

Modern Technologies and Their Effectiveness in the Educational Process. A Field Study of a Sample of Students at Akli Mohand Oulhaj Bouira University-Algeria

التقانات الحديثة وفعاليتها في العملية التعليمية
دراسة ميدانية على عينة من طلبة جامعة أكلي محند أولحاج البويرة-الجزائر

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Abstract:

The study aims to examine the current state of technological developments in university education, identify the most prominent modern technologies in use, and assess their effectiveness in achieving educational objectives.

The study adopted a descriptive-analytical approach and was conducted on a random sample of 80 first-year social sciences students at the University of Bouira during the 2024–2025 academic year.

The results revealed widespread use of digital media, with electronic interaction between students and lecturers.

Keywords: Education, Technology, Modern technology, E-learning, Digital education.

المخلص:

تهدف الدراسة إلى معرفة واقع التطورات التكنولوجية في التعليم الجامعي، ورصد أبرز التقانات الحديثة المستخدمة، مع تقييم مدى فاعلية تكنولوجيا التعليم في تحقيق الغايات التربوية.

اعتمدت الدراسة المنهج الوصفي التحليلي، طبقت ميدانيا في جامعة البويرة خلال الموسم الجامعي 2024–2025 على عينة عشوائية مكونة من 80 طالبا من السنة الأولى علوم اجتماعية.

أظهرت النتائج انتشار واسع للوسائط الرقمية وتوظيف للمنصات الرسمية والتعلم الذاتي، مع تفاعل إلكتروني بين الطلبة والأساتذة.

الكلمات المفتاحية: التعليم، التكنولوجيا، التكنولوجيا الحديثة، التعليم الإلكتروني، التعليم الرقمي.

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1- Introduction

In recent decades, the education system has undergone profound structural transformations driven by the accelerating convergence of the educational sector and the digital revolution, with modern technologies reshaping the structure and direction of educational practice-in terms of tools and media, the very logic of learning, and the ways in which meaning and knowledge are constructed within educational settings. This change represents a shift towards a new model of symbolic and knowledge production based on an unprecedented interconnection between the educational and the technological, through which the roles of actors, patterns of interaction, and the conditions for accessing knowledge are being redefined. In a context characterized by the expansion of digital knowledge, educational institutions, as social institutions, are now required to produce tools that adapt learners to open digital environments that transcend the walls of the classroom and rearrange educational relationships according to the logic of real-time communication, data flow, and multimedia. However, this transformation is governed by complex socio-cognitive conditions, including disparities in digital literacy, the unequal distribution of tools, and differing cultural representations associated with technological learning. All these factors subject the effectiveness of these technologies to critical scrutiny that goes beyond technical competence to analyze their capacity to influence the very essence of educational practice. These transformations have given rise to new concepts such as "digital citizenship", "networked learning", and the "smart learning environment", concepts that reflect a profound shift in the conception of learning, which is now managed within open, complex, decentralized interactive systems. In light of this conceptual proliferation, significant questions emerge concerning the boundaries and utility of these technologies: do they effectively enhance educational attainment? Furthermore, do they cultivate profound understanding and self-determined motivation? Or do they reproduce new forms of symbolic and cognitive inequality? Building on this analytical framework, this study aims to examine the nature of first-year social sciences students' use of modern technologies in university education and to analyze their pedagogical effectiveness by identifying actual uses, students' perceptions, socio-cognitive barriers, and their potential impact on academic performance and pedagogical understanding.

2 - Significance of the Study:

Sociological studies of educational issues are of particular importance as they examine the social dimensions of education and focus on identifying the links between the educational process and the social environment and cultural conditions in which it takes place. The present study falls within the scope of sociological research concerned with the educational process in relation to its socio- -cultural context, it examines the effectiveness of technology use in education and its importance in achieving educational objectives. What lends particular significance to this study is the widespread and extensive adoption of e-learning in its various forms across all human societies, making its study both necessary and worthwhile.

3- Objectives of the Study:

The study seeks to achieve a set of objectives, including:

- To identify the most significant technological developments employed in education,
- To identify the most prominent emerging technologies in e-learning,
- To examine the effectiveness of educational technology in the pedagogical process and the attainment of its desired objectives.

4- Previous studies:

Numerous studies have addressed the subject of modern technologies across all fields, including education, ranging from prospective and analytical to critical analyses. The methodologies employed in these studies have varied according to differences in academic disciplines and theoretical approaches, as well as the diversity of field study areas, The widespread use of various modern technologies in education at university level and below, and the varying reactions to this—whether from education practitioners or the general public—have contributed to a flourishing of theoretical and empirical scientific studies on this subject, in an effort to identify the implications of the shift towards e-learning, its outcomes, as well as its challenges and obstacles.

