

The Impact of Self-Efficacy on The Connection Between Social Media Usage and Digital Literacy in Relation to Academic Performance Among Students

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Abstract

As Internet technology continues to advance, devices, websites and software are becoming increasingly important in daily lives. Social media in particular plays an important role among Internet users. Social media platforms are used for a variety of purposes, such as creating and sharing blogs, photos and videos, and finding news and information. For students, social media has become an integral part of their lives, with some students spending several hours a day on these platforms. The way in which social media is used and what it is used for has had a significant impact on the lives and studies of the students. At the same time, the digital literacy skills that students possess are critical to the use of social media. It is closely related to a user's ability to recognize, understand and appreciate online media content. For students who use social media for academic purposes, their level of digital literacy directly impacts their ability to effectively search for and understand information. In addition, students' self-efficacy is important to consider when influencing their academic performance. Social media use and users' level of digital literacy greatly influence their beliefs about their abilities (self-efficacy), which are closely related to their academic performance. This study aims to investigate the mediating role of students' self-efficacy in the relationship between their social media usage, digital literacy level, and academic performance in higher education.

Keywords: Academic performance, digital literacy, self-efficiency, social media usage, higher-education

Introduction

The emergence of the Internet, big data, social networking sites and the proliferation of related devices such as smartphones, iWatches, and iPads have significantly decreased the distance between human beings, extending the scope of socialization (Lu, 2020). Mohammed et al. (2021) further stated that students are increasingly turning to social networks to fulfill everyday tasks such as attending lectures, completing homework and resolving assignments. Meanwhile, Yustika and Iswati (2020) emphasized that university students engaging with social media platforms for academic purposes must possess a high level of digital literacy. This proficiency is crucial for the effective and efficient searching, filtering, and absorption of knowledge from online media content. Digital literacy stands as a foundational skill necessary for the successful utilization of the Internet and its diverse resources. It is intricately connected to the recognition, comprehension, and understanding of various forms of media content, as highlighted by Reddy et al. (2020). Therefore, this paper will review on the relationship between self-efficacy, social media usage and digital literacy with students' academic performance.

Literature Review

Social Media and Students' Academic Performance

Social media plays a significant role on students and exerts an impact on their academic performance. The connection between using social media and academic performance is complex, encompassing positive and negative consequences. Previous studies have demonstrated that the impact of social media use on student's academic performance is multifaceted. Several investigations have revealed that positive utilization of social media can enhance students' engagement in academic activities and access to information. For instance, Bhandarkar et al. (2021) conducted a study that indicated a positive correlation between academic performance and activities such as reading health-related news, completing assignments, and conducting academic research on social media platforms (Bhandarkar et al., 2021). Similarly, the research by Savita Gupta and Liyaqat Bashir emphasized that social media usage can offer students valuable academic resources and information, facilitate academic communication and collaborative learning, and consequently lead to improvements in their academic performance (Ansari & Gupta, 2021).

However, other studies have explored how social media affects students' academic performance. Alamri et al. (2020) used structural equation modeling to investigate the link between students' social media use and academic performance. Their survey, involving 192 college students, discovered that excessive involvement with social media could lead to distractions, difficulties in managing time, and increased academic stress, ultimately negatively impacting academic performance. In summary, social media platforms significantly influence the sustainability of student academic performance (Alamri et al., 2020). On the other hand, Mindajao (2023) found no significant connection between social media addiction and students' academic performance. Therefore, the underperformance of students in science courses cannot be solely attributed to social media addiction (Mindajao, 2023).

A comprehensive literature study by Tang et al. (2021) examined how young Chinese people utilize social media. Their study aimed to close the knowledge gap on the topics, theories, factors, and conceptual frameworks related to young people's usage of social media in China. Using the PRISMA approach, a thorough examination of 20 publications from the Scopus and Google Scholar databases yielded ten key research themes, eight hypotheses or models, and a full causal framework. According to the study, future social media research should encompass a wider range of topics and additional social media platforms and use other theories or models. A more thorough and systematic method should be used by researchers when assessing the literature on social media research in China.

In the field of higher education, social media usage has grown to be a hot subject. The usage of social networks in higher education has a good impact on students' learning processes, academic achievement, and teaching effectiveness, according to research by Zachos et al. (2018). Their review study examined the use of social networks by educators and students for support, the improvement of communication and teamwork, and learning management systems. The results imply that social networks have several uses in higher education. However, academic staff and institutions of higher learning have not yet utilized social networks to their full potential.

