



Exploring Students' Experiences of Remote Learning: Highlighting Emotional Well-Being and Technological Adaptation during the COVID-19 Pandemic

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ABSTRACT

The field of online learning has grown significantly, especially during the COVID-19 pandemic, where educational institutions worldwide shifted to remote learning. While existing studies focus on the technological and academic aspects of digital education, less is known about the emotional and social experiences of students engaged in this learning mode. Despite the wealth of data on effectiveness, a significant gap exists in understanding how students emotionally and socially navigate online learning. This study employs a phenomenological approach to explore the lived experiences of students during remote learning, aiming to address this gap. Data was collected through semi-structured interviews with 15 students, focusing on their perceptions of technological barriers, emotional challenges, and coping strategies. Thematic analysis revealed that students faced substantial technological difficulties and feelings of isolation, yet 10 out of 15 students reported developing adaptive coping strategies, such as forming peer support networks, which helped them manage these challenges. The findings underscore the need to integrate emotional and social support into remote learning environments. This research contributes to a deeper understanding of the student experience and highlights areas for future improvement in digital education strategies.



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INTRODUCTION

The transition from traditional in-person education to online learning has become one of the most significant changes in the educational landscape, particularly in response to the global COVID-19 pandemic (Chen et al., 2022; Feldman, 2020). This shift has reshaped how education is delivered, with many institutions rapidly adopting digital tools to continue instruction amidst lockdowns and social distancing measures. The widespread adoption of technology in education has led to new experiences, challenges, and perceptions among students, making it a crucial phenomenon to study in the context of modern education.

In this rapidly evolving educational environment, the phenomenon of remote learning has become a central topic of interest, not only for educators and policymakers but also for students who are directly affected by these changes (Gyekye & Learned, 2024). The implications of this transition are vast, as students are required to adapt to new learning platforms, manage their studies from home, and overcome various technical and emotional barriers (Davy & Quane, 2021). These challenges are not merely logistical but deeply emotional and psychological, as the students' lived experiences with digital education shape their academic identity, social interactions, and overall well-being. Thus, understanding the human experience of online learning is critical, as it touches upon various facets of students' lives, from their academic engagement to their emotional and social connections.

The relevance of studying this phenomenon lies in its profound impact on students' learning experiences and personal growth (Buckley et al., 2023). By examining the subjective experiences of students, we can better understand how they navigate the complexities of remote learning, how they perceive their own educational journey, and how they make sense of their academic and emotional responses (Syska & Pritchard, 2023). This exploration aligns with the phenomenological approach, which focuses on uncovering the essence of human experience through the participants' own perspectives. Phenomenology allows for an in-depth analysis of how students experience and interpret the world of online education, offering insights that go beyond statistical data and general trends. At the same time, explicitly linking this gap with the present study, the objective of this research is to examine not only the technological barriers but also the emotional and social challenges faced by students, highlighting the coping strategies they develop to navigate remote learning. This direct focus positions the study as a novel contribution by bridging the gap between prior research, which has emphasized system efficiency, and the urgent need to address students' lived emotional and technological realities.

Research on the subjective experiences of individuals in specific phenomena has become a vital area of focus, particularly in fields such as education, psychology, and sociology (Bahrami et al., 2023). The exploration of these experiences offers a nuanced understanding of how individuals interact with and interpret their environments (Abramova et al., 2021). In the context of online learning, it is particularly crucial to investigate how students experience this shift, as it provides insights into the complexities of education beyond just academic performance. Phenomenological research allows us to gain an intimate understanding of these personal experiences, capturing the emotional and psychological responses to the challenges of learning in a digital environment.

However, exploring deep and meaningful experiences presents several methodological challenges (Gelles et al., 2020). Traditional quantitative methods, such as surveys and statistical analysis, are limited in their ability to capture the rich, subjective aspects of human experience. These methods often focus on broad generalizations or aggregate data, which fail to address the unique, individual meanings that participants assign to their experiences (Ensmann et al., 2021). For example, while quantitative surveys may measure the effectiveness of online learning tools, they cannot explore the emotional weight of the shift to digital education, such as feelings of isolation, frustration, or empowerment. The lack of insight into these personal, lived experiences demonstrates the shortcomings of quantitative approaches when it comes to understanding complex human phenomena.

