



E-learning and digital culture: Evaluating the level of digital proficiency in an educational setting

Lamia Ikhlef* , Badji Mokhtar-Annaba University, Faculty of Human and Social Sciences, Department of Communication, BP.12, Annaba 23000 Algeria.

Suggested Citation:

Ikhlef, L. (2024). E-learning and digital culture: Evaluating the level of digital proficiency in an educational setting. *Cypriot Journal of Educational Science*. 19(1), 77-86. <https://doi.org/10.18844/cjes.v19i1.9378>

Received from July 2, 2023; revised from September 9, 2023; accepted from January 21, 2024.

Selection and peer review under the responsibility of Prof. Dr. Hafize Keser, Ankara University, Turkey (retired)

©2024 by the authors. Licensee United World Innovation Research and Publishing Center, North Nicosia, Cyprus.

This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

iThenticate Similarity Rate:%2

Abstract

The COVID-19 pandemic underscored the significance of distance learning, highlighting its necessity when in-person education is not feasible. This article explores the challenges faced by the Ministry of Higher Education in Algeria in transitioning to distance learning, particularly the digital divide and the adaptation to new technologies. The purpose of this study was to evaluate the digital culture among students to improve remote learning. Using a purposive sampling method, the current study selected students who have participated in online courses to assess their digital literacy and identify areas needing enhancement. The findings indicate that while Algeria shows promise for integrating digital culture into distance education due to favorable socio-economic conditions, challenges such as technological access and digital security persist. Key recommendations include increasing computer access, implementing digital security measures, and customizing distance learning approaches to meet diverse needs. Addressing these disparities is crucial for promoting digital literacy and ensuring equitable access to technology.

Keywords: Appropriation; digital culture; digital divide e-learning; information and communication technology.

* ADDRESS FOR CORRESPONDENCE: Lamia Ikhlef, Badji Mokhtar-Annaba University, Algeria
E-mail address: ikhlef.lamia@gmail.com

1. INTRODUCTION

Distance learning, with no physical constraints between teacher and learner, has proved crucial in unforeseen situations such as the Covid-19 crisis. This mode of teaching, referred to as 'non-presential', highlighted the importance of this pedagogical approach in circumstances where a physical presence was impossible. In various distance learning methods, learners are often encouraged to carry out learning activities independently. This process fosters the development of their autonomy in learning, leading them to increase their independence in their training (Weidlich et al., 2024). Considering their physical separation, it is imperative to transform learning into an educational culture rooted in digital technology to prepare individuals with the skills they need for the future (Lidor et al., 2024).

In this context, the Global Center for Digital Business Transformation highlights the risks of disruption in the field of education, with a direct impact on jobs. The Future of Employment 2020 report confirms this trend, with 84% of organizations in the process of digitizing and 83% planning to use remote working (World Economic Forum, 2020). Mastering digital skills is therefore becoming essential to remain competitive in the job market. What's more, the ability to manage remote working has become crucial for many organizations, as the same report points out. A strong digital culture is needed to enable individuals to collaborate effectively online, communicate clearly and coherently, and maintain productivity in a virtual working environment (Nguyen et al., 2022).

1.1. Background of study

Following the implementation of distance learning in Algeria during the COVID-19 pandemic, the Ministry of Higher Education has recognized the importance of maintaining this teaching method alongside traditional in-person classes. As a result, the Algerian government has decided to offer cross-disciplinary modules through distance learning. To ensure the success of this approach, a national committee was established to monitor distance learning in all Algerian universities beginning in December 2022 (SDN, 2022).

This decision was aimed at building upon the progress made during the Covid crisis, while considering the unique needs of the new generation, often referred to as the "digital native generation". It is important to acknowledge that the success of this experiment has been influenced by the various challenges faced by educators and students. Students are encouraged to familiarize themselves with digital tools, such as the Moodle platform, which are essential for distance learning. This requirement necessitates additional effort from learners to gain proficiency in these digital tools and effectively incorporate them into their educational experience.