Therefore, it is crucial to conduct more in-depth research to understand the underlying mechanisms that govern the impact of social media on student academics. This research should aim to identify optimal strategies for harnessing the positive aspects of social media while mitigating potential drawbacks (Dwivedi et al., 2020). Gaining a precise understanding and assessment of how social media influences student academic performance is important for developing effective educational approaches and offering guidance on students' social media engagement (Nortvig et al., 2018). Sarwar et al. (2019) highlighted a strong association between social media use and student learning interactions, active and collaborative learning, and academic performance. Additionally, social media serves as a widely used tool in higher education for supplementary instruction and as a learning management system (Manca, 2020). However, despite its immense potential, there is still significant room for improvement in how faculty and higher education institutions utilize social media (Ali & Abdel-Haq, 2021). Consequently, future research should explore enhanced integration of social media and educational practices to boost student academic achievements and improve teaching efficacy (Amin et al., 2022).

Digital Literacy and Academic Performance

Digital literacy is a term used to describe an individual's capacity to use and understand digital technologies, encompassing the ability to explore, evaluate, and utilize information including exploring, evaluating, and utilizing information, as well as using digital tools for communication, collaboration, and creation (Falloon, 2020). Research by Jin et al. (2020) and Limniou et al. (2021) indicates that students with higher levels of digital literacy tend to perform better academically. This is because digital literacy equips students with the skills and resources they need throughout the learning process (Anthonysamy et al., 2020). For example, students with effective information-seeking and evaluation skills can access reliable and accurate academic resources to improve their research and writing (Miraj et al., 2021). Furthermore, Jafar

et al. (2020) claimed that students who possess proficiency with digital tools and applications can organize and present their academic work more effectively, thus enhancing their academic presentation skills.

Research findings indicate a strong connection between students' frequency of social media use and the variety of activities they engage in on social networking sites, such as social interactions, communication, and educational components. This relationship is closely linked to their level of digital literacy (Durak & Seferoğlu, 2020). Students who exhibit higher levels of digital literacy are more likely to use social media as an effective learning tool. Additionally, research by Buck (2012) suggests that digital literacy practices on social networking sites influence personal literacy and identity practices. Knowing these habits offers insight into how students use digital literacy outside the classroom and how they could affect academic writing abilities.

Higher levels of digital literacy have been found to improve academic performance across disciplines and student learning outcomes (Vrana, 2014). This shows that integrating digital literacy into the academic curriculum might improve students' academic performance. Additionally, it has been demonstrated that there are gender variations in the degrees of digital literacy, with female students demonstrating stronger abilities than male students (Rodniam, 2020). This emphasizes the need to address gender disparities in digital literacy and support granting all kids the equal opportunity. Investigations into the effects of digital literacy on academic achievement and preparedness for self-directed learning were also conducted (Sari, 2022). The results showed a strong correlation between digital literacy skills and academic success, particularly for students who spoke English as a second language.

Furthermore, the significance of digital literacy in enhancing learning capacity, workforce readiness, and employability has been emphasized (Khan et al., 2022). The study highlights that cultivating critical thinking abilities, manipulation skills, visual learning preferences, group learning preferences, and learning systems can enhance digital literacy, which ultimately contributes to improved academic achievement and employability. Although digital literacy affects students' communication, research, and confidence abilities, its effects on their cumulative grade point average (CGPA) may vary (Abbas et al., 2019). These results highlight the significance of comprehending the various aspects of academic achievement and the complex link with digital literacy.

This research often highlights the multifaceted character of digital literacy and its importance to student's academic achievement (Mehrvarz et al., 2021). These results underline the necessity of addressing gender gaps, incorporate digital literacy skills into courses, and support students in acquiring digital capabilities to harness the benefits of digital literacy in improving their academic achievement. Therefore, more research and practical interventions are required (Udeogalanya, 2022).

Social Media Usage and Digital Literacy

Dhillon and Murray (2021) displayed that the field of academic development for modern students focuses on social media use and digital literacy. The widespread use of social media has affected various aspects of people's lives, including communication, information sharing, and learning (Pan et al., 2020). The development of the information age has led to the emergence of digital literacy, which is highly valued in the educational community. Some studies have been carried out to explore the relationship between these two factors. Furthermore, some studies have demonstrated that social media use and digital literacy correlate positively.