4-1 -The first study:

A study conducted by Amour Omar, Moussai Abdelrazak and Chaki Lotfi entitled: Digital Learning Platforms and Their Role in the Academic Achievement of Students at the Institute of Physical and Sports Sciences and Technologies, University of M'Sila, The aim was to identify the role of

digital learning platforms in the academic achievement of students at the Institute of Physical and Sports Activities Sciences and Technologies at the University of M'sila from the perspective of the teaching staff, It investigated whether there were differences in their views regarding this role according to variables such as academic rank, department and experience. Regarding the scope of the study, the geographical scope was the University of M'sila, and the sample comprised 102 lecturers, of whom 82 were selected as the research sample. The temporal scope covered the 2021–2022 academic year. As for the study's findings, it concluded that educational platforms play an important role in the academic achievement of students at the institute under study from the professors' perspective, and that there are no differences among the teaching staff according to the aforementioned variables(Amour, Moussai, & Chaki, 2023, pp. 57-77)

Delving into this issue and attempting to focus on the teaching staff's perspective is of great importance, given the significance of teachers as the group that embodies this approach and contributes to achieving its objectives. for despite the changes that have occurred in the roles of teachers in e-learning, this has not diminished their importance or their special status, given that the most prominent feature of e-learning is the interaction between teachers and students, and between them and the pedagogical content provided.

4-2 -The second study:

Presented in 2021 by Kamal Hazhazi, Mehdi Sahsahi and Souria H'mida, the study was entitled: The impact of using augmented reality technology via the Eye Jack app on improving students' theoretical and practical learning in physical education, It was based on three questions: Are there differences in the results of the theoretical and practical exams in physical education between students who study using augmented reality technology and those who do not? What is the extent of the impact of using this technology on theoretical and practical achievement? As for the results, they confirmed the positive impact of using augmented reality technology on both theoretical and practical learning processes, highlighting the importance of employing this technology across all subjects, and calling for the training of teaching staff in the use and application of modern technologies in education, It also highlights the need to raise learners' awareness of the importance of these technologies, not to mention the

importance of providing a learning environment that encourages their use(Hazhazi, Sahsahi, & H'mida, 2021, pp. 02-14) .

What lends significance to the present study, in addition to its practical dimension, is its focus on the theoretical and practical aspects arising from the use of certain technological techniques in education, as well as the recommendations it offers regarding the need to provide an educational environment that encourages the use of technological techniques in the teaching process; it also highlights the need to train teachers in this field.

4-3 -The third study:

Entitled: An Analytical Study of the Use of E-Learning Platforms Among a Sample of Learners in Lower Secondary Education, 2022–2023, was presented by the researcher Fella Bouali, and aimed to identify the reality of the use of e-learning platforms in Algeria at secondary level. To achieve this, a field study was conducted using interviews with a sample of **60** learners. As for the methodology, a descriptive-analytical approach was used. The main findings highlighted a lack of use of e-learning platforms, attributed to their failure to meet learners' needs.

E-platforms offering educational content are considered among the most prominent technologies in technology-enhanced education. According to the findings of this study, one of the difficulties or problems leading to their underutilisation by a significant proportion of learners is their failure to meet students' requirements and expectations, This underscores the importance of the study itself, as well as the importance of improving the content offered on these platforms. It is a clear call to those responsible for these platforms to identify learners' needs and to provide them with opportunities to express their concerns, the problems they face, and their wishes. This will enable the improvement and development of this medium, rendering it effective(Bouali, 2024, pp. 336-359).

4-4 -The fourth study:

completed in 2019 and entitled: The Reality and Future of Augmented Reality Technology in Saudi Academic Libraries: A Prospective Study, was carried out by researchers Shaha bint Abdullah Al-Anzzi and Saad bin Saeed Al-Zohri It raised a number of questions, the most prominent of which are: What is augmented reality technology? What is the reality of its use in Saudi libraries? And what is its future? To answer these and other

questions, the study relied on a questionnaire distributed to 21 experts. Among its key findings was that there are numerous benefits to using augmented reality technology in Saudi academic libraries, while emphasizing the need to meet certain requirements and address specific challenges (Al-Anzzi & Al-Zahri, 2019, pp. 35-63)

This study is considered one of the most important in this field for several reasons, including the importance of prospective studies, the significant educational role of academic libraries, the important scientific and practical value of technological innovations in general, and augmented reality technologies in particular, as well as its highlighting of the challenges facing the implementation of such innovations.

5- Definition of Concepts:

This study is based on a central conceptual framework and its associated variables; this requires us to define their sociological and educational meanings as follows:

5-1 -Educational Technology:

Firstly, we should highlight some distinctions between educational technology and educational technology. The former focuses on the integrated systemic structure within a single framework to achieve specific educational objectives, relying on educational psychology data and modern techniques that can be used in learning situations within the classroom, whereas the concept of educational technology extends to encompass everything surrounding the educational process both inside and outside the classroom, with a view to achieving educational goals and involving all parties in the educational process, including the family and society. Technology in education refers to the range of technological applications used in the educational process both inside and outside the classroom; in other words, the use of technological innovations in various situations in an individual's life, including educational contexts (Abdel Fattah, 2018, pp. 22-23).