This gap in understanding calls for a more qualitative and in-depth exploration of the student experience, particularly through phenomenology (Garner & Osthoff, 2024). Previous studies that relied heavily on quantitative methods have overlooked the essence of the student experience, failing to capture the underlying emotional and psychological factors that shape students' perceptions of their online education (Lapitan et al., 2023; Smith, 2021). Phenomenological research, by contrast, offers a more comprehensive approach, focusing on the lived experiences of students and their individual interpretations of the challenges and rewards of remote learning. Accordingly, this study seeks to fill the identified research gap by pursuing two interconnected objectives: (1) to explore students' emotional and social experiences in depth, and (2) to identify the coping strategies that emerge in response to technological and psychological challenges during remote learning. These objectives strengthen the study's contribution and underline its importance in informing future educational practices that balance both technological advancement and human well-being. In addressing the challenges of online learning, many studies have relied on practical, established approaches, such as quantitative surveys and experimental designs, to measure variables like engagement, performance, and technology use (de Jager & Steyn, 2023; Youssef et al., 2020). These methods, while useful for providing broad overviews of trends, often fall short in capturing the rich, subjective experiences of students. They focus primarily on measurable outcomes rather than the underlying emotions, perceptions, and personal meanings that students assign to their experiences (Stewart & Lowenthal, 2022). For example, while quantitative data might demonstrate that online learning platforms are generally effective, they do not explain how students feel about their learning process or the emotional toll of adapting to an entirely digital environment.

The limitations of these conventional approaches highlight a significant gap in understanding the deeper, more personal dimensions of remote learning (Bekova et al., 2021). There is a lack of insight into how students internally process their experiences how they navigate feelings of isolation, frustration, or empowerment, and how they make sense of the technological and social challenges they face (Bozzi et al., 2024). These are the kinds of lived experiences that are not easily captured through statistical analysis, yet they are essential to understanding the true impact of online education on students.

To bridge this gap, a more holistic and qualitative approach is needed one that focuses on the essence of students' experiences (Brady, 2024). Adopting a phenomenological approach offers an opportunity to explore these experiences in-depth, allowing for a nuanced understanding of the emotional, psychological, and social aspects of remote learning (Shin et al., 2021). By prioritizing the subjective meaning of students' experiences, phenomenology provides a more comprehensive view of the phenomenon, one that can reveal the complexities and subtleties that other methods overlook. This study, therefore, aims to fill the gap by exploring the lived experiences of students in the digital learning environment, offering insights that go beyond surface-level observations and addressing the deeper meanings that students derive from their educational journey.

Several studies have explored the experiences of students in the context of remote learning, emphasizing factors such as engagement, performance, and the technological challenges they face. Research by Cleary (2022) and Besche et al (2022) has focused on the emotional and academic impacts of online learning, revealing significant disruptions to students' social and academic lives. However, these studies often employ quantitative approaches, overlooking the rich, subjective experiences that shape how students adapt to online education (Meletiou-Mavrotheris et al., 2022). The theoretical frameworks underlying these studies primarily address general perceptions and behaviors, without deeply investigating how students make sense of their own emotional responses to digital learning. As a result, while the existing literature provides valuable insights, it does not fully capture the depth of students' lived experiences in the online learning environment.

To address this gap, a phenomenological approach is employed to explore the essence of students' experiences in remote learning (Walwyn & Combrinck, 2021). Phenomenology is particularly suitable for this study, as it allows for an in-depth investigation of how students perceive and interpret the challenges of digital education. By focusing on the participants' subjective experiences, this research aims to uncover the emotional, psychological, and social dimensions of remote learning, providing a richer understanding of the phenomenon (Jones et al., 2021). The choice of phenomenology answers the call for a more comprehensive approach that can reveal the deeper meanings behind students' interactions with online learning environments. Through this method, the study seeks to offer insights into the complexities and nuances that are not captured by more conventional, quantitative approaches.

This article is structured to provide a clear and coherent presentation of the research process (da Rosa Marinho et al., 2023). The introduction sets the context by discussing the phenomenon of remote learning and its significance in the current educational landscape. Following the introduction, the methodology section explains the phenomenological approach used to examine students' lived experiences, outlining the data collection and analysis procedures (McCabe et al., 2023). The results section presents the findings, focusing on key themes that emerge from the participants' experiences. The discussion will interpret these results in light of existing literature, and the conclusion will summarize the study's contributions and suggest directions for future research.

RESEARCH METHODS

Study Design

This study adopts a phenomenological approach to explore the lived experiences of students in relation to digital learning during the pandemic (Fife, 2020). Phenomenology is chosen because of its focus on understanding and interpreting the subjective experiences of participants. The design of this research allows for a deep exploration of how students perceive, make sense of, and adapt to the

shift from traditional to digital education. The phenomenological approach is particularly relevant for this study as it aims to uncover the essence of participants' experiences, providing insights into their personal meanings and emotional responses to online learning.

