



International Journal of Learning, Teaching and Educational Research
Vol. 23, No. 1, pp. 1-23, January 2024
<https://doi.org/10.26803/ijlter.23.1.1>
Received Oct 18, 2023; Revised Dec 14, 2023; Accepted Jan 17, 2024

Navigating the Shift: Faculty Preparedness for Online Teaching in the Evolving Global Higher Education Landscape

Rashid Ceazar Galanto Ormilla*  and May Grace Ogano Ongan 
Faculty, College of Education, Ifugao State University
Alfonso Lista, Ifugao, Philippines

Abstract. In the global landscape of higher education, online teaching and learning has transcended being a mere trend to become an essential requirement in most universities and colleges. The shift from traditional classroom instruction to the online modality requires faculty members to prepare for this transition. This study utilized a qualitative research method with a phenomenological design to investigate faculty preparedness for online teaching and learning within the context of the pandemic. Fourteen participants in the six campuses within Ifugao State University in Ifugao, Philippines took part in the study. Findings reveal that faculty members at Ifugao State University face diverse experiences and challenges during their transition from traditional face-to-face teaching to online instruction. Faculty members' backgrounds and prior exposure to online teaching significantly shaped their preparedness and confidence in navigating this shift. The study underscores the crucial role of factors such as experience and technological skills in influencing faculty members' preparedness for online teaching, as well as their self-acknowledged limitations in addressing the unique complexities of the online modality. These findings emphasize the importance of tailored support, resources, and training opportunities to enhance faculty preparedness for effective online pedagogy.

Keywords: faculty preparedness; higher education; learning modalities; online teaching; technological proficiency

1. Background of the Study

In the year 2020, the world witnessed an extraordinary event that has reshaped the way we live, work, and interact with one another. The emergence of the Covid-19 pandemic triggered unprecedented disruptions worldwide, as highlighted by Sonnenburg and Hornberg (2022). Consequently, an urgent need has arisen to investigate innovative learning approaches that facilitate the

*Corresponding author: Rashid Ceazar Galanto Ormilla; ormillarashidceazar@gmail.com

transition from traditional methods to adaptable teaching and learning modalities in response to the impact of the pandemic on academic institutions. This imperative calls for every educational establishment to participate in this transformative shift toward updated teaching and learning standards.

In this context, Ifugao State University found itself compelled to organize workshops on flexible, blended, and outcomes-based education; assessment using rubrics; and online learning within the new normal. The aim was to equip faculty members with the tools and readiness needed to effectively address the challenges presented by the Covid-19 pandemic in the realm of education. However, despite these efforts, a considerable number of university faculty members remain unprepared for the transition from in-person to online instruction, presenting substantial challenges. The realm of online education has witnessed a remarkable surge in participation, driven by economic and accessibility factors that reshaped the educational landscape. Even as demands on working individuals' time increase, formal education retains its significance. Consequently, various forms of lifelong learning, continuing professional education, and mid-career degree programs are now frequently facilitated online ("Evolution of Distance Education", 2008).

Online education, involving the interaction between teachers, students, and course materials over the Internet (Cadavid et al., 2022), offers the flexibility that traditional settings often lack. This shift has resulted in remarkable growth in online education enrolment, outpacing the overall increase in enrolment over the past decade (Allen & Seaman, 2014). Institutions that are most engaged in online education, enroll the highest number of students, and have significant developmental aspirations will be the driving force behind future growth in online enrolments (Eddy et al., 2015). The expansion of online education presents numerous opportunities for both students and faculty members. However, as Barbour et al. (2020) contended, successful online teaching requires a holistic understanding of content, technology, and pedagogy. Without an integrated comprehension of these elements, the effectiveness of online education is compromised. Yet, most faculty members lack adequate training when transitioning to the online format. Johnson et al. (2020) highlighted the importance of relying on existing training and classroom experience to design and implement online learning experiences. Faculty members transitioning from in-person to online instruction are compelled to adapt to technological advancements and modify pedagogical practices. This necessitates the acquisition of new skills and adjustment to a different educational paradigm. Consequently, colleges must expand their online faculty and course offerings to meet the demand for online learning opportunities.

