

Exploring the role of digital citizenship and digital empowerment to enhance academic performance of business students

Asaad Al-Ali^a, Mohammad A.K Alsmairat^b, Rasha Qawasmeh^c, Nihayah J. Mahrakani^d and Noura Saud Alhazzani^{e*}

^aProfessor, Business Administration Department, College of Business, Al-Ahliyya Amman University, Jordan

^bAssistant professor of logistics and supply chain, business department, college of business, American University in the Emirates, Dubai, United Arab Emirates

^cAssociate Professor, Business Administration Department, College of Business, Al-Ahliyya Amman University, Jordan

^dLecturer, Marketing department, College of Business, Al-Ahliyya Amman University, Jordan

^eAssociate Professor, Curriculum and Instructions Department, College of Education, King Saud University, Saudi Arabia

CHRONICLE

Article history:

Received: July 25, 2023

Received in revised format: October 20, 2023

Accepted: November 4, 2023

Available online: November 4, 2023

Keywords:

Digital Citizenship

Digital Empowerment

Academic Performance

ABSTRACT

In the changing educational environment brought about by the COVID-19 pandemic, this study investigates the dynamic interactions between digital citizenship, digital empowerment, and academic performance. Data is collected from a survey of students at the College of Business, Al-Ahliyya Amman University. The Partial Least Squares (PLS) method of structural equation Modeling (SEM) was used to analyze the collected data. The findings reveal how digital empowerment is directly impacted by digital education, respect and protection. It was also discovered that digital empowerment directly improves academic performance, highlighting the significance of promoting digital settings that are safe, respectful, and conducive to learning. With the changing educational landscape, this study adds to a better understanding of how digital citizenship influences students' academic performance and learning experiences. It provides educators, organizations, and legislators with useful information to help them better prepare students for success in a fast-evolving educational landscape by enhancing their digital skills and competences.

© 2024 by the authors; licensee Growing Science, Canada.

1. Introduction

The global COVID-19 pandemic has played a significant role in causing an unparalleled shift in the educational landscape at the beginning of the twenty-first century (Ng et al., 2023; Narayanan & Musthafa, 2023). As educational institutions, teachers, and students struggled with the pandemic's effects, the quick transition to digitalization became more than just a choice. The Internet, which was formerly thought of as an additional resource, is now the main place where education takes place (Wong, 2020). This enormous change has created a distinct educational ecology that calls for a new way of looking at things and an awareness of the ways in which digital citizenship affects students' academic performance.

Students' academic performance is a crucial component of their educational experience and is frequently interpreted as an accurate representation of their knowledge and skills (MacCann et al., 2019). It includes a variety of metrics such as test scores, grades, and general academic success. Academic performance has new dimensions in the post-COVID-19 educational landscape, as students adjust to online and distance learning environments. To effectively support and enable students to thrive in this era of digitally mediated education, educators and institutions must have a thorough understanding of the enablers that impact academic success, including digital citizenship and digital empowerment.

* Corresponding author.

E-mail address: nalhazzani@ksu.edu.sa (N. S. Alhazzani)

ISSN 2561-8156 (Online) - ISSN 2561-8148 (Print)

© 2024 by the authors; licensee Growing Science, Canada.

doi: 10.5267/j.ijdns.2023.11.007

Digital citizenship has grown to become an essential part of students' lives (Capuno et al., 2022). It includes using digital tools in an ethical and responsible manner, being aware of online safety, and having fruitful online conversations (Al-Khatib, 2023). Students learn academic content and exhibit their skills in the digital environment. The concept of digital citizenship behavior refers to a set of rules, laws, customs, regulations, ethics, and values that govern how people of any age or gender use social media, the Internet, and communication technology responsibly (Rahmatullah et al., 2022). It includes professionals, students, and educators. A thorough understanding of several issues, including cyberbullying, Internet privacy, information literacy, copyright issues, and moral decision making, is a component of citizenship (Harrison & Polizzi, 2022). Students who possess this knowledge are better able to evaluate materials critically, recognize reliable sources, and participate in meaningful online discussions.

Simultaneously, the concept of digital empowerment has become prominent. The degree to which people feel capable and secure when using digital tools to complete a variety of tasks is referred to as digital empowerment (Sharma et al., 2022). It encompasses feelings of independence and command when interacting with the digital environment (Hill et al., 2015). In the context of education, students who feel empowered are more likely to be proactive, self-directed learners who can better utilize the digital resources available to them to improve their academic achievement and educational advancement.

As the world continues to struggle in the aftermath of the COVID-19 pandemic, the educational landscape continues to change. Navigating this change requires a comprehensive understanding of how digital elements shape students' educational experience and academic achievement. This study provides essential insights into the evolving dynamics of digital citizenship and empowerment, and their impact on academic performance. Through empirical research and an analytical approach, this study aims to contribute to the development of effective pedagogical strategies, ultimately better preparing students for success in an ever-changing educational landscape.

In terms of population, our study focuses on university students because of their prominent role in the educational transformation brought about by the COVID-19 pandemic. These students had to swiftly adapt to online and remote learning, making them a crucial group for evaluating the impact of digital citizenship and digital empowerment on academic performance. In addition, university students often belong to the digital native generation and have grown alongside digital technologies. This background renders their experiences and responses highly relevant in the context of digital education and empowerment. To conduct an in-depth examination within a well-defined academic cohort, we selected the College of Business at Al-Ahliyya Amman University as a representative case study.