Attempts to distinguish between the two concepts remain more superficial than substantive, given the connection between the fields of upbringing and education and the significant overlap between them, as they are closely linked to the daily lives of individuals and communities, and their aim is to advance human societies and to develop and shape the individual in all aspects – psychologically, emotionally, morally, physically,

intellectually and socially. It is essential to distinguish between educational resources and educational technology, as each concept has its own specific meaning; whereas educational technology refers to a process of intellectual planning based on the practical application of theories of learning and communication, as well as the findings and recommendations of previous studies, educational resources refer to devices and tools-that is, the traditional physical aspects in general. Historically, the origins of educational technology date back to the 20th century, whilst the origins of educational resources date back to the 16th century. In terms of scope, educational technology is more comprehensive and broader, as it encompasses traditional and even digital physical resources, alongside approaches, theories, principles and how to utilise them (Abdel Fattah, 2018, pp. 29-30).

As for the differences between teaching aids and the use of technology in education, these are, in turn, implicit differences of little significance, given that both converge in the role assigned to each, which is to assist in conveying pedagogical content-comprising knowledge, experiences and skills to learners in the easiest way, at the lowest cost and with the highest quality. A successful educational system is one that utilises all available human, material and intellectual resources in the service of the learner and the educational institution.

5-2 -E-learning:

The first signs of the emergence of the term e-learning date back to the early 1990s. Following its achievement of significant results and the emergence of its positive effects on educational processes, interest in it grew, and with it came calls to make use of technological innovations both inside and outside the classroom (Hathifa & Al-Ani, 2015, p. 9). As mentioned earlier, the earliest use of the concept or term e-learning dates back to the 1990s, as for the reasons and motivations behind the scientific interest in this concept, they lie in the results achieved through its practical application, which has led scholars and specialists to advocate for the need to harness technological developments, particularly in the fields of communication and media, and to apply them to education.

E-learning refers to an educational system that delivers educational programmes to students or trainees anywhere and at any time, relying on interactive information and communication technologies such as the internet, email, teleconferencing, local and satellite television and radio

channels, and computers, with the aim of providing and facilitating a multi-source interactive environment, whether synchronous or otherwise, without the need to be tied to a specific location. It is based on self-directed learning and on interactions between teachers and learners, and is considered one of the educational methods based on collaborative learning using modern technologies(Amer, 2015, p. 28).

E-learning is defined as a form of education that relies on the delivery of academic content through electronic media, It also refers to a teaching method centred on the use of modern communication tools and mechanisms, such as computers and the internet, with the aim of delivering knowledge and expertise to students quickly and at lower cost, in a way that allows for the measurement and assessment of learners' performance(Hathifa & Al-Ani , 2015, p. 13).

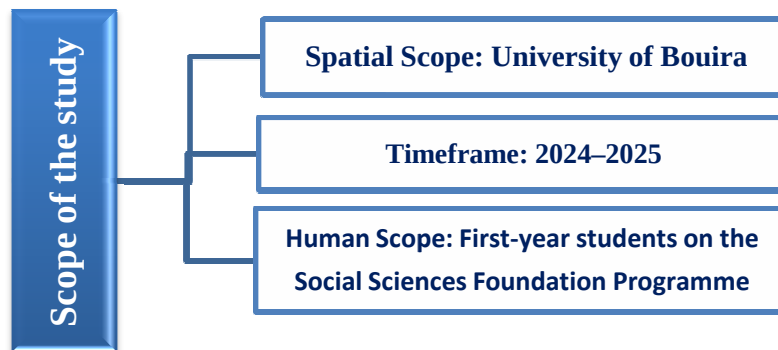
The definitions mentioned above emphasise the diversity of techniques used in this type of education, whilst highlighting its key features, namely interaction and collaboration among students themselves and between them and their teachers, as well as its positive effects in reducing costs and effort, and the possibility of accurately assessing academic performance.

5-3 -Virtual education:

This educational model focuses on providing internet users with the experience, skills and knowledge necessary to enhance their academic and professional qualifications, utilising a variety of technological media such as videos, e-books, multimedia and specialised software(Hathifa & Al-Ani , 2015, p.14).

The essence of what sets virtual education apart lies in the flexibility and inclusivity of its technologies; it transcends the formal frameworks of learners to encompass all individuals seeking to develop their professional and personal performance through the digital space.

6- Scope of the study:



7- Study sample:

First-year students on the Bachelor's degree programme in Social Sciences at the University of Bouira were selected as the study sample; the questionnaire was distributed using a comprehensive sampling method, However, the final number of analysable questionnaires stood at only 80, after excluding a number of questionnaires that contained no answers, or that contained insufficient partial answers, as well as those whose content revealed a lack of understanding or seriousness, which could negatively affect the reliability of the data and the accuracy of the results, The decision to select this specific group was made in view of the nature of the university stage that students at this level are undergoing, as they are in the early stages of their development; this makes their educational attitudes and preferences more transparent and less subject to structural influences or ingrained impressions, This justifies the importance of monitoring their perceptions of educational technology; consequently, analysing the attitudes of this group provides an initial understanding of the mechanisms of reception and interaction with digital media in the university context, and contributes to clarifying certain social and pedagogical indicators associated with the digital transformation within the university institution.