Ifugao State University, like many other universities, has undergone a substantial transformation due to the swift adaption of online courses and new educational delivery methods as a response to the pandemic. It is within this context that our research focuses on assessing faculty preparedness for online teaching in Ifugao State University, aligning with the evolving demands of the global higher education landscape. Generally, the main purpose of the study is to investigate the

experiences faced by faculty members as they navigate the transformative shift from traditional face-to-face teaching to online teaching within the global higher education landscape. The study specifically aims to:

- a. explore the experiences faced by faculty members as they navigate the shift from traditional face-to-face teaching to online teaching in the global higher education landscape; and
- b. develop a well-informed and effective program proposal aimed at enhancing faculty preparedness for transitioning to online teaching within the global higher education context.

2. Related Literature

The Covid-19 pandemic has ushered in a profound transformation in higher education, necessitating a rapid shift from traditional face-to-face teaching to online teaching. This shift has placed considerable demands on faculty members, requiring them to adapt swiftly to new pedagogical landscapes. As higher education institutions worldwide grapple with this transformative change, the critical importance of comprehensive faculty preparation for effective online instruction has come to the forefront. In response to this pressing need, this study seeks to delve into the experiences, beliefs, and challenges faced by faculty members as they navigate this shift. Additionally, the study aims to propose interventions aimed at enhancing faculty preparedness for the global higher education landscape.

The global response to the pandemic has accelerated the adaption of online teaching methods, demanding educators to rapidly adjust their teaching strategies. Wu (2021) underscored the urgency of this transition, highlighting the need for educators to adapt swiftly. Khanom et al. (2021) emphasized the distinctions between face-to-face and virtual instruction, including logistical support and effective material creation. Greenhow et al. (2022) defined *online learning* as multidimensional, digital, and technology-mediated interactions. This literature underscores the significance of online education in the current landscape. The transition to online instruction has brought forth a range of challenges. Faculty members have encountered issues such as network instability and inadequate student tools (Mishra et al., 2020). Understanding gaps, limited interaction, and decreased student motivation due to the absence of immediate feedback have also been noted. Furthermore, barriers to implementing online teaching encompass Internet accessibility, facility availability, and parental engagement (Wu, 2021). These challenges shed light on the multifaceted nature of the shift to online teaching.

The preparedness of faculty members is crucial for the success of online teaching. Albrahim (2020) highlighted the necessity for continuous skill enhancement and familiarity with innovative educational paradigms. Reinforcing this perspective, Conrad and Donaldson (2011) emphasized the importance of training programs in fostering competence and career development among faculty members. Rapanta et al. (2020) advocated investing in faculty training, aligning with Robinson's (2017) observation of differing expectations for online and onsite courses. Pandit and Agrawal (2021) asserted that faculty training is crucial for adapting to new

teaching methodologies. This literature emphasizes the significance of equipping faculty with the necessary skills and knowledge for effective online instruction.

This underscores the urgent and transformative nature of the shift to online teaching in higher education. It highlights the challenges and barriers that faculty members face during this transition and emphasizes the pivotal role of faculty preparedness in ensuring the success of online education. Understanding the experiences, beliefs, and challenges of faculty members in this context is critical to inform the development of effective interventions and programs. This study at Ifugao State University aims to contribute to this understanding and, in doing so, enhance the quality of online education in the global higher education landscape. By gauging the depth and effectiveness of training and seminars provided to faculty members, the study seeks to bridge the gap between education quality and institutional support in the context of transitioning to online teaching. Ultimately, the research strives to inform strategies that will optimize faculty readiness for online teaching and, by extension, the efficacy of online education in higher education institutions worldwide.

3. Methodology

3.1 Research Design

This study employed a qualitative research method, aligning with its exploratory nature to investigate the experiences faced by faculty members during the transition from traditional face-to-face teaching to online teaching within the global higher education landscape. To gain profound insights into the experiences of faculty members during this transition, a phenomenological research design was employed, which aims to reveal the essence of experiences and is well suited for exploring complex human phenomena (Eddles-Hirsch, 2015).

3.2 Participants

Participants included 14 faculty members from the 6 campuses of Ifugao State University, Ifugao, Philippines. Purposive sampling was utilized to select participants for interview sessions and focus group discussions, which were conducted virtually. Participants were permanent faculty members of the university, with experience in both traditional face-to-face and online teaching modalities. They were required to voluntarily participate in interview sessions, bringing valuable first-hand experiences to yield optimal results for the study.

3.3 Data Gathering Tool

Data collection involved conducting guided phenomenological interviews informed by the models of Moustakas (1994) and Creswell and Poth (2016). The interview protocol was designed to align with the study objectives and to capture participants' experiences comprehensively. Prior to administration, the interview protocol underwent validation by experts, with their feedback thoughtfully incorporated to create the final version.