2. Theoretical Background

2.1 Digital Citizenship

Encouraging digital citizenship behavior supports individuals to harness the benefits of technological advancements and the information and communications technology revolution while ensuring responsible use and averting potential drawbacks (Al-Abdullatif & Gameil, 2020). Surprisingly, many reports have highlighted the integration of digital citizenship curriculum into the academic programs of schools, colleges, and universities in Western societies (Li et al., 2023; Martin et al., 2022). University professors play a pivotal role as leaders and role models, not only for their students but also for society as a whole, both in private and public institutions. They possess the capacity to translate theoretical frameworks into practical realities that resonate with the diverse segments of society. Interest in the concept of digital citizenship has surged in the wake of the COVID-19 pandemic (Akcil & Bastas, 2021; Avcı & Yıldız Durak, 2022; Aydoğan, 2022). The shift of numerous business and educational activities to the virtual realm, along with the widespread adoption of communication technologies for completing tasks and sustaining the educational process, underscores the urgency of promoting digital citizenship awareness among all members of society, particularly among university students.

Formal education serves as a crucial avenue for fostering a culture of digital rights, responsibilities, and ethical digital behavior (Anthony et al., 2020). This is paramount because it significantly contributes to the stability of society; the preservation of its cultural, religious, and political values; and the cultivation of competencies necessary for future generations to coexist harmoniously in diverse democratic societies. The integration of digital culture into academic curricula remains a challenge, with the central goal of nurturing a generation that embraces the principles of digital citizenship to ensure safe and responsible internet usage (Althibyani & Al-Zahrani, 2023). This endeavor is particularly important in the context of teaching and learning, where educators, including teachers and university professors, can serve as role models for responsible technology use, emphasizing the significance of imparting these values in the educational process. The rapid digitization and transformation precipitated by the COVID-19 pandemic has further underscored the importance of reevaluating traditional citizenship behavior in response to new challenges and opportunities in the digital age (Calzada, 2023; Capuno et al., 2022).

Numerous academics such as (Erdem et al., 2023; James et al., 2019; Prasetyo et al., 2023) support the expansion of digital citizenship education into higher education and emphasize the importance of doing so from a theoretical standpoint. Developed nations have long understood the importance of this issue because of the early adoption of information-driven advancements and technology. As a result, some are currently evaluating the results and difficulties of implementing global and digital citizenship courses at the university level. However, the Arab educational system did not keep up with the rapid advancement

of information technology and communication. However, it is imperative to acknowledge the significance of incorporating digital citizenship into the educational system.

2.2 Dimensions of digital citizenship

Digital citizenship comprises three essential elements: digital education, digital respect, and digital protection (Capuno et al., 2022).

2.3 Digital Education

One of the most important aspects of digital citizenship is digital education, which focuses on gaining the fundamental knowledge and abilities required to succeed in a digital environment (Villar-Onrubia et al., 2022). Digital literacy is now a requirement in the era of information and technology, and not a matter of choice (Erdem et al., 2023). Digital education includes knowing how to utilize digital technologies efficiently, critically assessing online content, identifying reliable sources, and being conscious of potential risks and difficulties in the digital sphere. Schools and educators play a crucial role in providing digital education to students by teaching them how to utilize technology for learning, promoting responsible online behavior, and highlighting the significance of identifying sources and respecting intellectual property rights. Digital education is a lifetime learning process that encompasses more than just students. Professionals and adults alike must constantly improve their digital literacy in order to stay up-to-date and make wise judgments in a constantly changing digital environment. Digital education helps create a more responsible, tech-savvy, and informed digital society in addition to empowering individuals.

Digital communication encompasses the process of interaction between individuals through digital means and the exchange of information facilitated by technology (Buchholz et al., 2020). To achieve success in this mission, individuals must embrace lifelong learning and acquire essential skills such as information retrieval and the ability to engage intelligently, appropriately, and effectively using technologies such as email and cell phones (Lauricella et al., 2020).

In the ever-evolving landscape of digital education and citizenship, it's essential to recognize the integral role of digital commerce (Prasetyo et al., 2021).

One important aspect of digital citizenship is understanding the fundamentals of ethical and responsible digital commerce to ensure that people can safely and securely engage in the online economy. Consequently, to prepare people to be capable, responsible digital citizens in all facets of their online interactions, education, and skill development in digital citizenship should cover not only information literacy and responsible online behavior but also financial literacy and consumer awareness (Prasetyo et al., 2021).

2.4 Digital Respect

Digital respect is essential within the complex field of digital citizenship and education (Kim & Choi, 2018). Digital respect involves creating an environment of empathy and understanding in the digital realm, in addition to upholding the standards of civil and thoughtful online conduct (Suphattanakul et al., 2023). Moreover, digital law is essential in establishing standards for proper online behavior and demarcating what is and is not legal (Schou and Hjelholt 2018). This dimension resembles domains such as intellectual property and copyright, highlighting the significance of guaranteeing that users can employ digitally released content without fear of legal consequences (Goode, 2010). Accordingly, equipping students with the knowledge and skills to navigate the intricacies of digital law and intellectual property rights not only promotes responsible behavior but also empowers them to be informed and ethical digital citizens in an increasingly interconnected world.

On the other hand, digital etiquette, an integral facet of digital citizenship, goes beyond merely defining standards for acceptable online behavior. It encompasses a fundamental understanding of respecting fellow digital citizens, communicating courtesy, and exhibiting proper conduct (Capuno et al., 2022).