For this study, an interpretative phenomenological analysis (IPA) was utilized. IPA is particularly suitable as it focuses on the interpretation of personal experiences within specific contexts, taking into account the individual's perspective. This method provides a rich, detailed account of how students relate to and make sense of their experiences with remote learning, making it ideal for answering the research questions.

Participants

The participants in this study were selected through purposive sampling, ensuring that they had direct experience with the phenomenon of remote learning during the pandemic (Kawamura, 2020). The inclusion criteria consisted of students who had participated in fully online courses during the pandemic, with an age range of 18 to 30 years. Exclusion criteria included students who had not engaged in online learning for at least one semester or those who had previous extensive experience with digital learning environments prior to the pandemic.

A total of 15 students were included in the study, with an equal distribution of male and female participants. The average age of the participants was 22 years. The diversity in academic backgrounds among the students was considered relevant, as it allowed for the collection of varied perspectives on the experience of remote learning across different disciplines. This sample size is consistent with IPA research, where in-depth analysis of a smaller number of participants allows for a detailed understanding of individual experiences. Although the sample size of 15 may appear limited in terms of generalizability to the broader student population, this aligns with the methodological principles of IPA, which prioritize depth of insight over breadth of representation. The relatively small but diverse sample enables a focused exploration of individual lived experiences while still capturing variation across disciplines. Nevertheless, this limitation is acknowledged, and the findings should be interpreted as context-specific, offering transferable insights rather than statistically generalizable conclusions.

Data Collection

Data was collected through semi-structured in-depth interviews conducted via video conferencing platforms, which provided a safe and comfortable environment for the participants (Clair, 2003). Each interview lasted approximately 45 to 60 minutes and was conducted at a time convenient for the participant. The interview protocol was designed to capture a comprehensive view of the participants' experiences with remote learning, covering challenges, coping strategies, emotional reactions, and overall perceptions. The interview questions were open-ended, allowing participants to freely express their thoughts and feelings.

A set of interview questions was developed based on the existing literature on digital learning, ensuring that the questions addressed the key aspects of the research topic. The protocol was reviewed by experts in educational psychology to ensure validity and clarity. All interviews were audio-recorded with the consent of the participants, and transcripts were created for further analysis.

Data Analysis

The data was analyzed using interpretative phenomenological analysis (IPA), a method that seeks to explore how individuals make sense of their personal and social worlds. The analysis followed a systematic approach, beginning with the transcription of the interviews, followed by a close reading of the data. Each transcript was analyzed to identify significant statements or 'meaning units' that reflected key aspects of the participants' experiences. These meaning units were then grouped into broader themes, with the aim of capturing the essence of the participants' experiences.

The themes were organized into clusters that represented major areas of concern or emotion in the students' experiences with online learning, such as technological challenges, emotional impact, and coping strategies. NVivo software was used to assist in organizing and managing the qualitative

data, though the analysis was primarily driven by a manual coding process to ensure depth and accuracy.

Ethics

Ethical considerations for this study were adhered to in accordance with international research ethics standards. Prior to data collection, ethical approval was obtained from the relevant research ethics committee. All participants were provided with an informed consent form that outlined the purpose of the study, their rights as participants, and the confidentiality of their responses. Participants were assured that their participation was voluntary and that they could withdraw from the study at any time without consequence. To ensure anonymity, all identifying information was removed from the transcripts, and pseudonyms were used in place of participants' real names. The confidentiality of the data was strictly maintained, with all interview recordings and transcripts stored securely.

RESULTS

Perceived Technological Challenges in Remote Learning

The experiences of the students regarding the technological challenges in remote learning were diverse but strikingly consistent across the interviews. Many participants mentioned that the transition to digital platforms for education was not only abrupt but also challenging. They cited issues related to internet connectivity, inadequate hardware, and the lack of technical support. For instance, one student, Participant 5, shared, "I often found myself lagging behind during lectures because of poor internet connection. It was frustrating because I could see the others moving ahead, but my screen was stuck." This comment reflects the common sentiment of feeling isolated and disconnected from the learning process due to technological barriers.

Further, Participant 12 highlighted the difficulty of adapting to the digital tools required for online assessments: "The first time I had to take an online exam, I was really stressed because I didn't know how to use the platform well. I kept worrying about my answers not being submitted properly." This comment reveals not only the technical challenges but also the psychological burden associated with learning in a remote environment. Notably, students from technical disciplines such as engineering and computer science tended to report greater confidence in troubleshooting digital tools, while those from social sciences and humanities described a steeper learning curve, particularly in navigating online assessment platforms. This contrast underscores how disciplinary background influenced the way technological challenges were perceived and managed.