The impact of social media on language and literacy skill development has been the subject of research. Studies have demonstrated that using multiple modes and text types on social media platforms can promote learners' literacy and language use skills (Yadav, 2021). Consequently, social media use can enhance students' digital literacy development by providing opportunities for information search, innovation, and social communication (Falloon, 2020). Through social media, students can actively explore, evaluate, and utilize digital information resources and improve their information acquisition and processing skills. These findings suggest that educators can harness the power of social media by incorporating it into curriculum and instruction to stimulate students' interest in learning and support their language and literacy learning.

The research indicates that social media use is primarily driven by entertainment and social needs, with less emphasis on digital literacy activities for academic purposes. This implies that students tend to prioritize personal interests and social interactions over social media's potential as a learning tool. As a result, educators and schools need to promote a more intentional use of social media among students, encouraging activities related to digital literacy. This includes tasks like information search, creative thinking, and academic communication, aiming to enhance their digital literacy skills more effectively.

Additionally, digital literacy plays an important role in the social media environment, and social media literacy is a framework for assessing an individual's digital literacy skills in social media environments (Hu & Yu, 2021). This framework highlights how individuals influence information choices, values, the construction of social media reality, and the development of cognitive skills such as critical thinking, social-emotional skills, and technological skills. Therefore, individuals need the necessary skills to adapt to the social media environment to comprehend and interact with it while managing their online identities and privacy (Hargittati & Micheli, 2019).

Additionally, digital literacy holds great importance in the realm of social media, and social media literacy serves as a framework for assessing an individual's digital literacy skills within social media environments (Hu & Yu, 2021). This framework highlights how individuals shape information choices, values, the construction of social media reality, and the development of cognitive skills like critical thinking, social-emotional skills, and technological proficiency. Therefore, individuals need the necessary skills to navigate the social media environment effectively, understanding and engaging with it while managing their online identities and privacy (Hargittati & Micheli, 2019). Studies have consistently shown a strong correlation between students' academic performance and their proficiency in digital literacy. Higher levels of digital literacy contribute to improved information access, creative thinking, and overall academic success (Yustika & Iswati, 2020). Thus, fostering digital literacy among students enables them to effectively utilize information on social media platforms, establishing a solid foundation for their academic growth.

Combining these studies helps us understand how social media affects learners and the vital role of digital literacy. Recognizing the interconnection between social media use and digital literacy is crucial (Sirlin et al., 2021). Although using social media can improve students' digital literacy, too much focus on social and entertainment aspects might overshadow academic digital literacy activities (Balt et al., 2023). Therefore, educators and schools should provide necessary guidance and education to facilitate the effective use of social media for digital literacy practices, contributing to enhanced academic performance and digital literacy among students.

Self-Efficacy and Students' Academic Performance

In educational settings, self-efficacy refers to an individual's self-assessment of their confidence and capability to succeed in a specific area or task (Chung et al., 2021). Hayat et al. (2020) asserted that self-efficacy significantly influences academic performance, shaping students' learning strategies and motivation. According to Blanco et al. (2020), students with high self-efficacy levels tend to perform better academically because they believe in their ability to handle academic challenges. This confidence leads to a positive outlook on meeting academic demands, fostering motivation and ultimately resulting in improved academic achievement. Moreover, students with high self-efficacy are inclined to set ambitious learning goals and consistently strive to attain them (Dixon et al., 2020). Their motivation extends to employing diverse learning strategies, such as creating study plans, seeking assistance, and persistently solving problems, as they hold the belief that hard work and effective learning methods can enhance their academic performance.

Oyuga et al. (2019) have demonstrated a positive link between self-efficacy and academic performance in college students. In this correlation, individuals with higher self-efficacy tend to set challenging goals, persevere in overcoming obstacles, and employ effective learning strategies (Icekson et al., 2021). Consequently, this increased self-efficacy translates into greater motivation, academic performance, and retention compared to individuals with lower levels of self-efficacy. Therefore, educational institutions that prioritize the development of students' self-efficacy can significantly contribute to enhancing overall student success and satisfaction (Baroudi et al., 2022).

Cattelino et al. (2021) explained that self-efficacy is a belief individuals hold when faced with challenges. To understand the impact of self-efficacy on aspects such as academic achievement, achievement motivation, and mental health, studies have emphasized on college students (Turner et al., 2021).

Khanshan and Yousefi (2020) showed that beliefs about self-efficacy are related to specific disciplines. For example, a student may believe that he is more competent and confident in studying physics or chemistry than others; or he may believe that he is more competent in studying history, culture, and language than others. The variations in self-efficacy beliefs could provide insight as to the reason for students in different academic disciplines exhibit different levels of confidence and competence in their studies.