It also involves compliance with unspoken norms, agreements, and a shared understanding of the digital world. This aspect of digital citizenship, often referred to as "Netiquette" by Heitmayer and Schimmelpfennig (2023) emphasizes the importance of cultivating a civil and respectful digital environment. Teaching students the principle of digital etiquette is essential to ensure that they engage in online interactions with empathy, politeness, and adherence to the unwritten rules governing digital discourse. By understanding and practicing digital etiquette, individuals contribute to the creation of a positive and harmonious digital space, which is the cornerstone of responsible digital citizenship.

2.5 Digital Protect

Another essential component of digital citizenship is digital protection, which aims to protect people and their digital assets from potential hazards and attacks in the online world (Jagasia et al. 2015). This dimension extends beyond data privacy and cybersecurity to include the careful and knowledgeable use of digital tools to reduce harm. It entails being watchful for the

protection of personal information, realizing the value of strong, one-of-a-kind passwords, and appreciating the relevance of maintaining privacy (Althibyani & Al-Zahrani, 2023). By enabling people to use caution when navigating the digital world, digital protection ensures that they are prepared to recognize and avoid potential online threats, including identity theft, phishing, and cyberbullying. To help students develop a feeling of responsibility and resilience in the digital world and to enable them to interact safely and securely, educators must teach them the fundamentals of digital protection.

Furthermore, it is imperative for individuals to acknowledge their entitlement to access digital resources and voice their viewpoints while concurrently showing due regard for the rights and privacy of others (Suson 2019). This aspect underscores the essential equilibrium between personal freedom and accountability, fostering ethical conduct, considerate interactions, and recognition of intellectual property rights.

2.6 Digital Empowerment, Digital Citizenship and Academic Performance

The revolution in the field of education is driven by the rapid integration of digital technologies. In the current digital era, digital empowerment is a key idea that influences how teachers create and present lessons to students as well as how they interact with educational materials. Giving teachers and students the digital tools, resources, and abilities needed to succeed in a digitally advanced classroom are known as digital empowerment in education (Runge et al., 2023). It includes more than just having access to digital resources; it also includes knowing how to use them wisely for education (Chesire et al., 2022), problem solving (Passey et al., 2018), and personal development (Passey et al., 2018). By utilizing the opportunities provided by the digital world, learners can control their educational experiences and become empowered through digital empowerment.

Sharma et al. (2022) point out that fostering digital empowerment makes students more engaged in their education and support them to investigate a variety of information sources, conduct independent research, work with classmates and teachers, and gain a deeper comprehension of the material. By doing so, students can receive personalized information and learning paths that are suited to their unique requirements and progress by utilizing digital platforms and adaptive technologies. This guarantees that students receive the help and challenges that suit their individual learning styles, resulting in a more inclusive and productive learning environment.

Digital empowerment has a significant impact on learning outcomes and is directly linked to students' academic success (Dubey et al., 2023; SN & K, 2023). Having the ability to improve self-directed learning, increase access to educational resources, foster peer and teacher cooperation, and advance information literacy accounts for this influence.

This study argues that digital empowerment plays a varied role as a mediator between digital citizenship and student academic performance, reflecting the interplay between two important elements. Digital citizenship, which includes morally and responsibly using technology, establishes the foundation for digital empowerment, which gives pupils the know-how and ability to use technology efficiently. By enabling students to link the value of digital citizenship to their academic success, digital empowerment serves as a mediator. Enhancing students' comprehension of academic subjects promotes self-directed learning by giving them the freedom to explore, research, and contribute individually.

2.7 The relationship between digital citizenship and The Covid-19 pandemic

Digital citizenship and COVID-19 have become closely intertwined throughout the pandemic. Technology plays a pivotal role in shaping people's engagement with the world. Digital citizenship encompasses the responsible, ethical, and safe use of digital tools including social media, online communication platforms, and information-sharing networks. During the pandemic, digital spaces were essential for university students, enabling them to sustain business operations, maintain social connections, access accurate health information, and engage in virtual work and education, particularly in business school settings (WHO, 2022).

However, increased reliance on digital platforms has also exposed individuals to various challenges, including misinformation, cyberbullying, and privacy concerns. The demand for digital literacy and critical thinking has become increasingly apparent when navigating the vast sea of information and online interactions (Evans, 2021; Ribble, 2015). This, in turn, augments digital citizenship behavior, which this study aims to highlight with a particular focus on its implications for university applications.

Researchers argue that the digital citizenship behavior of business students has been significantly reshaped by the drastic impact of the Covid-19 pandemic. The pandemic has accelerated the integration of digital technologies into most commercial and educational activities, changing how students interact with the business world. With the shift to remote work and the virtual exchange of information, business school students have had to adapt to the new digital work environment, requiring them to be adept at online communication, virtual teamwork, and remote management of research projects (Ahern & Peck, 2022). However, the Covid-19 pandemic has highlighted the importance of digital ethics and legal and responsible online behavior as students navigate the abundance of information and diverse online communities. Researchers believe that to succeed in the post-pandemic business world, students need to possess strong digital literacy skills, discern consumers of information, and demonstrate ethical practices in their digital interactions (Roberts & Johnson (2023). Institutions have recognized