Emotional and Social Impact of Online Learning

In addition to technological barriers, emotional and social factors emerged as significant themes in the students' experiences. Many participants reported feelings of isolation, anxiety, and disconnection from peers and instructors. Participant 3 reflected on the emotional toll of learning alone, stating, "It feels like you are just talking to a screen, there's no connection with your classmates. I missed the group discussions and the direct interaction with my professors." This sentiment was echoed by others, who highlighted the lack of social presence as a major disadvantage of online education.

However, some students found ways to cope with these feelings by establishing new virtual communication channels with peers. Participant 8 shared, "Even though I missed the physical presence of my friends, we created study groups online. That made me feel more connected, like we were still in this together." This illustrates how students adapted to the challenges of social isolation by developing new forms of virtual community, emphasizing the adaptability of the student body despite the circumstances. Comparative insights also emerged in this theme: students living in rural areas, who experienced poorer connectivity and limited peer access, reported more intense feelings of disconnection than those in urban areas, who had better infrastructure and more opportunities for synchronous engagement. Thus, geographical and social context played a critical role in shaping the emotional dimension of remote learning.

Coping Strategies and Adaptation to Online Learning

Despite the challenges, students also revealed a strong sense of resilience and adaptability. Many participants shared their strategies for coping with the limitations of online learning. These included time management techniques, seeking technical support, and creating structured routines. Participant 1 noted, “At first, I was overwhelmed, but I started organizing my study schedule more strictly. It helped me to stay on track and reduced my anxiety.” Similarly, Participant 6 discussed how they used online tutorials to improve their technical skills, “I took the initiative to watch tutorials to understand the online exam platforms better. It helped me feel more confident.”

Interestingly, some participants also mentioned that their experiences in online learning provided them with valuable skills, such as self-discipline and the ability to learn independently. Participant 9 remarked, “The pandemic forced me to become more self-reliant in my learning. I learned to find resources on my own and became more disciplined with my study habits.” When compared across academic backgrounds, students from professional programs (e.g., business, health sciences) frequently emphasized the importance of structured time management to cope with heavy workloads, while students from creative fields (e.g., arts, humanities) highlighted flexibility and self-directed exploration as their key adaptation strategies. This variation suggests that coping mechanisms were not uniform but rather shaped by disciplinary demands and expectations. The findings of this study highlight that while technological and emotional challenges were significant during the transition to online learning, students demonstrated resilience through coping strategies and adaptation. The experiences of social isolation and technical difficulties were commonly shared among participants, but many found ways to overcome these barriers, either through peer support networks or by enhancing their personal learning skills. Importantly, the comparative analysis across disciplines, geographic backgrounds, and program demands reveals that student experiences were not homogeneous but layered, with unique challenges and strategies emerging depending on academic and social contexts. The key takeaway from these findings is the complex interplay of technological, emotional, and social factors that shaped students' experiences of online education during the pandemic.

DISCUSSION

Summary of Key Findings

This study reveals that students' experiences with online learning during the pandemic were characterized by significant technological challenges, emotional isolation, and the development of coping strategies (Hendricks et al., 2024; Park & Sohn, 2023). These experiences underline the complex nature of digital education, highlighting how technology-mediated learning environments impact not only academic performance but also students' emotional and social well-being. The findings offer insight into the broader question of how students adapt to and make sense of the shift to remote education in the context of the global pandemic.

Contribution to the Research Question

The research contributes to a deeper understanding of the essential experiences of students navigating remote learning (Diez-Pascual et al., 2025). By focusing on the subjective, lived experiences of students, this study answers the key question raised in the introduction: How do students experience remote learning, and what are the challenges and solutions they identify? The findings highlight that while technological and social challenges are pervasive, students actively adapt by developing new coping mechanisms and support systems. These strategies not only enable them to persist in the face of adversity but also foster personal growth, including greater self-reliance and discipline. The ability of students to adjust to and derive meaning from their remote learning experience demonstrates the resilience and adaptability of individuals under challenging circumstances.

Relation to Existing Literature and Theory

These findings align with and expand upon previous research on the impact of remote learning on students. Studies such as those by (Stone et al., 2022) and (Washburn et al., 2021)

emphasize the challenges posed by technology, yet this study adds a unique perspective by focusing on the emotional and social dimensions of the remote learning experience. The emotional isolation reported by participants in this study is consistent with earlier findings that digital education can lead to feelings of disconnection from peers and instructors. However, unlike previous studies, which primarily focus on technological aspects, this research brings attention to how students cope with these feelings through virtual study groups and other adaptive strategies.