The digital divide presents a significant challenge as some learners face obstacles while others do not. This discrepancy in experience and performance hampers the effectiveness of distance learning. Students may also struggle with using different web applications to access the dedicated online learning platform, as they are unfamiliar with these methods of communication (Segbenya et al., 2022). Limited digital infrastructure and poor connectivity further contribute to this divide. Additionally, adapting to digital tools and addressing disparities in their usage requires extra effort to fully integrate them into the learning process (Bouguerne & Keskes, 2022). This poses a major challenge to the success of distance education. Therefore, it is crucial to establish a strong digital culture among all those involved in distance learning. To ensure the continuity of distance education, it is essential to assess digital literacy to identify strengths, weaknesses, and opportunities for improvement. It is undeniable that the digital environment plays an increasingly important role in both individual and social life, emphasizing the significance of digital literacy (Orbach et al., 2023).

The digital era presents fresh chances for developing a novel kind of individual who is adaptable to the digital landscape. All parties involved must have a comprehensive understanding of the present obstacles

Ikhlef, L. (2024). E-learning and digital culture: Evaluating the level of digital proficiency in an educational setting. *Cypriot Journal of Educational Science*. 19(1), 77-86. <https://doi.org/10.18844/cjes.v19i1.9378>

tied to educational achievements, as well as the forthcoming challenges linked to the job market and ongoing digital changes (Sitaridis & Kitsios, 2024). To enhance individual and national progress, the current study seeks to evaluate students' digital literacy and pinpoint areas that require improvement. This assessment aims to bolster the crucial digital literacy skills necessary for advancement.

1.2. Theoretical framework

The rise of digital culture is often associated with a set of practices that rely on the increased use of communication technologies. This digital culture encompasses the changes brought about by the introduction of digital, networked, and personalized media in our society, transforming the way we interact and present ourselves. It is important to note that students who use computer-based educational programs develop a higher level of self-educational skills and utilize new technologies.

However, the acquisition of digital skills can be influenced by various factors related to the societal context in which individuals live, particularly their beliefs and the accessibility of digital technologies. The term "digital literacy" was first introduced in the 1980s, and different attempts have been made to define it. For instance, Gilster & Glister (1997) view digital literacy as the ability to comprehend and utilize information presented by computers in different formats and from various sources. This definition emphasizes individuals' ability to use and leverage IT tools. Nevertheless, other authors highlight additional aspects of digital literacy that go beyond the mastery of IT tools. The specific ways of thinking, representations, and meanings that are unique to a particular group are fully integrated with material objects.

Digital culture encompasses the various ways in which we use and value digital tools, as well as the skills we develop in information and communication through these devices (Pélissier et al., 2013). It is important to recognize that discussing digital culture should not assume that everyone has the same level of proficiency in using digital tools, as this can be risky. Some students are more proficient in digital skills than others which gives them some kind of advantage in their performances as this could also pose a risk to those with lower digital skill proficiency (Karalar et al., 2021). Instead, Pélissier et al., (2013) propose using the term "digital cultures" to recognize the variations in mastery, usage, and values.

From these components, it becomes evident that digital literacy goes beyond technical skills in handling information. It should be viewed as an essential aspect of a person's overall literacy, incorporating an understanding of the information-based world. Moreover, analyzing digital literacy necessitates considering the socio-technical nature that equips individuals to function in the digital society. This understanding is crucial for the formation and growth of digital literacy. The challenges associated with computerization, training, and the development of digital culture involve both technical and human aspects. The digital divide is a complex issue that requires a comprehensive understanding of the social and cultural contexts that underpin it. When evaluating proficiency in digital skills, it is important to consider not just the ability to use and access technology, but also how it affects people's lives and future opportunities. Furthermore, when creating an assessment framework, it is vital to acknowledge the various technical and socio-economic/cultural factors that influence digital literacy.

1.2.1. The social, economic, and cultural aspects

When considering the social and cultural aspects, we believe that the following factors can be used as relevant indicators to measure digital culture:

1.2.1.1. The impact of socioeconomic status on families and schools

The disparities in access to digital technologies are mainly influenced by economic inequalities among individuals, particularly within families. This, in turn, affects the school environment. The availability of financial and educational resources at home, as well as the quality of education in schools, play a crucial

Ikhlef, L. (2024). E-learning and digital culture: Evaluating the level of digital proficiency in an educational setting. *Cypriot Journal of Educational Science*. 19(1), 77-86. <https://doi.org/10.18844/cjes.v19i1.9378>

role in determining whether individuals have access to digital technologies and can use them effectively (Warschauer et al., 2004).