the importance of providing comprehensive digital citizenship education. Smith and Davis (2023) provide business students with the tools to thrive in this digital age, ensuring they are well prepared to meet the challenges and opportunities that lie ahead. Furthermore, prior studies argue that the digital citizenship behavior of business students has undergone a significant transformation due to the profound impact of the COVID-19 pandemic (Akcil & Bastas, 2021; Yu et al., 2021). This global crisis accelerated the integration of digital technologies into most commercial and educational activities, reshaping how students engage with the business world. As remote work and the virtual exchange of information have become the new norm, business school students have had to adapt to this digital work environment, necessitating proficiency in online communication, virtual teamwork, and remote project management. Nonetheless, the COVID-19 pandemic has underscored the critical importance of digital ethics and responsible online behavior as students navigate a vast sea of information and diverse online communities (Bogler & Somech, 2023). Based on previous arguments, the following hypothesis is proposed.

H₁: *Digital education significantly influences digital empowerment of university students.*

H₂: *Digital respect significantly influences digital empowerment of university students.*

H₃: *Digital protection significantly influences digital empowerment of university students.*

H₄: *Digital empowerment significantly influences the academic performance of university students.*

H₅: *Digital empowerment significantly mediates the relationship between digital education and academic performance of university students.*

H₆: *Digital empowerment significantly mediates the relationship between digital respect and academic performance of university students.*

H₇: *Digital empowerment significantly mediates the relationship between digital protection and academic performance of university students.*

3. Methodology

This study employed a quantitative approach, utilizing a survey-based questionnaire to collect data. The questionnaire incorporated five main constructs, each with validated instruments derived from previous studies. Data collection was conducted through an online survey using Google Forms. The study employed a convenience sampling technique, focusing on students from the College of Business at Al-Ahliyya Amman University during the academic year 2022-2023. A total of 130 completed questionnaires were obtained, constituting a sufficient sample size for the chosen data analysis approach. The research data were analyzed using Structural Equation Modeling (SEM) with Smart PLS software. PLS-SEM is recognized for its flexibility in assessing relationships between multi-item constructs (Hair Jr. et al., 2017; Sarstedt et al., 2022).

4. Results

4.1 Measurement model assessment

The measurement model assessment phase is essential for validating the constructs being studied and for ensuring the validity and reliability of the measurements. Academic performance, digital education, digital empowerment, digital protection, and digital respect were the five main components examined in this analysis. To gain an in-depth understanding of the quality of the measurement model, the evaluation entails examining the factor loading, Cronbach's α (alpha), Average Variance Extracted (AVE), and Composite Reliability (CR). Cronbach's α is a commonly utilized indicator of internal consistency reliability (Hair et al., 2019), which refers to the degree to which a construct's items consistently measure the same underlying concept. Within this evaluation, every concept had a Cronbach's α value greater than 0.6, signifying strong internal consistency. This is the case for all items. This suggests that the instruments accurately assessed their corresponding constructs.

By comparing the amount of variance explained by a concept to the variance resulting from a measurement error, AVE evaluates a construct's convergent validity (Fornell & Larcker, 1981). Strong convergent validity was confirmed by the AVE values of all constructs in this research, all above the suggested threshold of 0.5. This finding suggests that the underlying notion accounts for more than half of the variance observed in the items.

CR is regarded as a useful indicator in structural equation modeling and functions as an alternate measure of internal consistency dependability (Sarstedt et al., 2022). Every construct examined in this analysis had a CR value higher than 0.7, supporting the constructs' strong internal consistency. This enhanced the dependability of the measurement model.

Factor loadings indicate the degree to which items and relevant structures are related. Within each construct, the study revealed a wide variety of factor loadings for items. Interestingly, the majority of factor loadings were higher than the traditional cutoff point of 0.6, indicating that these items are useful for measuring the relevant constructs (Hair Jr. et al., 2017). Table 1 summarizes the results.

In the context of this analysis, we focused on model fit indices, the Standardized Root Mean Square Residual (SRMR), and the R-squared value for two key constructs: academic performance and digital empowerment. These statistics offer insight into the explanatory power and fit of the models for the respective constructs. One important measure of the model's goodness of fit is SRMR. It evaluates the mean standard deviation of the observed and expected correlations. A better match was indicated by the lower number of SRMR. Although it was not included in our analysis, the SRMR value is an important

statistic for assessing model fit. A good match is generally defined as having an SRMR value less than 0.08 (Hair et al., 2019), which is the case in our study (SRMR=0.069).

Table 1
Construct validity

Constructs	Items	Loading	Mean	SD
Academic Performance (Cronbach α = 0.755 ; CR=0.779 ; AVE=0.514)	APerf1	0.617	4.338	0.79
	APerf2	0.637	4.654	0.578
	APerf3	0.608	4.231	0.873
	APerf4	0.713	4.477	0.635
	APerf5	0.635	4.492	0.682
Digital Educations (Cronbach α = 0.754 ; CR=0.796 ; AVE=0.578)	DE1	0.677	4.246	0.755
	DE2	0.799	4.462	0.646
	DE3	0.731	4.415	0.71
	DE4	0.825	4.462	0.61
Digital Empowerment (Cronbach α = 0.765 ; CR=0.796 ; AVE=0.595)	DEMP1	4.208	3.198	0.848
	DEMP2	4.538	3.045	0.597
	DEMP3	4.446	3.05	0.702
	DEMP4	4.631	3.045	0.584
Digital Protection (Cronbach α = 0.779 ; CR=0.850 ; AVE=0.533)	DP1	0.678	4.246	0.869
	DP2	0.685	4.469	0.61
	DP3	0.740	4.115	0.989
	DP4	0.815	4.285	0.816
	DP5	0.722	4.677	0.659
Digital Respect (Cronbach α = 0.793 ; CR=0.865 ; AVE=0.616)	DR1	0.771	4.538	0.597
	DR2	0.728	4.638	0.595
	DR3	0.844	4.508	0.906
	DR4	0.793	4.254	1.249