3.4 Data Gathering Procedure

To establish an atmosphere conducive to open sharing, interviews commenced with social questions and discussions. This approach aims to foster participant comfort and encourage candid expression. The interviews followed a

semi-structured format, allowing for probing, clarification, and confirmation of responses. Sessions were conducted face to face and via online platforms across the six campuses of Ifugao State University, Ifugao, Philippines. The interviews were recorded for proper documentation.

3.5 Ethical Considerations

Letters of request to conduct the research were addressed to campus executive directors outlining the study purpose and objectives. Informed consent was diligently obtained from participants, ensuring confidentiality and the exclusive academic use of collected data. The study prioritized the physical and psychological well-being of participants, ensuring that they were not compromised in any way during the research.

3.6 Data Analysis

Data analysis followed Moustakas' (1994) method for organizing, analyzing, and synthesizing data. Thematic analysis serves as the foundation for categorizing collected data into distinct themes.

4. Results and Discussions

4.1 Experiences Faced by Faculty Members as They Navigate the Shift from Traditional Face-to-Face Teaching to Online Teaching in the Global Higher Education Landscape

Based on data analysis, we identified eight themes to describe the findings of the study. The themes are as follows: (1) evolution of online teaching; (2) technological integration in education; (3) benefits and motivations for online learning; (4) self-assessment and readiness; (5) institutional support for faculty enhancement; (6) perceived differences; (7) recommendations for improvement; and (8) challenges of transitioning to online teaching and learning. These were specifically arranged to answer the presented research questions. The eight themes, with supporting quotes from the participants, are described and discussed in detail below.

Theme 1: Evolution of online teaching

This theme explores the participating faculty members' experiences with online teaching, including their prior exposure and the impact of the pandemic on its adoption. Participants offered varied responses regarding their first encounter with the term online teaching. Some viewed online teaching as a new experience by simply answering "No" to the question on whether they had experience with it. However, some shared their personal and professional background of it. Participant 7 indicated that:

"Yes, I experienced teaching online to Chinese students at 51Talk (company) for two months in the year 2020."

Moreover, Participant 10 recalled:

"I experienced online education when I was still in Baguio. I've applied for two ESL online jobs; thus, these gave me the chance to experience how to teach English through online class, though it was just for a short time of experience."

In addition, Participant 1 explained:

“Since 2010, IFSU (Ifugao State University) doesn’t have online learning, but I experienced online learning in Adamson and Mapúa universities when I did my master’s and doctorate degree.”

These findings align with Wu (2021), who indicated that before the pandemic, 60% of the faculty had experience in teaching online, while 40% had no prior experience in online teaching. In addition, 66% of the faculty received training in online teaching, compared to 34% who had no such activity.

Globally, education systems were pushed to seek alternatives for face-to-face instruction as a response to the rampant Covid-19 crisis. As a result, teachers and students were making remarkable use of online teaching and learning. Online learning was convenient for both instructors and students in terms of accessibility and safety. Most of the participants in this study estimated that online teaching started two years ago. Online learning earned its popularization alongside the pandemic. Participant 1 reminisced that he had experienced some glimpse of teaching online, but unfortunately he did not record or document his experiences. He added: *“basically, it runs already for more than two years, and we’ve been teaching online since the pandemic.”* Participants 2, 3, and 4 confirmed that it had been two years since the start of the pandemic in 2020 turned classes from face to face into online.

According to the WHO (2020), Covid-19 was deemed a global pandemic in March 2020. Every element of life, including education, was impacted. Some universities and schools had to close, compelled to adapt to the unprecedented shift from conventional to online learning. The pandemic introduced new teaching strategies to educators.

Theme 2: Technological integration in education

This theme focuses on the use of various educational technologies, such as software applications and communication tools, to facilitate online teaching. Educational technologies were utilized in every facet of school education. To keep up with a world that was constantly evolving, teaching strategies were adapted, and teachers embraced technology. Technologies were essential to cater to the needs of the new generation of tech-savvy learners. Their integration in the classroom made teaching and learning meaningful and fun. Amid the pandemic, these technologies continued to shed light on education. Technology supported teachers to reach their students despite the challenges of time and distance, with laptop and desktop computers, cellphones, and the Internet being among the key technologies utilized by educators. Participants in this study also utilized software applications, of which examples can be seen in Participant 10’s narrative:

“I use Google Classroom, Google Meet, Messenger, Zoom, Webex Meeting app in my online class.”