Moreover, it has been observed that the level of education of parents is closely linked to students' proficiency in information and communication technology (ICT). This proficiency, in turn, positively predicts their ability to solve ICT-related problems and address ethical issues associated with its use. Various research studies, such as the one conducted by Feng and Tan (2024), have shown that there exist three levels of disparities in technological access, as outlined below (Feng & Tan, 2024).

The first stage of the digital divide is strongly connected to the socio-economic status of families, focusing on the unequal availability of technology and internet access (Selwyn, 2004). When comparing rates of household ICT access, the disparities become evident. In 2021, there will be a staggering 4.9 billion Internet users worldwide, which means that nearly two-thirds of the global population is currently connected to the World Wide Web. However, the Internet usage rate is at 90% in North America and Western Europe, while only 28% of individuals in the Middle East and Africa have access. The second aspect of digital inequality revolves around the ability to effectively engage with and benefit from digital technologies (Hargittai, 2001). In particular, students from more privileged socio-economic backgrounds were more inclined to actively utilize the Internet for educational purposes, while their counterparts from less advantaged backgrounds tended to use it predominantly for entertainment and were more interested in the social and relational aspects of these platforms (Zhang, 2015). The impact of digital literacy reaches beyond just technological know-how. It also includes difficulties in communication, research, and understanding information. These challenges have broader implications, affecting both social and professional aspects of life.

1.2.2. Technical dimensions

The technical aspect concerning the adoption of information and communication technologies (ICT) plays a vital role in contemporary society, encompassing various factors that can serve as indicators for assessing digital culture:

1.2.2.1. Utilization and proficiency in digital skills

Digital competence involves the ability to critically analyze online information, conduct research, and evaluate digital content (Boltanski & Chiapello, 2002). It also includes the capacity to safeguard personal data and privacy online, adhere to ethical conduct guidelines, employ digital tools creatively and innovatively, and generate digital content. It is important to note that the absence of content that fulfills users' genuine needs generally restricts the utilization of digital technologies (Dimaggio & Hargittai, 2001).

1.2.2.2. Enhanced accessibility through user-friendly interfaces

The advancement of digital technologies has resulted in more intuitive interfaces, making devices easier to navigate even for those with limited technological expertise. This diminishes barriers to entry, enabling a greater number of individuals to benefit from digital technologies and fostering a greater commitment to continuous learning and adaptation among users (Ragnedda & Mutsvairo, 2018). The motivation behind using ICT is strongly influenced by an individual's position in society (Ragnedda & Ruiu 2017). Additionally, the availability of relevant content greatly impacts the utilization of digital technologies. Public policies and governance initiatives can play a vital role in promoting the use of ICTs by improving access to services and supporting their growth, such as e-administration and e-payment. By benefiting from various e-services, individuals contribute to the advancement of their digital literacy and the development of their community (Robinson et al., 2015).

1.2.2.3. *The vital role of schools in fostering digital skills*

Schools have a pivotal role in nurturing students' digital social and cultural knowledge. Simply providing IT resources is insufficient; it is crucial to fully integrate digital technologies into educational processes to promote interaction, collaboration, and the creation of innovative works (Cormerais et al., 2017). Additionally, teachers are emerging as crucial contributors to the digital transformation of society by actively participating in the development of educational content (Larson, 2015).

1.3. Purpose of the Study

This study aims to evaluate and enhance the digital culture among students in Algeria to improve the efficacy of distance learning, which has become increasingly critical due to the COVID-19 pandemic. The research will specifically investigate the challenges faced by the Ministry of Higher Education in Algeria during the transition to online education, such as the digital divide and the adaptation to new technologies. By utilizing a purposive sampling method, the study will assess the digital literacy of students who have participated in online courses, identifying key areas that require enhancement. The research will also test two hypotheses:

Hypothesis H1: The socio-economic and cultural background of students positively influences the acquisition of a digital culture that supports high-quality distance learning.

Hypothesis H2: The level of students' usage positively influences the acquisition of a digital culture that supports high-quality distance learning.