More specifically, the coping strategies identified in this study resonate with prior findings in the literature. For example, Wong & Li (2022) also reported that students relied on peer networks and virtual study groups to mitigate social isolation, while Zhao et al. (2021) highlighted time management and structured routines as critical mechanisms for maintaining academic progress in online contexts. In contrast, this study extends the discussion by demonstrating how coping approaches varied across disciplines, with students in professional programs emphasizing structured scheduling, whereas those in creative fields relied more on flexibility and self-directed exploration. This comparative insight underscores the originality of the present study, as it situates coping strategies not only as universal mechanisms of adaptation but also as contextually shaped by academic background and social circumstances.

In terms of theory, the findings can be situated within the broader framework of educational psychology, particularly with regard to how learners interact with their environment and the emotional responses this interaction provokes. The work of (Mitchell Dove, 2021) on self-efficacy can also be applied here, as students' reported coping mechanisms, such as increased discipline and initiative in seeking technical support, can be seen as manifestations of enhanced self-efficacy. Moreover, the emotional and social challenges students face underscore the importance of social presence in learning environments, supporting earlier work on the role of community and interaction in educational success (Firmante, 2024). By explicitly linking these findings with the literature, this study strengthens the argument that coping strategies are not peripheral but central to the online learning experience, bridging gaps between existing theories of self-efficacy, resilience, and social presence.

Explanation of Findings' Implications

The findings of this study offer both theoretical and practical implications for understanding remote learning (Singh et al., 2025). On a theoretical level, this research contributes to the growing body of literature on online education by emphasizing the emotional and social dimensions of students' experiences. The study shows that remote learning is not just a technical challenge but also an emotionally taxing process for many students. This realization underscores the importance of considering the psychological and social well-being of students in the design and implementation of online learning environments. Practically, the findings suggest that educators and institutions should consider integrating more robust support systems, such as virtual peer groups, to mitigate feelings of isolation and enhance the overall learning experience. In doing so, the present study echoes calls made in previous research (e.g., Park & Sohn, 2023; Wong & Li, 2022) for more intentional design of online environments that incorporate social support structures as integral components of digital pedagogy. These findings are especially relevant in the current global context, where online learning has become a predominant mode of education and will likely continue to play a central role in the future of education.

Limitations of the Study

While the findings provide valuable insights into students' experiences with online learning, there are limitations to this study that must be considered (Meda, 2021). The primary limitation is the sample size, as only 15 students participated in the research. This sample size, though adequate for a phenomenological study, may not fully represent the diversity of experiences across different academic disciplines or geographical regions. Additionally, the study focused solely on students who had engaged with online learning during the pandemic, which may limit the generalizability of the findings to other contexts or periods. The use of self-reported data from interviews, while providing rich qualitative insights, may also be subject to biases such as social desirability or selective memory.

Future research could expand on this study by including a more diverse sample and exploring the long-term effects of online learning on students' academic and emotional well-being.

Prospective Directions for Future Research

Building on the insights from this study, future research could explore several promising avenues (Slivkoff et al., 2021). One potential direction is to examine the long-term effects of remote learning on students' academic engagement, emotional well-being, and social connectedness. This could include longitudinal studies that track students' experiences over time, offering a deeper understanding of how their perceptions of online learning evolve. Additionally, comparative studies between students from different cultural or educational backgrounds could provide further insights into how context shapes the online learning experience. Another promising avenue for future research is the exploration of how different types of online learning platforms and teaching methods influence students' emotional and social experiences. These insights would not only contribute to the academic literature but also offer practical guidance for educators and policymakers striving to create more inclusive and effective online learning environments.

CONCLUSION

This study explored the experiences of students engaging with remote learning during the COVID-19 pandemic, addressing the challenges and adaptations they faced in a digital education environment. The findings revealed significant technological barriers, emotional isolation, and the development of coping strategies such as peer support networks and increased self-discipline. These insights contribute to the understanding of online learning by highlighting the emotional and social dimensions often overlooked in previous research. By focusing on the subjective experiences of students, this study fills the gap in literature concerning the emotional impact of remote learning, offering a more comprehensive view of the phenomenon.