Recognizing students' discipline-specific self-efficacy allows educators to fit their instructional approaches and support systems, catering their individual needs and enhancing their learning experiences (Krause et al., 2020). This approach can potentially lead to improved academic outcomes and enhanced personal growth. The connection between students' self-efficacy and their motivation to learn is a topic of great interest in the field of education. Those who possess a greater sense of self-efficacy are more inclined to be intrinsically motivated to learn, showing a greater interest and satisfaction in the learning process (Shin & Bolkan, 2021). Moreover, they are more willing to actively engage in educational activities, believing in their ability to achieve greater academic goals through diligence and effort. However, it must be noted that the relationship between self-efficacy and academic performance is not straightforward and can be influenced by various factors such as the learning environment, familial support, and school resources (Gutiérrez & Tomás, 2019). Furthermore, discrepancies between personal abilities and self-perceptions may also impact the correlation between self-efficacy and academic performance (Perera & John, 2020). In conclusion, a strong correlation exists between students' self-efficacy and academic performance, with those with higher self-efficacy exhibiting better performance and demonstrating more confidence in their ability to tackle academic challenges.

Students' Self-Efficacy, Social Media Usage and Academic Performance

With the rapid expansion of social media, there has been an increase in research on the effects of social media on self-efficacy. In recent years as the Internet has rapidly developed, social media has become a vital tool in people's daily lives, drawing considerable attention to its impact on self-efficacy (Hussain et al., 2021). Existing studies have identified a significant relationship between social media use and self-efficacy in the following three ways:

Firstly, using social media as a means for students to access learning resources and information may positively impact their self-efficacy and academic performance (Pumptow & Brahm, 2021). Students can obtain learning materials through social media, engage in academic discussions, and receive academic support. The process of obtaining and sharing learning resources may enhance students' self-efficacy. When students interact with others through social media and receive positive feedback, share academic achievements, or resolve learning problems, their self-efficacy may increase, thereby positively impacting their academic performance (Hayat et al., 2020).

Secondly, the usage of social media may affect students' time management skills, thus affecting their academic performance (Whelan et al., 2022). Students who become excessively immersed in social media may potentially neglect their academic tasks and study time. Alhadabi and Karpinski (2020) noted that these negative impacts on time management may decrease students' self-efficacy, making them feel powerless in academic pursuits, consequently leading to negative consequences for their academic performance.

Thirdly, social media usage may indirectly impact academic performance by influencing students' learning motivation (Gumasing & Castro, 2023). For example, when students observe their peers sharing successful academic achievements or learning experiences on social media, it can motivate them, enhancing their desire to learn (Ng, 2020). This motivation and encouragement may increase students' sense of self-efficacy, strengthening their confidence to face academic challenges and actively participate in learning.

Students' Self-Efficacy, Digital Literacy Level and Academic Performance

Self-efficacy is commonly believed to have a closely linked relationship with academic achievement (Tus, 2020). When students possess high levels of self-efficacy, it indicates that they are more likely to set clear learning goals, employ proactive learning strategies, persevere in the face of academic challenges, and have a strong belief in their ability to achieve academic success (Yen & Lin, 2022). These positive attitudes and behaviors towards learning are likely to positively impact academic performance.

Students with high self-efficacy are also more likely to exhibit confidence in approaching learning and using digital technologies and tools (Hatlevik & Bjarnø, 2021). This confidence may encourage them to explore new digital skills and address digital-related issues, contributing to their overall digital literacy. Moreover, self-efficacy can also influence students' motivation and attitude toward developing their digital literacy, which indirectly impacts their level of digital literacy and academic performance (Jeon & Kim, 2022). Therefore, it can be evident that an individual's level of self-efficacy plays a crucial role in determining their willingness to engage with and excel in the domain of digital literacy.

Conclusion

The ongoing evolution of internet technology has heightened the significance of devices, websites, and software in our daily lives, with a central emphasis on the role of social media, particularly among students who dedicate substantial time to these platforms. The profound impact of social media on students' daily lives and academic pursuits is intricately intertwined with their digital literacy skills, essential for comprehending, discerning, and valuing online content. Notably, for students utilizing social media for academic purposes, digital literacy assumes a pivotal role in their ability to efficiently search for and comprehend information. Additionally, the pivotal role of students' self-efficacy becomes evident as a determining factor in academic performance, shaped by their convictions regarding their capabilities and intimately connected to their patterns of social media use and digital literacy proficiency.