2. METHODS AND MATERIALS

2.1. Participants

To analyze the impact of digital literacy on e-learning, a purposive sampling method was utilized to select a diverse group of students who have taken online courses. Specifically, only students who had participated in distance learning courses were included in this study. The study included 622 students, aged between 18 and 22, with 172 (15%) being male and 450 (85%) being female. These demographics offered a well-rounded and representative perspective for the examination of digital culture and its influence on e-learning.

2.2. Data collection tools

To gather data, a questionnaire was created and distributed online through Google Forms. This method was chosen to ensure impartiality and maintain the confidentiality of the participants. Before completing the questionnaire, participants were fully informed about the study's objectives and were encouraged to provide truthful and comprehensive responses.

2.3. Analysis

To assess and gauge digital culture within an educational setting, the research proposes an evaluative framework consisting of two primary dimensions: the socio-economic and cultural dimension, and the technical dimension and utilization of technology.

The socio-economic and cultural dimension encompasses the following indicators:

- 1) The income of parents.
- 2) The education level of parents.
- 3) The support and assistance provided by parents in education.
- 4) Interest in utilizing technology for educational purposes.
- 5) Interest in utilizing technology for social interaction.
- 6) Interest in utilizing technology for entertainment.
- 7) Interest in utilizing technology for job searching and personal growth.

The technical and usage dimension encompasses the following indicators:

- 1) The availability of technological tools such as computers, smartphones, and tablets.
- 2) Access to the internet and the specific type of connection.
- 3) The ability to safeguard personal information online, particularly when opening emails or creating social media accounts.
- 4) The perception of acquiring skills in using new technologies.
- 5) The ability to adapt to new technologies.
- 6) Benefits derived from technology usage, such as online registration, electronic payments, online shopping, and e-learning.
- 7) The type of computer training received in high school, including word processing, calculations, and creating presentations.

The purpose of this evaluative framework is to gather pertinent data that can enhance distance learning by identifying students' digital culture needs and capabilities.

3. RESULTS

The analysis of the data gathered from the questionnaire, which was distributed via Google Forms and made available on the Facebook page of the Humanities and Social Sciences department, reveals that a total of 622 students were surveyed. Out of these, 512 students responded, resulting in a response rate of 82%. This rate of response is considered satisfactory and suggests a commendable level of student engagement in the survey. The active participation of the participants indicates their commitment to the research and their eagerness to contribute to the findings of the study. This further enhances the reliability and precision of the collected data, establishing a solid basis for the analysis and interpretation of the results.

The survey findings offer valuable insights into the socio-economic and educational background of the participants, as well as their perception and use of information and communication technologies (ICTs). It is important to note that a majority of respondents (57%) reported a family income above the minimum wage, indicating a certain degree of financial stability in their households. Regarding parental education, a significant portion (50%) stated that their parents had completed secondary education, while 32% had obtained a university degree or higher.

Regarding students' digital literacy growth, the findings show that most parents (58%) solely provided financial aid, suggesting a limited direct involvement in educational endeavors. This observation appears consistent with the previously mentioned higher levels of parental education. As for the inclination towards utilizing ICTs for learning, a majority of students (60%) displayed a moderate level of interest, indicating a considerable opportunity for incorporating these tools into the educational journey.

To make the most of these technologies, it is essential to have a certain level of understanding. When it comes to using ICT for socializing and entertainment, 40% of participants stated that they frequently use it, highlighting the importance of digital media in their daily lives. However, when it comes to utilizing ICT for job hunting and personal growth, only 40% of participants expressed a positive inclination. This could be because they are first-year college students with an average age of 20.

The results and analysis of the technical and usage aspects show that the majority of participants (70%) rely solely on smartphones as their technological tools. This heavy reliance on smartphones may impede digital transformation in the socio-economic sector, as it limits opportunities for the adoption of other technological devices. Furthermore, the survey reveals that most students (80%) have limited access to the internet through a 3G/4G modem, which may restrict their access to online content that requires high-speed broadband.