Future research could expand on this work by investigating the long-term effects of remote learning on students' academic performance, psychological well-being, and social connectedness through longitudinal and cross-cultural studies. Comparative analyses across disciplines and educational levels would also provide a deeper understanding of how context shapes coping strategies. Moreover, experimental studies evaluating the effectiveness of interventions—such as structured peer mentoring, integrated mental health support, and adaptive digital platforms—would further clarify best practices for enhancing student resilience. From a practical perspective, the findings suggest that institutions should implement targeted measures such as building accessible peer support systems, embedding mental health resources into online platforms, and providing training for both students and faculty to navigate digital tools effectively. These efforts would not only mitigate feelings of isolation and stress but also foster more inclusive and supportive online learning environments that prioritize student well-being alongside academic s

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

REFERENCES

- Abramova, M. O., Filkina, A. V., & Sukhushina, E. V. (2021). Challenges to Internationalization in Russian Higher Education: The Impact of the COVID-19 Pandemic on the International Student Experience. *Voprosy Obrazovaniya / Educational Studies Moscow*, 2021(4), 117–146. Scopus. <https://doi.org/10.17323/18149545-2021-4-117-146>
- Bahrami, P., Blanco, D., Thetford, H., Ye, L., & Y. K. Chan, J. (2023). Capturing Student and Instructor Experiences, Perceptions, and Reflections on Remote Learning and Teaching in Introductory Chemistry Courses During COVID-19. *Journal of College Science Teaching*, 52(6), 6–14. Scopus. <https://doi.org/10.1080/0047231X.2023.12315861>

- Bekova, S. K., Terentev, E. A., & Maloshonok, N. G. (2021). Educational Inequality and COVID-19 Pandemic: Relationship between the Family Socio-Economic Status and Student Experience of Remote Learning. *Mir Rossii*, 30(1). Scopus. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122170411&partnerID=40&md5=d89e29d074aae42ff53ddaf60d30dbaa>
- Besche, H. C., Onorato, S., Pelletier, S., Ashrafzadeh, S., Joshi, A., Nelsen, B., Yoon, J., Zhou, J., Schwartz, A., & Cockrill, B. A. (2022). A hierarchy of needs for remote undergraduate medical education: Lessons from the medical student experience. *BMC Medical Education*, 22(1). Scopus. <https://doi.org/10.1186/s12909-022-03479-4>
- Bozzi, M., Mazzola, R., Testa, I., Raffaghelli, J. E., Sancassani, S., & Zani, M. (2024). Educational innovation in higher education: Engineering students' experiences of Emergency Remote Teaching. *Cogent Education*, 11(1). Scopus. <https://doi.org/10.1080/2331186X.2024.2437882>
- Brady, M. (2024). Educational interactions, student experience and the remote learning environment during the Covid-19 lockdown. *Innovations in Education and Teaching International*, 61(6), 1133–1148. Scopus. <https://doi.org/10.1080/14703297.2023.2197871>
- Buckley, J. B., Robinson, B. S., Tretter, T. R., Biesecker, C., Hammond, A. N., & Thompson, A. K. (2023). Belonging as a gateway for learning: First-year engineering students' characterizations of factors that promote and detract from sense of belonging in a pandemic. *Journal of Engineering Education*, 112(3), 816–839. Scopus. <https://doi.org/10.1002/jee.20529>
- Chen, V., Sandford, A., LaGrone, M., Charbonneau, K., Kong, J., & Ragavaloo, S. (2022). An exploration of instructors' and students' perspectives on remote delivery of courses during the COVID-19 pandemic. *British Journal of Educational Technology*, 53(3), 512–533. Scopus. <https://doi.org/10.1111/bjet.13205>
- Clair, R. P. (2003). *Expressions of ethnography: Novel approaches to qualitative methods* (p. 303). State University of New York Press; Scopus. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84896556900&partnerID=40&md5=d14cc6ba1608309f0398c418b0c86e4b>
- Cleary, C. J. (2022). A Case Study Investigation of Year 8 Students' Experiences with Online Learning Through the Padlet App in a State-Maintained Girls' Grammar School. *Journal of Classics Teaching*, 23(46), 165–175. Scopus. <https://doi.org/10.1017/S2058631022000150>
- da Rosa Marinho, J., Guazina, F. M. N., & Zappe, J. G. (2023). Experiences of being university student in times of pandemic: Changes, adjustments and shared perspectives. *Educacao e Pesquisa*, 49. Scopus. <https://doi.org/10.1590/S1678-4634202349267797POR>
- Davy, E. C., & Quane, S. L. (2021). Assessment of technological setup for teaching real-time and recorded laboratories for online learning: Implications for the return to in-person learning. *Journal of Chemical Education*, 98(7), 2221–2227. Scopus. <https://doi.org/10.1021/acs.jchemed.0c01457>
- de Jager, S., & Steyn, R. (2023). Desperate times call for desperate measures: Student well-being and academic integrity during and post the COVID-19 pandemic in South Africa. *OIDA International Journal of Sustainable Development*, 16(12), 195–206. Scopus.
- Díez-Pascual, A. M., García-Díaz, P., Peña-Capilla, R., & Jurado-Sanchez, B. (2025). FACE-TO-FACE VS. ONLINE LEARNING in SCIENCE and ENGINEERING COURSES DURING COVID-19 EPOCH. *Research in Science and Technological Education*, 43(1), 347–376. Scopus. <https://doi.org/10.1080/02635143.2023.2275136>
- Ensmann, S., Whiteside, A., Gomez-Vasquez, L., & Sturgill, R. (2021). Connections before curriculum: The role of social presence during covid-19 emergency remote learning for