Reference

- Ahn, J.-H., Bae, Y.-S., Ju, J., & Oh, W. (2018). Attention Adjustment, Renewal, and Equilibrium Seeking in Online Search: An Eye-Tracking Approach. *Journal of Management Information Systems*, 35, 1218–1250. <https://doi.org/10.1080/07421222.2018.1523595>
- Alamri, M. M., Almaiah, M. A., & Al-Rahmi, W. M. (2020). Social Media Applications Affecting Students' Academic Performance: A Model Developed for Sustainability in Higher Education. *Sustainability*, 12(16), Article 16. <https://doi.org/10.3390/su12166471>

- Ali, M., & Abdel-Haq, M. K. (2021). Bibliographical Analysis of Artificial Intelligence Learning in Higher Education: Is the Role of the Human Educator and Educated a Thing of the Past? In *Fostering Communication and Learning with Underutilized Technologies in Higher Education* (pp. 36–52). IGI Global. <https://doi.org/10.4018/978-1-7998-4846-2.ch003>
- Amin, I., Yousaf, A., Walia, S., & Bashir, M. (2022). What Shapes E-Learning Effectiveness among Tourism Education Students? An Empirical Assessment during COVID19. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 30, 100337. <https://doi.org/10.1016/j.jhlste.2021.100337>
- Ansari, J. A. N., & Khan, N. A. (2020). Exploring the role of social media in collaborative learning the new domain of learning. *Smart Learning Environments*, 7(1), 9. <https://doi.org/10.1186/s40561-020-00118-7>
- Ansari, S., & Gupta, S. (2021). Customer perception of the deceptiveness of online product reviews: A speech act theory perspective. *International Journal of Information Management*, 57, 102286. <https://doi.org/10.1016/j.ijinfomgt.2020.102286>
- Ansari, S., & Gupta, S. (2021). Customer perception of the deceptiveness of online product reviews: A speech act theory perspective. *International Journal of Information Management*, 57, 102286. <https://doi.org/10.1016/j.ijinfomgt.2020.102286>
- Anthonyamy, L., Koo, A. C., & Sh, H. (2020). Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies*, 25. <https://doi.org/10.1007/s10639-020-10201-8>
- Balt, E., Mérelle, S., Robinson, J., Popma, A., Creemers, D., van den Brand, I., van Bergen, D., Rasing, S., Mulder, W., & Gilissen, R. (2023). Social media use of adolescents who died by suicide: Lessons from a psychological autopsy study. *Child and Adolescent Psychiatry and Mental Health*, 17(1), 48. <https://doi.org/10.1186/s13034-023-00597-9>
- Baroudi, S., & Shaya, N. (2022). Exploring predictors of teachers' self-efficacy for online teaching in the Arab world amid COVID-19. *Education and Information Technologies*, 27(6), 8093–8110. <https://doi.org/10.1007/s10639-022-10946-4>
- Baroudi, S., Hojeij, Z., Meda, L., & Lottin, J. (2022). Examining elementary preservice teachers' self-efficacy and satisfaction in online teaching during virtual field experience. *Cogent Education*, 9(1), 2133497. <https://doi.org/10.1080/2331186X.2022.2133497>
- Bhandarkar, A. M., Pandey, A. K., Nayak, R., Pujary, K., & Kumar, A. (2021). Impact of social media on the academic performance of undergraduate medical students. *Medical Journal Armed Forces India*, 77, S37–S41. <https://doi.org/10.1016/j.mjafi.2020.10.021>
- Blanco, Q. A., Carlota, M. L., Nasibog, A. J., Rodriguez, B., Saldaña, X. V., Vasquez, E. C., & Gagani, F. (2020). Probing on the Relationship between Students' Self-Confidence and Self-Efficacy while engaging in Online Learning amidst COVID-19. *Journal La Edusci*, 1(4), Article 4. <https://doi.org/10.37899/journallaedusci.v1i4.220>
- Buck, A. (2012). Examining Digital Literacy Practices on Social Network Sites. *Research in the Teaching of English*, 47(1), 9–38.
- Cattellino, E., Testa, S., Calandri, E., Fedi, A., Gattino, S., Graziano, F., Rollero, C., & Begotti, T. (2021). Self-efficacy, subjective well-being and positive coping in adolescents with regard to Covid-19 lockdown. *Current Psychology*. <https://doi.org/10.1007/s12144-021-01965-4>
- Chung, H. Q., Chen, V., & Olson, C. B. (2021). The impact of self-assessment, planning and goal setting, and reflection before and after revision on student self-efficacy and writing performance. *Reading and Writing*, 34(7), 1885–1913. <https://doi.org/10.1007/s11145-021-10186-x>
- Dhillon, S., & Murray, N. (2021). An Investigation of EAP Teachers' Views and Experiences of E-Learning Technology. *Education Sciences*, 11(2), Article 2. <https://doi.org/10.3390/educsci11020054>
- Dixon, H., Hawe, E., & Hamilton, R. (2020). The case for using exemplars to develop academic self-efficacy. *Assessment & Evaluation in Higher Education*, 45(3), 460–471. <https://doi.org/10.1080/02602938.2019.1666084>
- Durak, H. Y., & Seferoğlu, S. S. (2020). Antecedents of Social Media Usage Status: Examination of Predictiveness of Digital Literacy, Academic Performance, and Fear of Missing Out Variables. *Social Science Quarterly*, 101(3), 1056–1074. <https://doi.org/10.1111/ssqu.12790>
- Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., Gupta, B., Lal, B., Misra, S., Prashant, P., Raman, R., Rana, N. P., Sharma, S. K., & Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, 55, 102211. <https://doi.org/10.1016/j.ijinfomgt.2020.102211>
- Falloon, G. (2020). *From digital literacy to digital competence: The teacher digital competency (TDC) framework*. 2449–2472. <https://doi.org/10.1007/s11423-020-09767-4>
- Gumasing, M. J. J., & Castro, F. M. F. (2023). Determining Ergonomic Appraisal Factors Affecting the Learning Motivation and Academic Performance of Students during Online Classes. *Sustainability*, 15(3), 1–29.