Similarly, Blas and Fernández (2009) asserted that a range of features is included in online platforms to make it simpler to conduct interactive online lessons and reduce student dropout rates. Platforms for online learning are designed to streamline knowledge transfer and schedule in-class activities. Additionally,

Osim and Ewona (2020) noted that the following interactive online tools are the most well known and widely used: Teams, WeChat, Skype, DingTalk, and Hangouts Meet. These were utilized primarily for interactive meetings and communications.

Technology has transformed the human experience by altering how people learn. Technology can best be defined as tools that foster and encourage human learning. Delivering information, interacting with students, and assessing learning are much different in an online learning environment. Online instruction more increasingly demands sophisticated modern educational technologies. Participants employed Google Meet, Google Classroom, blogs, online chat, YouTube, and social media platforms such as Facebook and Messenger to provide accessible information, accelerated learning, and fun opportunities to students to practice what they learn. Participant 1 confirmed this:

"Yes, we've been using videos over YouTube, but it is our responsibility as instructors to check the reliability and legitimacy of the content. For example, the Academy channel on YouTube is beneficial to the faculty and students because it provides further and clearer explanation for a certain topic. The video presentation provided is much more understandable on the part of the students, which made learning more interesting."

In addition, Participant 2 explained that YouTube helped enrich her lectures, especially in physical education. Participant 8 confirmed that these tools were the appropriate tools to deliver the subject matter and disseminate important information and instructions. In like manner, according to Moghavvemi et al. (2017), it is an established fact that combining social media usage and higher education will serve to bring both the institution and students closer to realizing objectives. Ranieri et al. (2016) confirmed that blogs, wikis, YouTube, Facebook, and Twitter are some of the more common forms of social media. Moghavvemi and Salarzadeh Janatabadi (2018) also pointed out that Facebook can be used to collect information, serve as a learning tool, connect students, and promote university culture. Wang et al. (2013) mentioned that wikis are especially useful in collaborative projects or as a blog interface for feedback and interactive learning. Moreover, YouTube allows for the formation of social relationships that revolves around uploaded videos. It has been confirmed by Moghavvemi et al. (2018) that many students use YouTube to learn and seek information; however, studies have shown that the use of YouTube for academic learning and its effectiveness as a teaching tool lag far behind the use of other social media channels, such as Facebook.

Theme 3: Benefits and motivations for online learning

This theme discusses the advantages of online learning for both faculty members and students, as well as the motivations that drive faculty members to engage in online teaching. Online learning offered benefits for both teachers and students. Some of the benefits mentioned include helping teachers become more equipped with current trends, enabling global competitiveness, providing time to fulfill responsibilities both at school and at home, and offering flexibility in class schedules. More benefits are enhancing accessibility and convenience, developing skills in online teaching, facilitating interaction between teachers and students,

and making it easier to check quizzes and exams using various types of technology. Participant 6 explained:

“Online teaching to the faculty and students is beneficial in a way that it offers flexible time compared to face-to-face instruction. Further, the students who missed the class can download and watch the recorded discussion for them to catch up.”

In fact, according to Xia et al. (2013), there are several advantages to learning online, including the ability to study whenever and wherever you choose, have more time to think and respond, and have greater learning flexibility. The advantages of not having a long commute to class and being location independent make online education a well-liked substitute for traditional classroom settings.

On the other hand, the classroom teaching-learning process was more effective when teachers were motivated. A successful classroom and better learning outcomes depended on an engaged teacher. Motivation-energized teachers helped themselves focus and maintain good conduct over time. Teachers were mainly motivated by their students. Participants were driven to put in a great deal of effort to educate despite the pandemic by considering students' well-being and assisting in the development of their competencies. In this regard, Participant 2 stated:

“We all know that education is the passport to the future, for tomorrow belongs to those who prepare for today. We cannot afford to stop learning, because learning is a continuous process. You will only stop when you are buried six feet under the ground, so whatever the challenges that cross our way in our online classes, we must face it and then we still have our clients to serve. Our clients are the students; they are the most important and they are the reason why we have always been motivated to do online classes.”

Other participants explained that their motivation is their salary and their passion in teaching:

“My motivation is of course money to provide for myself and my family. Also, I am motivated by my students, because I can see their efforts to attend classes.” (Participant 7)

In addition, Participant 4 declared that he is motivated by his salary and his work. Furthermore, Participants 5, 8, and 14 agreed that their eagerness and passion for teaching motivated them. Participant 14 noted that updating himself with technology to be a better educator motivates him to teach even more. In comparison, Mas (2006) noted that since teaching is a vocation, personal motivations are considerable factors that influence educators to choose to enter and remain in the profession. While the statement does not imply that instructors would not act in a manner advantageous to their students in response to a salary increase, it recognizes the well-established fact that employees in various public sector roles positively respond to higher salaries. This does not suggest, however, that instructors would not act in a way that would be advantageous to their pupils in response to a salary increase. After all, it is well known that workers in other public sector occupations do respond well to a bigger salary.