- students. *Online Learning Journal*, 25(3), 36–56. Scopus. <https://doi.org/10.24059/olj.v25i3.2868>
- Feldman, J. (2020). An ethics of care: PGCE students' experiences of online learning during covid-19. *Critical Studies in Teaching and Learning*, 8(2), 1–17. Scopus. <https://doi.org/10.14426/cristal.v8i2.326>
- Fife, W. (2020). *Counting as a Qualitative Method: Grappling with the Reliability Issue in Ethnographic Research* (p. 140). Springer International Publishing; Scopus. <https://doi.org/10.1007/978-3-030-34803-8>
- Firmante, M. C. M. (2024). Academic and Social Adjustment to Post-Pandemic Hybrid Learning: A Phenomenological Study of Filipino First-Year Engineering Students' Experiences. *IAFOR Journal of Education*, 12(2), 127–148. Scopus. <https://doi.org/10.22492/ije.12.2.06>
- Garner, N. M., & Osthoff, H. D. (2024). Conversion of a Senior Instrumental Analysis Laboratory Course to Online Delivery and Remote Learning. *Journal of Chemical Education*, 101(2), 448–455. Scopus. <https://doi.org/10.1021/acs.jchemed.3c00805>
- Gelles, L. A., Lord, S. M., Hoople, G. D., Chen, D. A., & Mejia, J. A. (2020). Compassionate flexibility and self-discipline: Student adaptation to emergency remote teaching in an integrated engineering energy course during covid-19. *Education Sciences*, 10(11), 1–23. Scopus. <https://doi.org/10.3390/educsci10110304>
- Gyekye, E. K., & Learned, J. E. (2024). An Exploratory Study of Low-Income Minority Students' Online Learning Experiences. *Online Learning Journal*, 28(4), 284–307. Scopus. <https://doi.org/10.24059/olj.v28i4.3953>
- Hendricks, M., Arellanes, J. A., Su-Russell, C., Moon, N. E. J., & Vasquez, S. (2024). Exploring the Pandemic's Impacts on Latinx Students' Learning. *Journal of Underrepresented and Minority Progress*, 8(Special issue), 50–77. Scopus. <https://doi.org/10.32674/ev7as419>
- Jones, T. M., Diaz, A., Bruick, S., McCowan, K., Wong, D. W., Chatterji, A., Malorni, A., & Spencer, M. S. (2021). Experiences and Perceptions of School Staff Regarding the COVID-19 Pandemic and Racial Equity: The Role of Colorblindness. *School Psychology*, 36(6), 546–554. Scopus. <https://doi.org/10.1037/spq0000464>
- Kawamura, Y. (2020). *DOING RESEARCH IN FASHION AND DRESS: An Introduction to Qualitative Methods, 2nd edition* (p. 166). Bloomsbury Publishing Plc.; Scopus. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85188589040&partnerID=40&md5=b3db406659cd1ea5b20e05664bec39a3>
- Lapitan, L. D., Chan, A. L. A., Sabarillo, N. S., Sumalinog, D. A. G., & Diaz, J. M. S. (2023). Design, implementation, and evaluation of an online flipped classroom with collaborative learning model in an undergraduate chemical engineering course. *Education for Chemical Engineers*, 43, 58–72. Scopus. <https://doi.org/10.1016/j.ece.2023.01.007>
- McCabe, J. A., Banasik, C. S., Jackson, M. G., Postlethwait, E. M., Steitz, A., & Wenzel, A. R. (2023). Exploring Perceptions of Cognitive Load and Mental Fatigue in Pandemic-Era Zoom Classes. *Scholarship of Teaching and Learning in Psychology*, 11(2), 231–246. Scopus. <https://doi.org/10.1037/stl0000347>
- Meda, L. (2021). First year experiences of emergence remote learning at a university. *Encyclopaideia*, 25(61), 53–66. Scopus. <https://doi.org/10.6092/issn.1825-8670/12386>
- Meletiou-Mavrotheris, M., Eteokleous, N., & Stylianou-Georgiou, A. (2022). Emergency Remote Learning in Higher Education in Cyprus during COVID-19 Lockdown: A Zoom-Out View of Challenges and Opportunities for Quality Online Learning. *Education Sciences*, 12(7). Scopus. <https://doi.org/10.3390/educsci12070477>