Ikhlef, L. (2024). E-learning and digital culture: Evaluating the level of digital proficiency in an educational setting. *Cypriot Journal of Educational Science*. 19(1), 77-86. <https://doi.org/10.18844/cjes.v19i1.9378>

When it comes to safeguarding personal data, approximately 30% of students lack confidence in their ability to protect their data online. This underscores the need for increased awareness and education on digital security. A need for educational programs that better suit their needs has been emphasized by students, who are eager to learn new technologies. Interestingly, almost half of the students (45%) believe that they can easily adapt to new technologies, which suggests that the use of distance learning technologies may be facilitated.

Despite the widespread use of technology, the benefits derived from it are mainly limited to pedagogical and relational aspects for the majority of students (57%). This indicates a lack of overall digital culture among the participants.

A survey conducted in high schools revealed that 50% of the participants had gained basic computer skills, while only 20% had received advanced training. A significant 30% admitted to not having received any computer training, which could hinder their proficiency in using technology. These results highlight the importance of implementing a comprehensive IT curriculum from the early stages of education to foster the development of a more advanced digital society.

4. DISCUSSION

Based on the data provided, it seems that the initial hypothesis is somewhat supported. The results indicate that most students' parents earn more than the minimum wage and a significant number of them have completed secondary or university education. These socio-economic and cultural factors may encourage students to develop a stronger digital culture.

Evidently, financial stability and higher levels of parental education may indicate a family environment that embraces the use of information and communication technologies (ICTs) in everyday life. However, it is worth noting that despite this positive trend, a significant percentage of students (58%) rely solely on financial support from their parents, which could suggest a lack of direct assistance for educational activities. This could potentially hinder the positive impact of socio-economic and cultural factors on the acquisition of a digital culture that promotes high-quality distance learning. As for the second hypothesis, which focuses on the extent of student usage that can enhance the development of a digital culture that supports excellent distance learning, it appears to be partially confirmed.

The findings demonstrate that students utilize information and communication technologies (ICT) for both learning purposes and for socializing and entertainment. The students have a sense of confidence in their ability to adapt to new technologies. This implies that students who use technology more frequently are more likely to have a digital culture that supports high-quality distance learning. However, it is important to note that most students only have smartphones, which may limit their access to more advanced online content that requires other tools.

Furthermore, a third of students feel unsure about protecting their personal information online, indicating a need for education and awareness regarding digital security. These factors could potentially have an impact on the effective utilization of technology in distance learning. The findings from the survey propose several actions that can be taken to promote a digital culture and accomplish digital transformation. It is crucial to utilize the favorable socio-economic and cultural factors that have been identified, such as the higher income levels of most parents and their significant levels of secondary or university education.

These elements can serve as a solid foundation for integrating information and communication technologies (ICTs) into students' everyday lives. To achieve this, it would be advantageous to implement policies that encourage the use of microcomputers at home, drawing inspiration from past successful initiatives like Algeria's Ousratic program in 2005 (Boualili, 2011). The primary objective of the Ousratic

program was to provide computer and Internet access to every 'ousra' family, along with banking services for their purchases. The aim was to expand the technological resources available to students and inspire them to immerse themselves in a digital environment that supports learning.

In addition, it is important to make microcomputers easily accessible on college campuses, to diversify students' practices and applications. These initiatives greatly contribute to expanding online learning opportunities and enabling access to a wider range of diverse and complex content, ultimately enhancing their digital literacy. At the same time, there is a need to develop programs that raise awareness about digital security and provide training to students, helping them feel more confident in protecting their data online. It is essential to prioritize the protection of our environment. Furthermore, there is a need to develop effective distance learning methods that fully utilize technology, taking into consideration the diverse abilities and needs of students. By implementing appropriate educational programs and awareness campaigns a more widespread and productive use of technology in distance learning, can be encouraged. This will, in turn, foster the growth of a stronger digital culture that can drive digital transformation in education and other sectors.