R-squared is a metric used in regression models to express how much of the variance in the dependent variable can be attributed to independent variables. It measures the extent to which the model explains things. The independent variables in the model accounted for 40.4% of the variance in academic performance, as indicated by the R^2 value of 0.404 for academic performance. The independent factors accounted for 60.7% of the variance in digital empowerment, as indicated by the R^2 value of 0.607.

5. Hypotheses Testing

In the field of structural equation modeling, hypothesis testing is an essential method for validating research hypotheses and assessing the connections between variables. To investigate complex connections between variables, PLS-SEM analysis is a dependable statistical method that is widely employed. Moreover, bootstrapping was employed to assess the statistical significance of these correlations by generating 5,000 subsamples from the data and offering details on the stability of estimates for the β coefficient. Table 2 and Fig. 1 display the results of the hypothesis tests.

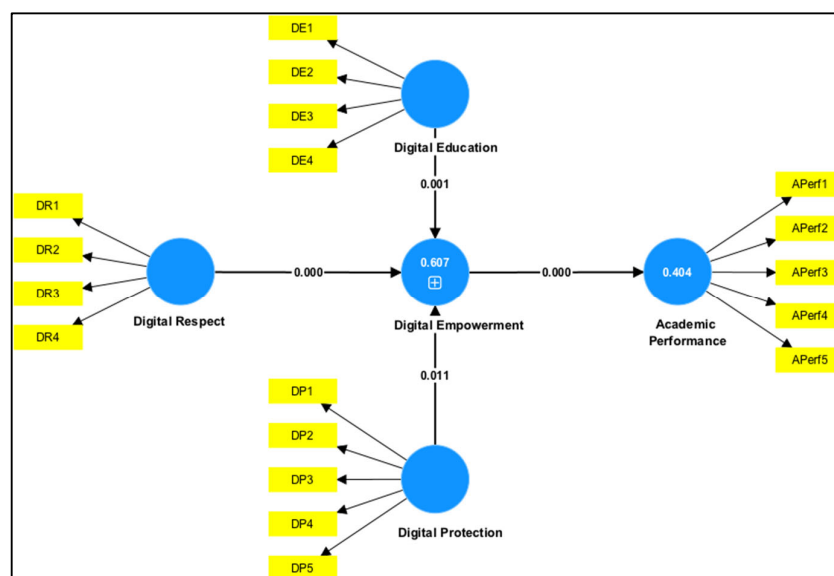


Fig. 1. Research Model

Table 2
Hypotheses test (Direct Path)

Path Relationships	(β)	Standard deviation	T Statistics	p-values
<i>Hypothesis 1</i>				
Digital Education → Digital Empowerment	0.297	0.086	3.470	0.001
<i>Hypothesis 2</i>				
Digital Respect → Digital Empowerment	0.424	0.097	4.349	0.000
<i>Hypothesis 3</i>				
Digital Protection → Digital Empowerment	0.190	0.074	2.554	0.011
<i>Hypothesis 4</i>				
Digital Empowerment → Academic Performance	0.635	0.046	13.756	0.000

The findings in Table 2 show how different factors directly affect digital empowerment. Significantly favorable connections were found for each of the four hypotheses. According to the findings of Hypothesis 1, digital education has a statistically significant positive impact on digital empowerment ($\beta = 0.297$, $p < 0.001$). A positive impact ($\beta = 0.424$, $p < 0.001$) is seen in Hypothesis 2 for Digital respect on digital empowerment. Hypothesis 3 revealed a statistically significant positive impact of digital protection on digital empowerment ($\beta = 0.190$, $p < 0.05$). In addition, digital empowerment has a highly significant positive impact on academic performance ($\beta = 0.635$, $p < 0.001$). These results suggest that individual experiences of digital empowerment are directly impacted by shifts in digital education, respect, and protection. Furthermore, compelling statistical data suggests that the level of digital empowerment has a direct impact on academic performance.

Table 3
Hypotheses test (Indirect Path)

Path Relationships	(β)	Standard deviation	T Statistics	p-values
<i>Hypothesis 5</i>				
Digital Education → Digital Empowerment → Academic Performance	0.189	0.063	3.008	0.003
<i>Hypothesis 6</i>				
Digital Respect → Digital Empowerment → Academic Performance	0.269	0.061	4.387	0.000
<i>Hypothesis 7</i>				
Digital Protection → Digital Empowerment → Academic Performance	0.121	0.050	2.427	0.015

This section shows how the mediating role of digital empowerment, which we examined, indirectly affects academic performance. For each hypothesis, the standard deviations, p-values, T-statistics, and standardized beta coefficients (α) are provided. Digital empowerment acts as a mediating factor between digital education and academic performance, as demonstrated by Hypothesis 5 ($\beta = 0.189$, $p < 0.05$). This indicates that digital education influences digital empowerment both directly and indirectly, through its impact on digital empowerment and academic performance. These findings support the sixth hypothesis, which states that academic performance is influenced by digital respect through the mediation of digital empowerment ($\beta = 0.269$, $p < 0.05$). Finally, the outcome shows that in relation to Hypothesis 7, digital protection has an indirect impact on academic performance through the mediating role of digital empowerment ($\beta = 0.121$, $p < 0.05$). This finding implies that the degree of digital empowerment partly mediates the relationship between digital protection and academic performance.