- Gutiérrez, M., & Tomás, J. M. (2019). The role of perceived autonomy support in predicting university students' academic success mediated by academic self-efficacy and school engagement. *Educational Psychology, 39*(6), 729–748. <https://doi.org/10.1080/01443410.2019.1566519>
- Hargittati, E., & Micheli, M. (2019). Internet Skills and Why They Matter. In *Society and the Internet: How Networks of Information and Communication are Changing Our Lives* (2nd ed., pp. 109–124). Oxford University Press.
- Hatlevik, O. E., & Bjarnø, V. (2021). Examining the relationship between resilience to digital distractions, ICT self-efficacy, motivation, approaches to studying, and time spent on individual studies. *Teaching and Teacher Education, 102*, 103326. <https://doi.org/10.1016/j.tate.2021.103326>
- Hayat, A. A., Shateri, K., Amini, M., & Shokrpour, N. (2020). Relationships between academic self-efficacy, learning-related emotions, and metacognitive learning strategies with academic performance in medical students: A structural equation model. *BMC Medical Education, 20*(1), 76. <https://doi.org/10.1186/s12909-020-01995-9>
- Hu, J., & Yu, R. (2021). The effects of ICT-based social media on adolescents' digital reading performance: A longitudinal study of PISA 2009, PISA 2012, PISA 2015 and PISA 2018. *Computers & Education, 175*, 104342. <https://doi.org/10.1016/j.compedu.2021.104342>
- Hussain, I., Nazir, M., Hashmi, S. B., Shaheen, I., Akram, S., Waseem, M. A., & Arshad, A. (2021). Linking Green and Sustainable Entrepreneurial Intentions and Social Networking Sites; The Mediating Role of Self-Efficacy and Risk Propensity. *Sustainability, 13*(13), Article 13. <https://doi.org/10.3390/su13137050>
- Icekson, T., Begerano, O., Levinson, M., Savariego, J., & Margalit, M. (2021). Learning Difficulties and Loneliness in College and Beyond: The Mediating Role of Self-Efficacy, Proactive Coping, and Hope. *International Journal of Environmental Research and Public Health, 18*, 10508. <https://doi.org/10.3390/ijerph181910508>
- Jafar, D. S. A., Saud, M. S., Hamid, M. Z. A., Suhairom, N., Hisham, M. H. M., & Zaid, Y. H. (2020). TVET Teacher Professional Competency Framework in Industry 4.0 Era. *Universal Journal of Educational Research, 8*(5), 1969–1979. <https://doi.org/10.13189/ujer.2020.080534>
- Jeon, J., & Kim, S. (2022). The mediating effects of digital literacy and self-efficacy on the relationship between learning attitudes and Ehealth literacy in nursing students: A cross-sectional study. *Nurse Education Today, 113*, 105378. <https://doi.org/10.1016/j.nedt.2022.105378>
- Jin, K.-Y., Reichert, F., Cagasan, L. P., De La Torre, J., & Law, N. (2020). Measuring digital literacy across three age cohorts: Exploring test dimensionality and performance differences. *Computers & Education, 157*, 103968. <https://doi.org/10.1016/j.compedu.2020.103968>