5. CONCLUSION

In summary, the examination of the findings presents a complex yet promising outlook for integrating digital culture into distance education in Algeria. The identified favorable socio-economic and cultural factors lay a strong foundation for increased use of information and communication technologies (ICTs) in student life. However, there are still challenges to overcome, particularly in terms of technological access, digital security, and student confidence in using ICT. To address these challenges, several suggested actions include expanding computer access in homes and on university campuses and implementing digital security awareness programs to build students' trust in online technologies. Additionally, distance learning strategies should be tailored to meet the diverse needs and abilities of students, fully harnessing the potential of ICT. This analysis also highlights the socio-economic and technical disparities among students, emphasizing both opportunities and difficulties in integrating technology into education. It underscores the importance of ensuring equal access to technological resources and promoting digital literacy while recognizing the significant influence of socioeconomic factors on the development of inclusive education policies.

The ability to effectively utilize the potential of information and communication for meaningful individual, societal, and political endeavors is of utmost importance. The use of technology and the way we communicate are both important factors in shaping how we interact with each other. By bringing these elements together, we can improve students' ability to use digital tools and skills. This, in turn, will help drive the digital transformation of education and society as a whole in Algeria. To achieve this, a well-thought-out strategy and coordinated efforts at all levels are needed to prepare students for the ever-changing digital world and to ensure that Algerian society benefits from having a technologically competent population.

6. RECOMMENDATIONS

To integrate digital culture into Algeria's distance education effectively, the recommendations include expanding access to computers and reliable internet, enhancing digital security through training and cyber hygiene practices, and tailoring distance learning to diverse student needs with ongoing support. Promoting digital literacy through integrated curricula and peer mentorship, addressing socio-economic disparities with equitable access policies, fostering innovative teaching practices, and advocating for continuous learning are also crucial. Finally, developing a national digital education strategy and facilitating cross-sector collaboration will ensure a technologically proficient population and a successful digital transformation in education.

Ikhlef, L. (2024). E-learning and digital culture: Evaluating the level of digital proficiency in an educational setting. *Cypriot Journal of Educational Science*. 19(1), 77-86. <https://doi.org/10.18844/cjes.v19i1.9378>

References

- Boltanski, L., & Chiapello, E. (2002). Inégaux face à la mobilité. *Projet*, 271(1), 97-105. <https://www.cairn.info/revue-projet-2002-3-page-97.htm>
- Boualili, A. (2011). La synergie NTICE/FOS: un atout non négligeable dans l'enseignement du français discipline non linguistique. *Synergies monde*, (8), 233-242. <https://dialnet.unirioja.es/descarga/articulo/6434609.pdf>
- Bouguerne, A., & Keskes, S. (2022). Exploring Algerian EFL Students' Perceptions about Learning Styles and Learning Development in Higher Education. *Revue Académique des Études Sociales et Humaines*, 14(4). <https://www.asjp.cerist.dz/en/article/194603>
- Cormerais, F., Le Deuff, O., Lakel, A., & Pucheu, D. (2017). L'école et l'avenir de la culture digitale. *Hermès*, (2), 87-95. <https://www.cairn.info/revue-hermes-la-revue-2017-2-page-87.htm>
- DiMaggio, P., & Hargittai, E. (2001). From the 'digital divide' to 'digital inequality': Studying Internet use as penetration increases. *Princeton: Center for Arts and Cultural Policy Studies, Woodrow Wilson School, Princeton University*, 4(1), 4-2. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=4843610b79d670136e3cdd12311f91f5cc98d2ee>
- Feng, S., & Tan, C. Y. (2024). Toward conceptual clarity for digital cultural and social capital in student learning: Insights from a systematic literature review. *Humanities and Social Sciences Communications*, 11(1), 1-15. <https://www.nature.com/articles/s41599-023-02519-8>
- Gilster, P., & Gilster, P. (1997). *Digital literacy* (p. 1). New York: Wiley Computer Pub. <https://www.academia.edu/download/8413655/digit.pdf>
- Hargittai, E. (2001). Second-level digital divide: Mapping differences in people's online skills. *arXiv preprint cs/0109068*. <https://arxiv.org/abs/cs/0109068>
- Karalar, H., Kapucu, C., & Gürüler, H. (2021). Predicting students at risk of academic failure using ensemble model during pandemic in a distance learning system. *International Journal of Educational Technology in Higher Education*, 18(1), 63. <https://link.springer.com/article/10.1186/s41239-021-00300-y>
- Larson, L. C. (2015). E-books and audiobooks: Extending the digital reading experience. *The Reading Teacher*, 69(2), 169-177. <https://ila.onlinelibrary.wiley.com/doi/abs/10.1002/trtr.1371>
- Lidor, N. H., Baloush-Kleinman, V., Mazor, Y., Oren, O., & Dudai, R. (2024). When Distance Becomes Closeness: Distance Learning as a Meaningful Learning Opportunity During the COVID-19 Pandemic. *Community Mental Health Journal*, 60(1), 14-26. <https://link.springer.com/article/10.1007/s10597-022-01029-2>
- Nguyen, P., Scheyvens, R., Beban, A., & Gardyne, S. (2022). From a Distance: The 'New Normal' for Researchers and Research Assistants Engaged in Remote Fieldwork. *International Journal of Qualitative Methods*, 21. <https://doi.org/10.1177/16094069221089108>
- Orbach, L., Fritz, A., Haase, V. G., Dowker, A., & Räsänen, P. (2023). Conditions of distance learning and teaching and their relation to elementary school children's basic number skills after the suspension of face-to-face teaching during the COVID-19 pandemic. In *Frontiers in Education* 8, 1083074. <https://www.frontiersin.org/articles/10.3389/educ.2023.1083074/full>
- Pélissier, M., Pérocheau, G., Siarheyeva, A. A., & Collet, L. (2013). Enquête ObTIC: Cultures numériques et trajectoires d'insertion professionnelle chez les 16-24 ans. https://archivesic.ccsd.cnrs.fr/sic_01831185/
- Ragnedda, M., & Ruiu, M. L. (2017). Social capital and the three levels of the digital divide. In *Theorizing digital divides*, Routledge, 21-34. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315455334-3/social-capital-three-levels-digital-divide-massimo-ragnedda-maria-laura-ruiu>