6. Discussion

Recall that the research question examined in this study focused on the nexus between student digital citizenship, digital empowerment, and academic performance in the post-COVID-19 educational landscape. The direct impacts of digital education, respect, and protection on digital empowerment were the main emphasis of our initial set of hypotheses, and the strong and positive connections discovered in Hypotheses 1, 2, and 3 are consistent with earlier studies.

In line with our findings in Hypothesis 1, Capuno et al. (2022) highlighted the importance of digital education in equipping students with digital abilities. James et al. (2019) emphasized the significance of digital respect in augmenting digital citizenship, validating our findings in Hypothesis 2. The results of Hypothesis 3, which establish a connection between digital empowerment and protection, are consistent with research emphasizing the significance of online safety and security (Villar-Onrubia et al., 2022).

The fourth hypothesis supports the findings of (SN & K, 2023) who found a significant positive correlation between academic performance and digital empowerment. In support of this connection, our findings also highlight the potential for improving academic performance through the promotion of digital empowerment, particularly in the context of online and distant learning that the COVID-19 pandemic has made necessary.

Regarding the indirect impact, the mediating role of digital empowerment in the relationship between digital education, digital respect, and academic performance is illustrated by Hypotheses 5 and 6. Facilitating digital empowerment can be a strategic approach for educators to enhance students' academic performance (Runge et al., 2023). Furthermore, digital empowerment is influenced by digital protection both directly and indirectly, which highlights the significance of creating a secure digital

environment to support both academic success and digital empowerment (Erdem et al., 2023). Together, these findings advance our knowledge of the complex relationships among digital citizenship, digital empowerment, and academic achievement in the post-COVID-19 educational environment. They also provide insightful information for educators, decision makers, and organizations seeking to maximize their academic performance.

7. Conclusion

This study uncovers how in the post-COVID-19 educational environment, digital citizenship, digital empowerment, and academic success interact in a complicated way. Empowering students and enhancing their academic performance emphasizes the critical role of comprehensive digital education and safe digital environments.

7.1 Practical implications

This study has significant practical implications for policymakers and educational institutions. Therefore, it is critical to prioritize strong digital education programs. In addition to teaching digital skills, these programs should foster a culture of digital security, responsibility, and respect. Encouraging students to behave responsibly online and implementing strict cybersecurity measures in place are essential for creating a safe digital environment. In addition, teachers must receive training on how to incorporate digital citizenship into the curriculum in a smooth manner while highlighting the need to develop students' digital competence and character. By implementing these actions, institutions can better prepare students for success in the new era of education. These practical implications have tangible results such as improved academic achievement and the provision of essential skills for students to navigate a constantly changing educational context.

7.2 Theoretical implications

The theoretical implications of this study are thus important. The theoretical landscape is enhanced by the recognition of digital empowerment as a mediating element linking academic success to digital education, respect, and protection. This discovery broadens our understanding of complex interactions in the educational setting of the digital age. More investigation into the dynamically changing nature of digital elements and how they affect students' learning outcomes is required. Developing more focused and successful teaching practices requires a complex theoretical underpinning, as educational paradigms continue to change. These theoretical ramifications highlight the necessity for researchers to go further into the complexities of the digital age's educational environment, acknowledging the interconnectedness of digital components and their influence on students' academic paths. These implications provide a strong theoretical basis for successful pedagogical practices in a constantly shifting educational environment, and motivate future research initiatives to investigate the evolving dynamics of digital elements and their influence within the framework of post-COVID-19 education.

7.3 Limitations and future research

Despite the valuable insights provided, this study had several limitations. Initially, the study focused on a particular educational environment following COVID-19. It is possible that these results cannot be applied to other educational settings. Similar studies conducted in different educational contexts may provide a more thorough understanding of these relationships. Second, there is potential for improving and broadening the measurement of digital empowerment, respect, and protection. Additional variables that could impact these constructs should be considered in future research along with more detailed assessments. Finally, the students' perspective was the main emphasis of the study. Examining the viewpoints of educators, guardians, and administrators regarding these matters may provide a more comprehensive understanding of the digital learning environment and its effects on student achievement.