8-Research Methodology:

Given the nature of the research question—which examined university students’ practices in utilising modern technologies and their effectiveness in the educational process—it was necessary to adopt a descriptive-analytical approach as the methodological framework, as this allows for the study of phenomena as they manifest in reality without subjecting them to experimentation or manipulation, making it suitable for analysing trends and behavioural patterns within educational settings. By using a questionnaire as the primary tool for collecting quantitative data, it was possible to identify a set of indicators reflecting the extent to which students use educational technology and their level of engagement with it, as well as to identify the cognitive or technical challenges that prevent its effective use. This methodological approach has enabled the construction of an analytical framework that contributes to the interpretation of the phenomenon under study based on empirical data.

9-Presentation and analysis of the study’s data and results:

After reviewing the theoretical frameworks underpinning the relationship between education and technology, we move on to analysing the field data collected in light of the research problem and its objectives. This analysis constitutes a central stage of the study, as it enables an examination of the patterns of interaction between members of the research sample and digital media within the university environment, based on scientific tools and methodological criteria that allow for the extraction of sociologically significant indicators and the deconstruction of the new educational dynamics generated by digital practices within the context of the rapid transformations currently taking place in the field of education.

Table N°1: Ownership of equipment for use in e-learning.

The methodology used in the study	Frequency	Percentage
Computer	20	25 %
Smartphone	60	75%
Total	80	100 %

Based on the findings from the sample used in the study, 75% of the students use mobile phones as their main devices to achieve their educational goals, while only 25% use computer devices to pursue their learning objectives. There have been notable changes in how technology is being utilized within the university environment, especially due to the

increased presence of mobile phones among students; this indicates a change in the patterns of technology utilization within the institution. These changes could be due to factors such as user-friendliness and portability, as well as the availability of many varieties of mobile devices based on different technical considerations, including storage space, display size, performance and capabilities to support different educational apps.

Additionally, the availability of competitive pricing for mobile devices has made it possible for many students to own mobiles either through purchasing the devices directly or buying used devices. As such, it should be noted that there is overlap between the educational use of mobile phones by students and their other uses, which include the use of social media sites, entertainment apps and many others.

This complex usage reflects the concept of the integration of technologies into the fabric of learners' lives in the sociology of education, where technology contributes to reshaping the relationship between the student and knowledge through a flexible and multidimensional digital environment. This overlap between learning and daily life gives rise to new representations of learning outside the traditional framework. The Smartphone emerges as a pivotal tool that enhances the student's ability to adapt to the demands of modern education.

Table N°2: Shows students' internet connectivity.

Are you always connected to the internet?	Frequency	Percentage
Yes	75	93.75%
No	05	06.25%
Total	80	100%

The results indicate that most members of the sample (93.75%) enjoy a permanent connection to the internet, while a small percentage of 6.25% do not possess this feature. This widespread of digital attainment reflects the great shift towards e-learning, as continuous linking to the network has become a basic condition for access to educational sources and digital content, as well as for effective interaction within the educational digital space.

This permanent connection contributes to enhancing the digital capital of the students, which enables them of active participation and adaptation with the requirements of the digital age, and a pivotal role in that is played by telecommunication and mobile phone companies, which provide

competitive offers and continuous improvements in service packages, with the aim of expanding the subscribers' base and increasing its share in the market. These strategies reflect economic and technical dynamics affecting directly the ability of students on permanent access to the internet, which contributes to narrowing the digital gap and enhancing digital inclusion.

With that, the existence of a tiny percentage of students without permanent connection remains an indicator on the persistence of some technical and social barriers, which require strategic and political attention to ensure equality of opportunities and achieving digital justice in the educational field.

Table N°3: Shows whether students have an email address.

Do you have an email address?	Frequency	Percentage
Yes	70	87.5%
No	10	12.5%
Total	80	100%

Data indicates that 87.5% of the students in the sample possess an email, while 12.5% of them do not possess this basic tool. This widespread phenomenon reflects the increasing use of digital tools in the educational process, where email is considered a necessary means for accessing many educational sites and applications and for downloading electronic files and documents used in modern learning. Possessing an email represents an indicator of the rise in the level of digital capital among students, which enhances their ability for effective integration into digital educational systems and interaction with diverse educational content. Additionally, email allows direct communication with professors and colleagues and participation in educational forums and platforms, which supports the development of important digital skills for students in the era of digital transformation. The existence of a non-negligible percentage of students who do not possess an email indicates the continuation of some digital gaps that may hinder their access to important educational resources.

These divides can affect educational equity and limit some students' ability to fully benefit from the advanced digital learning environment. This situation therefore calls for the development of targeted interventions to promote digital empowerment, such as training programmes on digital tools and campaigns to facilitate access to email, to ensure the inclusion of all students and achieve digital equity in the educational process.

Table N°4: Shows students' perceptions of e-learning.

