning platforms on teachers' competence and readiness, exploring the obstacles as well as advantages they may face while incorporating technology into their teaching practices. Future research could turn to exploring the effectiveness of personalised learning methodologies in e-learning and m-learning environments. This focus may include the analysis of the use of artificial intelligence technology to tailor content and learning methods to individual student needs. Future research can be done on how these platforms affect changing classroom dynamics and the changing role of teacher and student is an area that has significant potential for understanding social and educational transformations. Another area of research could delve into the effects of e-learning and m-learning platforms on the skills and preparedness of educators. Examining the challenges and benefits teachers encounter when integrating technology into their teaching methods is crucial for informing effective professional development programs. Furthermore, future research might concentrate on evaluating the effectiveness of personalised learning methodologies within e-learning and m-learning environments. This exploration could encompass an in-depth analysis of the utilisation of artificial intelligence technology to customise content and instructional methods based on individual student needs.

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