Theme 4: Self-assessment and readiness

The participating faculty members engaged in self-assessment to evaluate their readiness for online teaching. They recognized their strengths and limitations regarding technological skills, confidence, and experience. Some expressed uncertainty and the need for a learning curve, while others felt confident due to their familiarity with technology. Participants developed crucial reflective practice in their own actions through self-assessment. This enhanced control and ownership over their own professional growth as well as boosted their sense of responsibility at work. Additionally, self-assessment aided them in identifying their own areas of strength and growth. Self-assessment is a way to make improvements to one's own actions. Participants were willing to learn and gain more experience. However, they admitted that they were not competent enough in terms of online platforms. Many participants said they lacked the confidence and experience to use technology in their teaching and risk increased work stress as a result. They were still in the process of learning how to use the educational technologies. In this regard, Participant 6 said:

"For now, I rate myself 6 out of 10, but I am willing to learn through an adjustment period."

Participant 8 rated himself 8 out of 10. He said this was because he was still learning and experiencing the possible things he was going to do to master and at the same time use appropriate tools in teaching online courses. Achieving mastery and competence in utilizing online platforms required ample time and effort. This was supported by the statement of Participant 3:

"If I am going to rate myself, it will be 8 over 10 because I'm still learning other platforms. I believed that we cannot learn something within a day. I suggest that we should use technology often to gain more learning."

In contrast, some participants insisted that they were confident with the utilization of online platforms. Participant 10 declared:

"I'm quite confident as I keep on exploring new and better types of technology that might be helpful in conducting online classes."

Additionally, as a millennial educator, Participant 11 rated himself 9 out of 10 in terms of his ability to utilize technology tools. He explained that he was well versed and up to date with advancements in technology. Moreover, Participant 1, a faculty member in the College of Computing Sciences, expressed that he was very confident in his ability to utilize technology. In addition, he tried his best to make adjustments and to somehow try to study the habits of the students with regards to utilization of technology. Furthermore, Participant 2 mentioned:

"I am very much confident, and we are already free from fear of utilizing or using that technology. We are ready to use technology at the same level as the students. We are prepared for the big change in our mode of teaching."

In the study done by Lee and Tsai (2008), the teachers surveyed lacked a general understanding of web-related teaching. The study also looked at the relationships among teachers' attitudes toward web-based instruction, their self-efficacy in terms of their TPCK-W (technological pedagogical content knowledge-web), and

their background characteristics. Self-efficacy and supportive attitudes toward online learning were found to be correlated. While it was discovered that older and more experienced teachers had lower levels of self-efficacy regarding TPCK-W, teachers who had more experience utilizing the web (especially for education) had better levels of self-efficacy with regard to TPCK-W.

Theme 5: Institutional support for faculty enhancement

Participants appreciated the institutional support provided, including free access to the Internet, training resources, seminars, and webinars. They acknowledged the importance of administrative backing in incorporating technology into teaching practices. These supports were offered by the university for the faculty members to establish a good rapport and effective instruction. Participants enjoyed the free access to an Internet connection and free teaching resources, such as books and laptops, and the seminars and trainings with regards to improving online teaching. Participant 1 confirmed that the university had already given the teachers some trainings related to online classes and on how to be effective, while also providing a good Internet connection. Most of the participants reported being grateful for the free Internet access and free service trainings, seminars, and webinars on how to deal with the technology that they are using in the mode of instruction. Participants 4, 9, and 12 were satisfied with the institutional supports, such as office materials, books, and laptops, that aid for a productive transfer of knowledge to their students. Furthermore, Participant 11 announced:

"When it comes to institutional support, they have been sending us webinars in order for us to be capacitated in online teaching. Seminars offered and referred by the Commission on Higher Education (CHED) and the institution are helpful for us to be able to widen our abilities and skills about online teaching."

Correspondingly, Bower (2001) mentioned that a key factor that significantly affects the attitudes of faculty toward the use of computers in the classroom is administrative support. With institutional support, such as teacher incentives, computer technology must be effectively incorporated into education. The institutional support for lecturers also comprises a multimedia projector, printer, digital camera, scanner, and assistance with Internet connection, as stated by Sife et al. (2007). Furthermore, Bitner and Bitner (2002) claimed that there should also be suggestions on how to choose the best software and other forms of educational support. As a result, administrative support needs to be made available to faculty members who want to use computer technology in their teaching practices.