What is your view on e-learning?	Frequency	Percentage
Using the internet to acquire knowledge	65	81.25%
The possibility of doing without face-to-face teaching	15	18.75%
Total	80	100%

The data show that 81.25% of the respondents see that e-learning is based essentially on relying on the internet as a source for obtaining knowledge, while 18.75% them see that e-learning means the possibility of dispensing with face-to-face education. This disparity in perceptions reflects a varying understanding of the role of digitalisation in education, as the first trend prevails which links e-learning to the integration between digital sources and the traditional educational process. This trend points to the students' awareness of the importance of exploiting electronic platforms as supporting tools to enhance learning without abandoning completely face-to-face interaction.

This position can be explained through looking at the mechanisms of adaptation to the digital transformations which the educational field is witnessing, as the student seeks to balance between maintaining the interactive and face-to-face character of education and between investing technology as a means to expand the cognitive horizon and increase flexibility in learning. Through this adaptation, it is possible to integrate digital tools into everyday teaching in an integrated way that enhances the learning experience for the students. Furthermore, the use of this diagram also indicates the level of maturity that the students have in their understanding of e-learning.

This understanding contributes to reshaping the educational identities of students, where learning is looked at as a dynamic process that combines face-to-face interaction and benefiting from digital opportunities, in the context of the continuous digital transformation which contemporary education is witnessing.

Table N°5: Shows the places where students study.

Websites used in the study	Frequency	Percentage
Online libraries	55	68.75%
Wikipedia	25	31.25%
Total	80	100%

The data indicates that 68.75% of the sample rely on online libraries as their primary source of references for their studies, whilst 31.25% of them turn to Wikipedia. These figures reflect a disparity in the extent of

reliance on diverse knowledge sources, with online libraries – which often provide rigorous and reliable academic sources – the most preferred option among students.

This trend points to a relative awareness of the importance of returning to reliable sources that enhance the quality of academic achievement. From another side, Wikipedia remains an option less depended upon, despite the ease of its access and its wide popularity; and this may be attributed to the concerns about the credibility of its content and its limited academic reliability. These educational trends reflect an initial awareness among the students of the importance of digital cultural capital, where students seek to achieve a balance between the sources that enhance their symbolic status in the academic field and the easily available resources that meet their immediate cognitive needs.

These findings also reveal differences in digital research and knowledge strategies among students, which calls for the development and enhancement of critical evaluation skills for digital sources, This forms part of a holistic educational approach that combines technical skills with scholarly scrutiny, to ensure the quality and effectiveness of learning, and to enhance students' ability to make optimal use of various digital resources, thereby striking a balance between speed and academic rigour.

TableN°6: Number of students following the University's official Facebook page

Do you follow the university's official Facebook page?	Frequency	Percentage
Yes	70	87.5%
No	10	12.5%
Total	80	100%

The data indicates that 87.5% of students follow the university's official Facebook page, whilst only 12.5% do not. This broad representation reflects the importance of social media as institutional communication channels within the contemporary university context, as following the page is no longer merely an ordinary communicative behaviour, but has become an indicator of the transformation in the patterns of interaction between the student and the university institution.

Digital platforms, particularly Facebook, play a central role in the transmission of information, academic guidance, and interaction with events and pedagogical and administrative decisions. This transformation indicates a reshaping of the role of the educational mediator from traditional channels, such as paper advertisements and direct meetings, to the digital space. This grants students a more effective position in receiving information and keeping pace with university life. The choice of Facebook in particular as a primary communication platform is highlighted due to its widespread use and ease of use, This reflects the university's adaptation to the media familiar to students and expands the academic public sphere to include social media platforms.

This digital interaction contributes to enhancing institutional transparency and informal student participation, which has a positive impact on students' sense of institutional belonging and their trust in official communication channels. Social media has also become a complementary channel for university communication policies in the face of rapid digitalisation, as concise, ready-made digital content provides quick answers to students' queries and meets their urgent knowledge needs.

In addition to their role in communication, the popularity of social media in university education has increased as contemporary educational tools. Official Facebook pages have become an important source of information and knowledge, especially regarding significant dates and university activities. This growing usage reflects the institution's ability to integrate social media within learning and communication strategies, thereby enhancing the effectiveness of education and making university interaction more flexible and inclusive.

TableN°7: Level of student engagement with the university's Facebook page

How often do you follow the university's official Facebook page?	Frequency	Percentage
Always	70	87.5%
Rarely	10	12.5%
Total	80	100%

The results show that 87.5% of the sample regularly follow the university's official Facebook page, whilst 12.5% follow it occasionally.

This regular engagement reflects the students' near-complete integration into the digital communication system adopted by the university, where this practice translates into a digital communication culture that has become part of everyday university life.

The informational functions of social media platforms align with their educational and advisory roles, as students seek to stay constantly informed about academic and administrative updates, which gives them greater ability to navigate the digital university space. This shift also reflects a change in the relationship of educational authority, whereby information is no longer confined to traditional official channels, but has become readily available in participatory spaces that reshape the relationship between the institution and its students.