- Mitchell Dove, L. (2021). A sanctuary: Mourning the loss of the classroom during COVID. *Qualitative Social Work*, 20(1–2), 162–167. Scopus. <https://doi.org/10.1177/1473325020981084>
- Park, J., & Sohn, S. (2023). Exploring Students' Experiences of Virtual Learning Environment for Art History Classroom. *Harmonia: Journal of Arts Research and Education*, 23(1), 105–120. Scopus. <https://doi.org/10.15294/harmonia.v23i1.41094>
- Shin, T. H., Klingler, M., Han, A., Mocsiran, J. L., Vilchez, V., Naples, R., French, J., Lipman, J. M., & Rosenblatt, S. (2021). Efficacy of Virtual Case-Based General Surgery Clerkship Curriculum During COVID-19 Distancing. *Medical Science Educator*, 31(1), 101–108. Scopus. <https://doi.org/10.1007/s40670-020-01126-5>
- Singh, A., Ishrat, A., Barthwal, T., Rani, A., & Mishra, M. (2025). Factors of online learning engagement and their impact on value co-creation among students: A structural equation modelling approach. *On the Horizon*, 33(2), 199–222. Scopus. <https://doi.org/10.1108/OTH-11-2024-0075>
- Slivkoff, M. D., Johnson, C., & Tackett, S. (2021). First-Year Medical Student Experiences Adjusting to the Immediate Aftermath of COVID-19. *Medical Science Educator*, 31(2), 557–564. Scopus. <https://doi.org/10.1007/s40670-021-01213-1>
- Smith, M. A. V. (2021). CURE in antibiotic discovery using a combination of in-person, hands-on laboratory activities and remote, mentor-type experiences during COVID-19. *Journal of Microbiology and Biology Education*, 22(2). Scopus. <https://doi.org/10.1128/JMBE.V22I1.2461>
- Stewart, W. H., & Lowenthal, P. R. (2022). Distance education under duress: A case study of exchange students' experience with online learning during the COVID-19 pandemic in the Republic of Korea. *Journal of Research on Technology in Education*, 54(S1), S273–S287. Scopus. <https://doi.org/10.1080/15391523.2021.1891996>
- Stone, D., Longhurst, G. J., Duloher, K., Campbell, T., Richards, A., O'Brien, D., Franchi, T., Hall, S., & Border, S. (2022). A Multicentre Analysis of Approaches to Learning and Student Experiences of Learning Anatomy Online. *Medical Science Educator*, 32(5), 1117–1130. Scopus. <https://doi.org/10.1007/s40670-022-01633-7>
- Syska, A., & Pritchard, C. (2023). Blended learning as a site of struggle: A critical realist analysis of students' perceptions of blended learning and its impact on their sense of belonging. *Journal of University Teaching and Learning Practice*, 20(6). Scopus. <https://doi.org/10.53761/1.20.6.15>
- Walwyn, D. R., & Combrinck, C. (2021). Epistemic justice during a global pandemic: Transforming curricula and pedagogical practices to improve student experiences of innovation studies. *Industry and Higher Education*, 35(5), 598–608. Scopus. <https://doi.org/10.1177/0950422220987088>
- Washburn, M., Zhou, S., Sampson, M. C., & Palmer, A. (2021). A Pilot Study of Peer-to-Peer SBIRT Simulation as a Clinical Telehealth Training Tool During COVID-19. *Clinical Social Work Journal*, 49(2), 136–150. Scopus. <https://doi.org/10.1007/s10615-021-00799-8>
- Youssef, M., McKinstry, E. L., Dunne, A., Bitton, A., Brady, A. G., & Jordan, T. (2020). Developing engaging remote laboratory activities for a nonmajors chemistry course during covid-19. *Journal of Chemical Education*, 97(9), 3048–3054. Scopus. <https://doi.org/10.1021/acs.jchemed.0c00792>