References

- Akcil, U., & Bastas, M. (2021). Examination of university students' attitudes towards e-learning during the COVID-19 pandemic process and the relationship of digital citizenship. *Contemporary Educational Technology, 13*(1). <https://doi.org/10.30935/CEDETECH/9341>
- Al-Abdullatif, A. M., & Gameil, A. A. (2020). Exploring Students' Knowledge and Practice of Digital Citizenship in Higher Education. *International Journal of Emerging Technologies in Learning, 15*(19). <https://doi.org/10.3991/ijet.v15i19.15611>
- Al-Khatib, T. (2023). Netiquette rules in online learning through the lens of digital citizenship scale in the post-corona era. *Journal of Information, Communication and Ethics in Society, 21*(2). <https://doi.org/10.1108/JICES-08-2021-0089>
- Althibyani, H. A., & Al-Zahrani, A. M. (2023). Investigating the Effect of Students' Knowledge, Beliefs, and Digital Citizenship Skills on the Prevention of Cybercrime. *Sustainability (Switzerland), 15*(15). <https://doi.org/10.3390/su151511512>
- Anthonyamy, L., Koo, A. C., & Hew, S. H. (2020). Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies, 25*(4). <https://doi.org/10.1007/s10639-020-10201-8>

- Avcı, Ü., & Yıldız Durak, H. (2022). Examination of digital citizenship, online information searching strategy and information literacy depending on changing state of experience in using digital technologies during COVID-19 pandemic. *Journal of Information Science*. <https://doi.org/10.1177/01655515221114455>
- Aydoğan, F. (2022). Digital Citizenship: Beyond Big Data, Technical Skills, Industry 4.0, and COVID-19. In *OMICS A Journal of Integrative Biology* (Vol. 26, Issue 11). <https://doi.org/10.1089/omi.2022.0129>
- Bogler, R., & Somech, A. (2023). Organizational citizenship behavior (OCB) above and beyond: Teachers' OCB during COVID-19. *Teaching and Teacher Education*, *130*. <https://doi.org/10.1016/j.tate.2023.104183>
- Buchholz, B. A., DeHart, J., & Moorman, G. (2020). Digital Citizenship During a Global Pandemic: Moving Beyond Digital Literacy. In *Journal of Adolescent and Adult Literacy* (Vol. 64, Issue 1). <https://doi.org/10.1002/jaal.1076>
- Calzada, I. (2023). Emerging digital citizenship regimes: Pandemic, algorithmic, liquid, metropolitan, and stateless citizenships. *Citizenship Studies*, *27*(2). <https://doi.org/10.1080/13621025.2021.2012312>
- Capuno, R., Suson, R., Suladay, D., Arnaiz, V., Villarín, I., & Jungoy, E. (2022). Digital citizenship in education and its implication. *World Journal on Educational Technology: Current Issues*, *14*(2). <https://doi.org/10.18844/wjet.v14i2.6952>
- Cheshire, F., Ochieng, M., Mugisha, M., Ssenyonga, R., Oxman, M., Nsangi, A., Semakula, D., Nyirazinyoye, L., Lewin, S., Sewankambo, N. K., Kaseje, M., Oxman, A. D., & Rosenbaum, S. (2022). Contextualizing critical thinking about health using digital technology in secondary schools in Kenya: a qualitative analysis. *Pilot and Feasibility Studies*, *8*(1). <https://doi.org/10.1186/s40814-022-01183-0>
- Dubey, P., Pradhan, R. L., & Sahu, K. K. (2023). Underlying factors of student engagement to E-learning. *Journal of Research in Innovative Teaching and Learning*, *16*(1). <https://doi.org/10.1108/JRIT-09-2022-0058>
- Erdem, C., Oruç, E., Atar, C., & Bağcı, H. (2023). The mediating effect of digital literacy in the relationship between media literacy and digital citizenship. *Education and Information Technologies*, *28*(5). <https://doi.org/10.1007/s10639-022-11354-4>
- Evans, F. (2021). Parenting for a digital future: How hopes and fears about technology shape children's lives, Sonia Livingstone and Alicia Blum-Ross, 2020, New York, Oxford University Press, ISBN: 9780190874704. *Journal of Technology in Human Services*, *39*(2). <https://doi.org/10.1080/15228835.2021.1902909>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(1). <https://doi.org/10.1177/002224378101800104>
- Goode, L. (2010). Cultural citizenship online: The internet and digital culture. *Citizenship Studies*, *14*(5). <https://doi.org/10.1080/13621025.2010.506707>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). European Business Review When to use and how to report the results of PLS-SEM Article information. *European Business Review*, *31*(1).
- Hair Jr., J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, *1*(2). <https://doi.org/10.1504/ijmda.2017.10008574>
- Harrison, T., & Polizzi, G. (2022). (In)civility and adolescents' moral decision making online: drawing on moral theory to advance digital citizenship education. *Education and Information Technologies*, *27*(3). <https://doi.org/10.1007/s10639-021-10710-0>
- Heitmayer, M., & Schimmelpfennig, R. (2023). Netiquette as Digital Social Norms. *International Journal of Human-Computer Interaction*. <https://doi.org/10.1080/10447318.2023.2188534>
- Hill, R., Betts, L., & Gardner, S. (2015). Empowerment and enablement through digital technology in the generation of the digital age. *Computers in Human Behavior*, *48*.
- Jagasia, J., Baul, U., & Mallik, D. (2015). A Framework for Communities of Practice in Learning Organizations. *Business Perspectives and Research*, *3*(1). <https://doi.org/10.1177/2278533714551861>
- James, C., Weinstein, E., & Mendoza, K. (2019). Teaching Digital Citizens in Today's World: Research and Insights Behind the Common Sense K-12 Digital Citizenship Curriculum. *Teaching Digital Citizens in Today's World*.
- Kim, M., & Choi, D. (2018). Development of youth Digital Citizenship Scale and implication for educational setting. *Educational Technology and Society*, *21*(1).
- Lauricella, A. R., Herdzina, J., & Robb, M. (2020). Early childhood educators' teaching of digital citizenship competencies. *Computers and Education*, *158*. <https://doi.org/10.1016/j.compedu.2020.103989>
- Li, Y., Deng, S., Wu, X., Zhao, B., Xie, Y., Luo, X., & Zheng, Y. (2023). Integrating Digital Citizenship into a Primary School Course "Ethics and the Rule of Law": Necessity, Strategies and a Pilot Study. https://doi.org/10.1007/978-3-031-35731-2_7
- MacCann, C., Jiang, Y., Brown, L. E. R., Double, K. S., Bucich, M., & Minbashian, A. (2019). Emotional Intelligence Predicts Academic Performance: A Meta-Analysis. *Psychological Bulletin*. <https://doi.org/10.1037/bul0000219>
- Martin, F., Gezer, T., Wang, W. C., Petty, T., & Wang, C. (2022). Examining K-12 educator experiences from digital citizenship professional development. *Journal of Research on Technology in Education*, *54*(1). <https://doi.org/10.1080/15391523.2020.1815611>
- Narayanan, S., & Musthafa, M. N. M. A. (2023). Techno Emotive Pedagogy: A Strategic Enabler for Catalyzing Sustainable Learning and Living in the Post-Pandemic Educational Landscape. *European Journal of Education and Pedagogy*, *4*(2). <https://doi.org/10.24018/ejedu.2023.4.2.581>
- Ng, D. T. K., Leung, J. K. L., Su, J., Ng, R. C. W., & Chu, S. K. W. (2023). Teachers' AI digital competencies and twenty-first century skills in the post-pandemic world. *Educational Technology Research and Development*, *71*(1). <https://doi.org/10.1007/s11423-023-10203-6>