Regular engagement with the page indicates a high level of trust in digital information and students' awareness of the importance of maintaining constant contact with the institution's digital space. This reinforces what might be termed the university student's 'communicative readiness', as they acquire new skills in monitoring, interaction and selection, making them an implicit partner in the process of producing institutional symbols and knowledge within the digital space.

In addition, social media platforms such as Facebook offer significant benefits for learning processes, including access to information and content that traditional education cannot provide, and support for positive and continuous learning. The ease of use of Facebook and the fact that it does not require advanced digital skills contribute to increasing students' reliance on it, which encourages students to keep up with university news and makes it part of their daily digital learning routine.

TableN°8: Responding to students' queries on the university's Facebook page.

Did the page answer your questions?	Frequency	Percentage
Yes	25	31.25%
No	55	68.75%
Total	80	100%

The data in the table shows that 68.75% of students believe that the university's official Facebook page does not answer their questions, whilst 31.25% believe that the content posted on the page meets their needs and

answers their queries. The first group attributed this to the fact that the page provides content relating to the university as a whole, rather than content tailored to students' immediate needs. In contrast, students indicated that the pages for individual faculties and departments are better suited to meeting their needs and answering their queries, particularly given that those managing these pages engage more actively with comments and enquiries.

The management of information and data at the level of official pages is considered among the digital skills that increase students' interest in the content published on these platforms. Students use social networks not only for entertainment, but also to stay informed about developments that relate directly to their cognitive and pedagogical needs. In contrast, the content of the university's official page usually focuses on general information including the Vice-Chancellor's activities, cooperation with other institutions, national and international scientific events, the university's academic ranking, and topics related to the university's administrative framework.

This general focus makes the content less able to meet students' needs, particularly those of new students, whose interests often centre on pedagogical issues and day-to-day technical problems. And in this case, the pages belonging to the faculties or the competent university departments are the most effective in providing the precise and direct information that the students need. This points to the importance of designing digital content in accordance with the diverse needs of the recipients, and intensifying direct interaction with students to ensure the effectiveness of university digital communication.

Table N°9: Use of the university's online platforms by students.

Do you use the university's online platforms?	Frequency	Percentage
Yes	68	85%
No	12	15%
Total	80	100%

The findings indicate that 85% of students use the university's online platforms, whilst 15% reported not using them. The former group attributed their interest in these platforms to the fact that they form an essential part of the university learning and teaching process, as these platforms contain lessons delivered both in person and remotely, as well as providing access to

marks and results for exams and assessed assignments. Students believe they have no choice but to follow and access these platforms to ensure they achieve acceptable academic results.

The remarkable growth, diversity and multilingual nature of digital environments have brought about radical changes at the societal level, and in educational systems in particular. These transformations have encompassed the roles and objectives of the university, the professional skills of university lecturers, as well as teaching methods and strategies, online educational platforms have become one of the key tools for sharing expertise across various academic disciplines, challenging traditional approaches to education and teaching, whether in schools or universities.

These developments necessitate the integration of academic teaching practices with the use of social media, whilst taking into account the cultural and social dimensions of students' lives. Online platforms have attracted the particular attention of those responsible for university education during the COVID-19 pandemic, as a means of ensuring the continuity of university education and academic communication without interruption, despite lockdown measures. These platforms have evolved further after years of use, with the technical issues that arose having been addressed, to become a central part of the digital learning environment.

Table N°10: Platforms used by students.

Which platforms do you use?	Frequency	Percentage
Moodle	68	100%
Google Meet	00	00%
Google Class room	00	00%
Total	68	100%

The data contained in the table relates to various online platforms offering educational content, and it shows that students use only the platform mandated by the university, namely 'Moodle'. The reason why Moodle is the primary platform used by students is that it is approved and mandated by the university and contains the scheduled lessons. As for the other platforms, their use is optional and requires the learner to register, whereas accessing the Moodle platform requires no action on the learner's part, as those responsible for distance learning at the university organise the process and carry out all necessary procedures and registrations to ensure everything runs smoothly and to serve the students. It is worth noting that this platform is of paramount importance as it contains pedagogical content

provided by lecturers and is subject to evaluation by the Television and Distance Learning Unit. It also offers lessons in various formats, as well as exams, assessments and educational videos... and other forms of e-learning. It is considered one of the most important platforms in university education, playing a major role in improving the quality of education and enhancing the university's reputation, whilst encouraging lecturers to deliver high-quality pedagogical content that fulfils the university's objectives. It now awards certificates to lecturers in this field, subject to the fulfilment of conditions and compliance with standards set by the Ministry, as well as the training of lecturers in educational technologies.

Table N°11: Students' assessment of the user-friendliness of online platforms.