- Ikhlef, L. (2024). E-learning and digital culture: Evaluating the level of digital proficiency in an educational setting. *Cypriot Journal of Educational Science*, 19(1), 77-86. <https://doi.org/10.18844/cjes.v19i1.9378>
- Robinson, L., Cotten, S. R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., & Stern, M. J. (2015). Digital inequalities and why they matter. *Information, communication & society*, 18(5), 569-582. <https://www.tandfonline.com/doi/abs/10.1080/1369118X.2015.1012532>
- SDN. (2022). https://services.mesrs.dz/plateforme/course/index.php?categoryid=1&lang=ar_old
- Segbenya, M., Bervell, B., Minadzi, V. M., & Somuah, B. A. (2022). Modeling the perspectives of distance education students towards online learning during COVID-19 pandemic. *Smart Learning Environments*, 9(1), 13. <https://link.springer.com/article/10.1186/s40561-022-00193-y>
- Selwyn, N. (2004). Reconsidering political and popular understandings of the digital divide. *New media & society*, 6(3), 341-362. <https://journals.sagepub.com/doi/abs/10.1177/1461444804042519>
- Sitaridis, I., & Kitsios, F. (2024). Digital entrepreneurship and entrepreneurship education: a review of the literature. *International Journal of Entrepreneurial Behavior & Research*, 30(2/3), 277-304. <https://www.emerald.com/insight/content/doi/10.1108/IJEER-01-2023-0053/full/html>
- Warschauer, M., Grant, D., Del Real, G., & Rousseau, M. (2004). Promoting academic literacy with technology: Successful laptop programs in K-12 schools. *System*, 32(4), 525-537. <https://www.sciencedirect.com/science/article/pii/S0346251X04000764>
- Weidlich, J., Yau, J., & Kreijns, K. (2024). Social presence and psychological distance: A construal level account for online distance learning. *Education and Information Technologies*, 29(1), 401-423. <https://link.springer.com/article/10.1007/s10639-023-12289-0>
- World Economic Forum. (2020). The future of jobs. Research Report. <https://www.weforum.org/reports/the-future-of-jobs-report-2018%0Ahttp://reports.weforum.org/future-of-jobs-2016/shareable-infographics/%0Ahttp://reports>
- Zhang, M. (2015). Internet use that reproduces educational inequalities: Evidence from big data. *Computers & Education*, 86, 212-223. <https://www.sciencedirect.com/science/article/pii/S0360131515300270>