Teachers must not be only efficient but also effective. Trainings and seminars were offered to participants to improve and develop their craft. By attending these seminars, they discovered how to enhance learning environments, stayed abreast on modern technologies, and were motivated to become better teachers in the contemporary world. Participants 2, 3, 4, and 10 revealed that the university offered trainings concerning online teaching before classes started. Participant 4 uttered that he had already attended four training sessions before online learning and flexible learning were implemented. He added:

"I have also attended virtual seminars on blended learning using Google Forms, Kahoot!, and Quizizz."

Furthermore, Participant 2 commented:

"We already had a little knowledge on how to use the computer prior to online teaching. With regards to the formal training, the university offered training about online teaching, where experts in this field shared their expertise."

Participant 1 said assuredly:

"So, I have been attending or familiarizing myself when it comes to online class even before Covid-19 came. Since 2014, we have already been attending trainings and seminars to modify class and resources."

However, the participant confessed that he never anticipated that Covid-19 would reach Ifugao and leave the university unprepared in materials for online learning.

Participant 9 attended training about information and communication technology in a Patria Sable Corpus college, which helped him greatly to apply technology in the field of teaching. On the other hand, the common topics of the seminars were about educational online platforms and online teaching strategies. Participant 14 iterated:

"Most of these trainings are about the strategies to be employed in the online teaching, which encourage active student participation through PowerPoint presentations and other mediums."

However, Participant 12 was dismayed that the trainings and seminars conducted appeared to be in vain, because the students of Aguinaldo Campus were unable to access the online learning method.

"I attended trainings regarding online, but I did not utilize it considering the situation of Aguinaldo. Most of the students here in our campus are from the remote area and they have no access to Internet."

In response to the problem, Participant 14 employed the modular approach to avail online learning to all his students. In Participant 10's view, the trainings and seminars served as advantages for novice teachers. She claimed:

"In relation to this, the company held a one-week training which is mandated to those who have passed the interview stage. This is to help the rookies to be familiarized with the app and technology to use in teaching online classes."

In a parallel study conducted by Vähäsantanen et al. (2016), teachers' discourses demonstrated how they were exercising their professional development agency in ways other than just participating in formal online teaching training. According to the teachers, they self-learn how to incorporate technology into their lessons online. This proves the value of social learning and training environments in supporting professional agency.

Theme 6: Perceived differences

Participants compared face-to-face and online teaching methods, highlighting differences in student interaction, assessment, time constraints, and effectiveness. Many expressed a preference for face-to-face instruction due to its perceived

advantages in active student engagement. Face-to-face and online teaching were two opposing types of instruction. Participants preferred face-to-face teaching because it allows for active interaction between teacher and students and assessment of students' gained knowledge, whereas online learning is prone to cause cheating.

Participant 7 added on this point: *"The tendencies in online class are students are merely listening and [that it] lessens active participation from them."* She also mentioned that online teaching hinders the freedom of the students to share ideas and to solicit views in accordance with the discussion. Participant 10 clarified: *"Students during face-to-face classes interact more actively compared to during virtual classes."* The participant believed that face-to-face teaching is more effective and more interactive compared to online classes. Participant 12 listed another difference, stating that responding to activities of learners through an online mode was considered unreliable. Participant 2 stated that online teaching is time-pressured, while face-to-face teaching has no limitation. Apart from this, according to Participant 3, the biggest difference between the two modes are the teaching and learning strategies. In online teaching, strategies are applicable to learners, as well as the provided assessments. Participant 8 professed that learning through an online mode does not support boosting the confidence of the learners.

Participant 4 explicated that the mere difference revolves around the concepts direct and indirect: *"From the word online itself, you do not have direct contact with your client, while face to face, you have direct interaction with your client."* In addition,

Participant 1 enunciated:

"Teaching face to face is somehow still quite good compared with the online teaching. We must follow Mapúa, one of the pioneers in conducting online classes. There, 70% of students are conducting online class, while 30% are face to face. Face to face is better considering the availability of resources for students. For instance, students who need to learn about programming or networking require a computer or desktop at home."