How would you rate the user-friendliness of online platforms?	Frequency	Percentage
Easy	54	79.4%
Difficult	14	20.6%
Total	68	100%

The results in the table show that 79.4% of respondents considered the use of e-learning platforms to be easy, compared to 20.6% who found them difficult. This high proportion of positive perceptions reflects a growing level of digital literacy among new university students, suggesting that digitally supported learning practices are no longer alien to their cognitive framework. This is partly due to the platforms' simplified interface design and flexible user interfaces, which allow for seamless navigation between educational tools and functions, as well as their support for multiple languages, which facilitates understanding and removes language barriers that may be faced by students who are not proficient in a single language. These platforms also often provide educational videos and interactive tutorials that help new users develop a practical understanding of how to use them, thereby reinforcing the concept of self-directed digital empowerment within the university environment, these findings reflect an inclusive dynamic for students of the digital generation within a shifting educational paradigm characterised by the increasing presence of technology in the university environment. This positive interaction serves as evidence of a reconfiguration of the relationship between the student and the digital platform, shifting from a functional relationship to one of cultural representation within what is known as the reproduction of technological symbolism within the academic field. Conversely, the 20.6% of students

who encountered difficulties point to the persistence of disparities in digital literacy and the individual digital divide, which may reflect differences in prior social trajectories and reinforce the need for flexible pedagogical approaches that take into account differences in digital experience without reducing them to purely technical criteria. This disparity also highlights that the integration of technology into university education requires cultural and environmental conditions that redirect its use towards genuine, rather than merely symbolic, integration

Table N°12: Students' assessment of the content of the online platforms.

What is your assessment of the content on these platforms?	Frequency	Percentage
Meets your needs	67	83.8%
does not meet your requirements	11	16.2%
Total	68	100%

The data indicates that 83.8% of the sample believe that the content on e-learning platforms meets their needs, whilst 16.2% believe the opposite; This distribution reflects a degree of satisfaction alongside some areas that may require improvement, and points to the complex relationship between the technical effectiveness of digital content and its suitability for students' educational requirements. Achieving alignment between the content of e-learning platforms and students' cognitive and cultural needs is a prerequisite for fostering positive engagement and self-directed learning in the digital environment. And this percentage can be interpreted as an indicator of the level of the students' adaptation to digital content, and the extent of its ability to meet their educational expectations in light of the diverse social and cultural contexts to which they belong. From the angle of digital technology, the quality of content, including its updating and its compatibility with the curricula, plays a fundamental role in supporting the efficiency of the digital educational process. Consequently, the continuous improvement of platform content is considered a necessary step towards achieving educational equity and represents an effective investment in students' knowledge capital within the digital education system.

Table N°13: The contribution of digital educational content to improving understanding of lessons

Have the digital learning resources helped improve your understanding of the lessons?	Frequenc y	Percentage
Yes	49	72.1%
No	19	27.9%
Total	68	100%

The data show that 72.1% from the individuals of the research sample declared that the digital educational contents contributed in improving their understanding for the lessons, while 27.9% from them did not notice a positive effect. This high percentage reflects the degree of the positive involvement with the digital resources, which highlights the extent of effectiveness of the digital environment in facilitating the acquisition of knowledge and understanding the academic contents in a way deeper, especially when providing diverse visual and audio content that considers different learning styles.

This variation in assessment reveals the role of students' socio-cultural background in shaping their interaction with digital content; students' responses are inseparable from their prior learning experiences, levels of digital readiness, and familiarity with modern educational media – factors that indirectly influence academic understanding and achievement. These results also reflect a pattern of digital educational inequality linked to non-technical factors such as prevailing teaching practices and individual abilities in utilising e-learning tools. In an educational context, these results indicate that digital content has become a fundamental component in shaping understanding and academic achievement, particularly when designed in an interactive manner and linked to the student's reality. The high level of positivity in content evaluation indicates the effectiveness of digital models and their positive impact on the relationship between the learner and knowledge, by stimulating self-initiative, developing critical thinking and promoting independence in learning. Based on the above, the continuous support, development and adaptation of digital content to learners' needs is a strategic necessity for bringing about a qualitative leap in university education, where understanding becomes the result of a dynamic interaction between the learner and the digital educational environment.

Table N°14: The contribution of digital content to increasing students' motivation to learn.

Have digital learning resources helped to increase your motivation to learn?	Frequency	Percentage
Yes	47	69.1%
No	21	30.9%
Total	68	100%

The data shows that 69.1% of respondents acknowledged that e-learning content had helped to increase their motivation to learn, whilst 30.9% did not feel this way; this positive interaction demonstrates that the digital space has opened up stimulating possibilities for the pedagogical relationship beyond traditional classroom settings, This interaction is interpreted as an indicator of the content's effectiveness on the one hand, and represents a state of cognitive and emotional integration that reflects the acquisition of digital capital, which has become essential in contemporary university education, on the other. This high percentage points to a repositioning of the learner within the educational field, where digital content reproduces symbolic hierarchies, thereby offering diverse social groups new opportunities to demonstrate competence and active engagement.

This digital motivation can also be understood within the context of adapting to a learning style intersecting with broader social shifts related to a culture of individual performance, flexibility in time management, and equitable access to resources. In contrast, the 30.9% who did not demonstrate a motivated response reflects a disparity in technological capital or a gap in learning practices, highlighting the need for digital inclusion strategies that take into account students' social and symbolic differences, and ensure an inclusive learning experience that goes beyond access to content to encompass its educational understanding and its role in building a university identity.