- Passey, D., Shonfeld, M., Appleby, L., Judge, M., Saito, T., & Smits, A. (2018). Digital Agency: Empowering Equity in and through Education. *Technology, Knowledge and Learning*, 23(3). <https://doi.org/10.1007/s10758-018-9384-x>
- Prasetyo, W. H., Naidu, N. B. M., Tan, B. P., & Sumardjoko, B. (2021). Digital citizenship trend in educational sphere: A systematic review. In *International Journal of Evaluation and Research in Education* (Vol. 10, Issue 4). <https://doi.org/10.11591/IJERE.V10I4.21767>
- Prasetyo, W. H., Sumardjoko, B., Muhibbin, A., Naidu, N. B. M., & Muthali'in, A. (2023). Promoting Digital Citizenship among Student-Teachers: The Role of Project-Based Learning in Improving Appropriate Online Behaviors. *Participatory Educational Research*, 10(1). <https://doi.org/10.17275/per.23.21.10.1>
- Rahmatullah, A. S., Mulyasa, E., Syahrani, S., Pongpalilu, F., & Putri, R. E. (2022). Digital Era 4.0: The Contribution to Education and Student Psychology. *Linguistics and Culture Review*, 6.
- Runge, I., Lazarides, R., Rubach, C., Richter, D., & Scheiter, K. (2023). Teacher-reported instructional quality in the context of technology-enhanced teaching: The role of teachers' digital competence-related beliefs in empowering learners. *Computers and Education*, 198. <https://doi.org/10.1016/j.compedu.2023.104761>
- Sarstedt, M., Hair, J. F., Pick, M., Liengard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in partial least squares structural equation modeling use in marketing research in the last decade. *Psychology and Marketing*, 39(5). <https://doi.org/10.1002/mar.21640>
- Schou, J., & Hjelholt, M. (2018). Digital citizenship and neoliberalization: governing digital citizens in Denmark. *Citizenship Studies*, 22(5). <https://doi.org/10.1080/13621025.2018.1477920>
- Sharma, S., Kar, A. K., Gupta, M. P., Dwivedi, Y. K., & Janssen, M. (2022). Digital citizen empowerment: A systematic literature review of theories and development models. *Information Technology for Development*, 28(4). <https://doi.org/10.1080/02681102.2022.2046533>
- SN, S., & K, Dr. T. (2023). Empowering students in the digital age: Assessing of digital empowerment level of students in higher education. *International Journal of Advanced Academic Studies*, 5(8). <https://doi.org/10.33545/27068919.2023.v5.i8a.1031>
- Suphattanakul, O., Maliwan, E., Eiamnate, N., & Thadee, W. (2023). Developing Digital Citizenship in Municipality: Factors and Barriers. *International Journal of Sustainable Development and Planning*, 18(5). <https://doi.org/10.18280/ijstdp.180520>
- Suson, R. L. (2019). Appropriating Digital Citizenship in the Context of Basic Education. In *International Journal of Education, Learning and Development* (Vol. 7, Issue 4).
- Villar-Onrubia, D., Morini, L., Marín, V. I., & Nascimbeni, F. (2022). Critical digital literacy as a key for (post)digital citizenship: an international review of teacher competence frameworks. *Journal of E-Learning and Knowledge Society*, 18(3). <https://doi.org/10.20368/1971-8829/1135697>
- Wong, R. (2020). When no one can go to school: does online learning meet students' basic learning needs? *Interactive Learning Environments*. <https://doi.org/10.1080/10494820.2020.1789672>
- Yu, J., Park, J., & Hyun, S. S. (2021). Impacts of the COVID-19 pandemic on employees' work stress, well-being, mental health, organizational citizenship behavior, and employee-customer identification. *Journal of Hospitality Marketing and Management*, 30(5). <https://doi.org/10.1080/19368623.2021.1867283>



© 2024 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).