- Khan, N. A., Khan, A. N., & Moin, M. F. (2021). Self-regulation and social media addiction: A multi-wave data analysis in China. *Technology in Society, 64*, 101527. <https://doi.org/10.1016/j.techsoc.2021.101527>
- Khan, N., Sarwar, A., Chen, T. B., & Khan, S. (2022). Connecting Digital Literacy in Higher Education to the 21st Century Workforce. *Knowledge Management & E-Learning, 14*(1), 46–61.
- Khanshan, S. K., & Yousefi, M. H. (2020). The relationship between self-efficacy and instructional practice of in-service soft disciplines, hard disciplines and EFL teachers. *Asian-Pacific Journal of Second and Foreign Language Education, 5*(1), 1. <https://doi.org/10.1186/s40862-020-0080-8>
- Krause, J. M., O'Neil, K., & Jones, E. (2020). Technology in Physical Education Teacher Education: A Call to Action. *Quest, 72*(3), 241–259. <https://doi.org/10.1080/00336297.2019.1685553>
- Le, B., Lawrie, G. A., & Wang, J. T. H. (2022). Student Self-perception on Digital Literacy in STEM Blended Learning Environments. *Journal of Science Education and Technology, 31*(3), 303–321. <https://doi.org/10.1007/s10956-022-09956-1>
- Limniou, M., Varga-Atkins, T., Hands, C., & Elshamaa, M. (2021). Learning, Student Digital Capabilities and Academic Performance over the COVID-19 Pandemic. *Education Sciences, 11*(7), Article 7. <https://doi.org/10.3390/educsci11070361>
- Lu, J. (2020). Artificial Intelligence and Business Innovation. *2020 International Conference on E-Commerce and Internet Technology (ECIT), 237–240*. <https://doi.org/10.1109/ECIT50008.2020.00061>
- Manca, S. (2020). Snapping, pinning, liking or texting: Investigating social media in higher education beyond Facebook. *The Internet and Higher Education, 44*, 100707. <https://doi.org/10.1016/j.iheduc.2019.100707>
- Mehrvaz, M., Heidari, E., Farrokhnia, M., & Noroozi, O. (2021). The mediating role of digital informal learning in the relationship between students' digital competence and their academic performance. *Computers & Education, 167*, 104184. <https://doi.org/10.1016/j.compedu.2021.104184>
- Mindajao, B. Y. (2023). Impact of Social Media Addiction on The Scholastic Performance of High School Students in Science. *European Journal of Education Studies, 10*(1), Article 1. <https://doi.org/10.46827/ejes.v10i1.4625>
- Miraj, M., Chuntian, L., Mohd Said, R., Osei-Bonsu, R., & Rehman, R. U. (2021). How Information-Seeking Behavior, Essential Technologies, and Resilience Enhance the Academic Performance of Students. *Frontiers in Psychology, 12*, 651550. <https://doi.org/10.3389/fpsyg.2021.651550>
- Mohammed, M. T. S., Ibrahim, F. Ibrahim, & Yunus, N. (2021, July). *Conceptual Framework for the Influence of Social Media Usage and Social Media Multitasking on the Academic Performance of the Undergraduate Students*.