Table N°15: The contribution of digital educational content to improving students' academic achievement.

Have digital learning resources helped improve your academic performance?	Frequency	Percentage
Yes	55	80.9 %
No	13	19.1 %
Total	68	100%

The data show that 80.9% of the respondents confirmed that the electronic educational content contributed positively to improving their academic achievement, while 19.1% did not notice a tangible effect. These results evidence a clear effectiveness of digital media in supporting the educational process. This positive interaction points to the ability of digital content to reshape the cognitive experience for university students, where these resources help ease the traditional obstacles linked to classical education methods. This allows students to invest in digital capital in ways that enhance their position in the academic field. Additionally, this reality reflects qualitative transformations in the mechanisms of indoctrination and cognitive reception, as students develop an increasing awareness of the importance of exploiting modern technologies to improve academic performance. This enhances the dynamics of self-empowerment and constructive interaction with the educational environment. Conversely, the 19.1% who did not achieve tangible improvement represent a challenge requiring a reconsideration of the mechanisms of provided digital support, including strategies for academic guidance and continuous formation, to ensure that cognitive and digital gaps between students do not deepen and to uphold the principle of equal opportunities in acquiring skills and achieving desired results.

10-Results and discussion

Based on the data presented above, the study concluded the following:

- Students own computers and Smartphone, as well as Facebook pages and email accounts, which are also used for learning;
- Students use modern technologies in education, whether in formal settings such as the university's online platforms or for self-directed learning, as

evidenced by their reliance on numerous websites to acquire knowledge, information and expertise;

- There is electronic interaction between students and lecturers via email, through which students raise concerns and enquire about the progress of lessons;
- Facebook pages and Messenger groups are among the key tools students use for academic achievement and to keep abreast of all pedagogical and administrative developments at the university;
- Although students emphasise the importance of e-learning, they believe that face-to-face teaching remains indispensable, pointing to the vital role of the lecturer in the acquisition of knowledge and the fact that they, along with the knowledge and information they provide, cannot be dispensed with;
- There are many difficulties and obstacles that have prevented e-learning from achieving all its intended outcomes, such as students' lack of experience and familiarity, a lack of understanding of how to access educational platforms and interact through them, as well as technical difficulties;
- There is a digital divide among students due to differences in their social, economic and even educational backgrounds;
- Despite the difficulties and the digital technology gap, e-learning has contributed to improving learners' understanding of the subject matter, increasing their motivation to learn and raising their academic achievement.

-Recommendations:

- Developing educational digital competencies by organizing continuous training for professors and students in the effective employment of technology , the production of digital content , and the use of platforms;
- Smart mixing of face-to-face and digital education within a pedagogical framework that considers interaction , individual differences , and emotional support;
- Improving infrastructure and ensuring equitable access through the provision of digital equipment and networks, while supporting usage with easily accessible guidance content and platforms;
- Adopting regulatory and ethical standards for performance evaluation, and improving the digital learning environment based on objective indicators;

-Supporting research that measures the impact of technology on education and contributes to the development of digital practices based on scientific principles;

-Enhancing communication and feedback by opening channels of dialogue with students, teachers and technical staff to improve digital services and design more effective learning environments.

-Conclusion:

In conclusion, it can be said that the exploration of educational technology issues remains ongoing and increasing due to continuous developments in the field of technology. Educators pay great attention to the subject of innovations in the field of technology and its contexts, and scholars devote special care and attention to the relationship between education and technological developments, which are ultimately considered outputs and products of education, Researchers have also noted the necessity of taking into account the social and psychological impact of using technology in education.

Modern technologies are now on an open path to developing new teaching methods that allow for the seamless completion of educational processes and the achievement of pedagogical goals. Their use has been widely enhanced, and their fields of employment diversified; this is what tools have provided, allowing learners from all parts of the world the opportunity to explore facts, knowledge, and experiences, and to analyze scientific topics. Furthermore, it enables interaction with learners from different societies and the discussion of numerous issues and matters, as it has become a tool for intercultural communication, enhancing scientific dialogues, and building cognitive bridges between individuals and societies.

The oretical and empirical data have shown that modern technologies have become an important structural component in the teaching-learning act, having a positive impact on interaction patterns and the foundations of learning within the university space. Digital transformation in the educational field intersects with transformations in the symbolic and cultural capital of learners and redraws the maps of cognitive influence within the digital classroom, in light of the disparity in digital competencies and access to technological resources. The results of the study indicate that students' employment of technology in their educational practices has become a reality; however, it is not without structural imbalances manifested in the

limited use of specialized scientific platforms and the weakness of training in digital skills of an academic nature. This reflects the continuation of forms of digital educational division that deepen the gap between the potential of technology and the reality of its pedagogical investment. The effectiveness of techniques is measured by the extent of their conscious integration into pedagogical strategies and by their ability to enhance symbolic and cognitive interaction between actors in the university institution.

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