Participants mentioned that online teaching was challenging, enjoyable, and satisfying. They were still able to teach students despite the situation and were able to develop their technological skills. However, a disruptive Internet connection was the reason online classes were somewhat challenging. Participant 5 noted that *"faculty members encountered challenges such as lack of resources and unstable Internet connection"*. Participant 10 declared that teaching online was acceptable if the Internet connection was relatively good. Sometimes during virtual classes, poor Internet connection was a barrier to effective interaction between students and teachers. Participant 11 responded:

"Online teaching is very challenging, especially in remote areas. We rely much on the Internet, but we suffer often in disconnection. It's very challenging, especially if we don't have Internet connection, because we must make ways to reach and communicate with our students. We go to places where we receive a signal, like on the mountains or above the trees, just to inform and send lessons to students. In Aguineldo, both faculty and

students suffered from signal interruption and unstable Internet connection, so I conclude that online instruction is very challenging."

Participant 8 viewed the situation positively: *"It's good and at the same time a good experience, since it will enhance me in how to manipulate to teach and also to experience online learning and teaching."* Nonetheless, Participant 11 declared that online teaching cannot replace face-to-face teaching.

According to Koenig (2019), the majority of college students and professors appeared to prefer in-person instruction over online instruction. Additionally, 70% of the students who responded to the survey stated that they preferred face-to-face learning environments entirely or primarily. Face-to-face classes were preferred by 73% of the instructors polled, who were even more enthusiastic about them.

Theme 7: Recommendations for improvement

In anticipation of online teaching, participants recommended rigorous training, workshops, and seminars focused on effective online teaching practices. They also suggested faster Internet access, additional teaching resources, prepared institutionalized modules, streamlined schedules, reduced paperwork, advanced announcements, and financial support for Internet connectivity.

Participants suggested rigid seminars, trainings, workshops, and webinars related to effective online teaching; faster access to Internet connection; additional teaching resources; prepared institutionalized modules; proper schedule of activities; less paperwork; advanced announcements; and financial support for Internet access. Participant 2 insisted on having rigid trainings or seminars on how to deliver instruction well in an online class and on what the best platforms are. Participant 1 proposed that a technical support member should also be involved in generating the content of the learning management system (LMS) and not the faculty member alone. Participant 4 recommended:

"The institution should be ready by equipping faculty with knowledge in online learning and increasing Internet connectivity. The bandwidth, the Internet connectivity of the campus, must be increased to deliver quality online learning because as of now we have limited bandwidth."

Moreover, Participant 7 wanted the university to conduct a seminar or workshop for teachers per college to discuss other applications that can be utilized in online teaching. Participant 8 noted that: *"The institution should offer different kinds of online seminars in which faculty can participate or recommend to other professionals."* Furthermore, Participant 12 inferred: *"If the university will finance, I recommend an Internet signal for access by the community. We propose that the university provides one signal in every three barangays."*

Participant 2 requested the administration to continuously provide the faculty free Wi-Fi so that they can deliver their instruction properly. They should also be given enough breaks between semesters and tips on how to enhance their knowledge of online classes so that they will always stay informed and can

transfer the knowledge to the students. Meanwhile, Participants 3 and 7 suggested self-learning or advancing their knowledge and experience about online teaching.

"The faculty member should really adjust and help him- or herself to acquire the knowledge and skills needed in conducting the online class. Faculty should find a way to learn and avoid depending greatly on the administration." (Participant 3)

Participant 1 made the following proposal to the university:

"We need to visit some good universities so that we might learn the best practices to conduct online classes. Mapúa, De La Salle, STI, and Adamson are known as the pioneers in delivering online classes. I suggest conducting research to meet the needs of our students as well as in the preparation of the university in conducting online classes."

Lastly, Participant 4 suggested:

"They should increase the allowance of the teachers because online teaching requires additional expenses for load; they will buy gadgets and thus require additional support."

Moralista and Oducado (2020) pointed out that faculty members need access to ongoing support, development, and training. This is because they become accustomed to the new normal in the higher education landscape and look for ways to better understand and take advantage of the opportunities that come with online education. Faculty must acknowledge the consequences of the Covid-19 pandemic on education, while also learning to see potential in the challenges offered by online teaching and learning.

Theme 8: Challenges of transitioning to online teaching and learning

The Covid-19 pandemic brought not only changes but also challenges to everyone, teachers and students not being exempted. The participants mentioned numerous challenges based on their experiences. Participant 1 stated that there was a slow collection of student work because some students tend to submit their work whenever they want. He added:

"other students might give some excuses that they cannot attend the class because of some personal reasons. Apart from this, while conducting class, someone will request to be added to the online class and become a disturbance to the delivery of the lesson."