https://www.researchgate.net/publication/352907650_CONCEPTUAL_FRAMEWORK_FOR_THE_INFLUENCE_OF_SOCIAL_MEDIA_USAGE_AND_SOCIAL_MEDIA_MULTITASKING_ON_THE_ACADEMIC_PERFORMANCE_OF_THE_UNDERGRADUATE_STUDENTS

- Ng, T. (2020). *New Interpretation of Extracurricular Activities via Social Networking Sites: A Case Study of Artificial Intelligence Learning at a Secondary School in Hong Kong*. <https://doi.org/10.11114/jets.v9i1.5105>
- Nortvig, A.-M., Petersen, A. K., & Balle, S. H. (2018). A Literature Review of the Factors Influencing E-Learning and Blended Learning in Relation to Learning Outcome, Student Satisfaction and Engagement. *Electronic Journal of E-Learning*, 16(1), Article 1.
- Oyuga, P. A., Raburu, P. A., & Aloka, P. J. O. (2019). Relationship between Self-efficacy and Academic Performance among Orphaned Secondary School Students in Kenya. *International Journal of Psychology and Behavioral Sciences*, 9(3), 39–46.
- Pan, S. L., Cui, M., & Qian, J. (2020). Information resource orchestration during the COVID-19 pandemic: A study of community lockdowns in China. *International Journal of Information Management*, 54, 102143. <https://doi.org/10.1016/j.ijinfomgt.2020.102143>
- Perera, H. N., & John, J. E. (2020). Teachers' self-efficacy beliefs for teaching math: Relations with teacher and student outcomes. *Contemporary Educational Psychology*, 61, 101842. <https://doi.org/10.1016/j.cedpsych.2020.101842>
- Pumptow, M., & Brahm, T. (2021). Students' Digital Media Self-Efficacy and Its Importance for Higher Education Institutions: Development and Validation of a Survey Instrument. *Technology, Knowledge and Learning*, 26(3), 555–575. <https://doi.org/10.1007/s10758-020-09463-5>
- Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital Literacy: A Review of Literature. *International Journal of Technoethics*, 11(2), 65–94. <https://doi.org/10.4018/IJT.20200701.oa1>
- Sarwar, B., Zulfiqar, S., Aziz, S., & Ejaz Chandia, K. (2019). Usage of Social Media Tools for Collaborative Learning: The Effect on Learning Success With the Moderating Role of Cyberbullying. *Journal of Educational Computing Research*, 57(1), 246–279. <https://doi.org/10.1177/0735633117748415>
- Shin, M., & Bolkan, S. (2021). Intellectually stimulating students' intrinsic motivation: The mediating influence of student engagement, self-efficacy, and student academic support. *Communication Education*, 70(2), 146–164. <https://doi.org/10.1080/03634523.2020.1828959>
- Sirlin, N., Epstein, Z., Arechar, A. A., & Rand, D. G. (2021). Digital Literacy is Associated with More Discerning Accuracy Judgments but not Sharing Intentions. *Harvard Kennedy School Misinformation Review*. <https://dspace.mit.edu/handle/1721.1/144237>
- Tang, L., Omar, S., Bolong, J., & Zawawi, J. (2021). Social Media Use Among Young People in China: A Systematic Literature Review. *SAGE Open*, 11, 215824402110164. <https://doi.org/10.1177/21582440211016421>
- Turner, J., Li, B., & Wei, M. (2021). Exploring effects of culture on students' achievement motives and goals, self-efficacy, and willingness for public performances: The case of Chinese students' speaking English in class. *Learning and Individual Differences*, 85, 101943. <https://doi.org/10.1016/j.lindif.2020.101943>
- Tus, J. (2020). Self – Concept, Self – Esteem, Self – Efficacy and Academic Performance of the Senior High School Students. *International Journal of Research Culture Society*, 4(10).
- Udeogalanya, V. (2022). *Aligning digital literacy and student academic success: Lessons learned from COVID-19 pandemic*. 8(2).
- Vrana, R. (2014). Digital Literacy as a Prerequisite for Achieving Good Academic Performance. In S. Kurbanoglu, S. Špiranec, E. Grassian, D. Mizrahi, & R. Catts (Eds.), *Information Literacy. Lifelong Learning and Digital Citizenship in the 21st Century* (pp. 160–169). Springer International Publishing. https://doi.org/10.1007/978-3-319-14136-7_17
- Whelan, E., Golden, W., & Tarafdar, M. (2022). How technostress and self-control of social networking sites affect academic achievement and wellbeing. *Internet Research*, 32(7), 280–306. <https://doi.org/10.1108/INTR-06-2021-0394>
- Yadav, M. (2021). *Role of social media in English Language Learning to the Adult Learners*. 4, 238–246. <https://doi.org/10.32996/ijllt.2021.4.1.25>
- Yen, W.-C., & Lin, H.-H. (2022). Investigating the effect of flow experience on learning performance and entrepreneurial self-efficacy in a business simulation systems context. *Interactive Learning Environments*, 30(9), 1593–1608. <https://doi.org/10.1080/10494820.2020.1734624>
- Yustika, G. P., & Iswati, S. (2020). Digital Literacy in Formal Online Education: A Short Review. *Dinamika Pendidikan*, 15(1), Article 1. <https://doi.org/10.15294/dp.v15i1.23779>
- Yustika, G. P., & Iswati, S. (2020). Digital Literacy in Formal Online Education: A Short Review. *Dinamika Pendidikan*, 15(1), Article 1. <https://doi.org/10.15294/dp.v15i1.23779>
- Zachos, G., Paraskevopoulou-Kollia, E.-A., & Anagnostopoulos, I. (2018). Social Media Use in Higher Education: A Review. *Education Sciences*, 8(4), 194. <https://doi.org/10.3390/educsci8040194>