Apart from this, Participant 2 admitted that online class is a hindrance in building a harmonic relationship between teachers and students. She described her experiences as:

"The challenges faced by the faculty and students are power interruptions, availability of resources, and huge data consumption. Attending Google and Zoom meetings consumes massive amounts of load and data. Also, we cannot establish a good rapport and good relationship to the students because I cannot memorize their names and faces online. There are instances where students leave the meeting without my knowledge because I cannot monitor their presence and participation."

Poor Internet connection was noted as a common challenge faced by both teachers and students. Time and efforts are wasted with the presence of this problem. Participant 5 shared that:

"The biggest problem is the Internet connection. I experienced being disconnected to the Internet while discussing."

This was supported by the statement of Participant 13:

"Yesterday, I experienced weak Internet connection while discussing. The students encountered the same and then submission of requirements was disregarded."

Participants were also challenged by the very low numbers of students attending their online classes. Participant 10 assumed that few students really pay attention and that *"students attending virtual classes isn't 100%"*. Participant 7 confirmed two mentioned challenges that teachers and students were experiencing, namely unstable Internet connection and at the same time student attendance. She reported:

"Both the faculty and students experienced unstable Internet connection. Moreover, I feel demotivated because only a few students are consistently attending classes."

In the same way, Kaup et al. (2020) listed some challenges encountered during the pandemic in the field of education in relation to technology, training, and student participation. Teachers do not have access to enough resources, such as equipped laptops, the Internet, and microphones, to effectively impart knowledge. While running online classes, a lot of teachers have connectivity issues, system failures, bandwidth problems, etc. and are unable to fix issues due to a lack of technical support. In accord, Verma et al. (2020) noted that some institutions lacked skilled instructors who could operate remotely via online platforms and struggled to adapt to the change. Without providing specific instructions or guidelines, the HEIs told their teachers to conduct the lessons from their houses. Sharma (2020) claimed that they expected older professors who lacked technical proficiency to teach online.

There were positive and negative aspects of online teaching during the pandemic. Mainly, participants believed that online teaching gained positively in terms of accessibility, safety, time management, convenience, and wider perspective by maximizing the use of the Internet, adapting and exposing participants to technology, and being paperless. Participant 1 stated that once students were connected to the Internet, they were already connected to the outside world and could get the whole perspective. Also, Participant 2 expressed that not being a part of Generation Z, online teaching provided her opportunity to learn of the new trends and how to deliver instruction online. *"Both the students and the faculty will be able to learn how to use technology"*, Participant 3 added. Apart from this, Participant 5 stated that online teaching saves Mother Earth since it is paperless. According to Participant 8, teacher and students can easily communicate by simply using the technology. Participants 11 and 12 agreed that online teaching saved energy and time since they were only working at home. Finally, Participant 10 stated:

"It offers easier tasks for teachers when it comes to dissemination of information and checking of activities."

On the other hand, the negative aspects of online teaching included a high tendency to cheat, unstable Internet connection, external barriers such as noise from the environment, and inability to assess the progress of the students. Other negative aspects are disruptive electricity cut-offs, dependency on the Internet, high load expenses, lack of resources and gadgets, inability to expound the topic because time is limited, lack of trainings, and lack of focus and active participation by students. Participant 1 implied:

"Students got easily frustrated in understanding the lesson and opt to just copy the output from their other classmates. However, a negative aspect can be turned into a positive aspect because students can create a sense of collaboration among them."

Participant 2 confirmed that the biggest challenges of online classes are money for data and a weak signal. In addition, Participant 3 explained that demonstrations for subjects which require such are unattainable. Also, Participant 4 claimed that there is no assurance whether students are learning through online teaching. Participant 5 pointed out that the lack of resources and gadgets of the students hinders them from excelling in class. Furthermore, Participant 7 could not prevent her students from cheating and depending on the Internet. Participant 10 confessed:

"Sometimes understanding lessons is quite hard to achieve due to some factors like Internet loss. Students might sometimes lose interest during the discussion and may start doing other things instead of paying attention to the teacher."

As reported by Alawamleh et al. (2020), teachers believed that while online courses were convenient because it could be taken from the comfort of their homes and saved travelling time, it did not appear to be as effective as the classroom method. The primary problems were determined to be a gap between the teacher and the students, a lack of interaction, an inability to engage the group, and technological concerns. Thirty-nine percent of the sample said that the medium of online classrooms was not particularly safe and secure. However, participants agreed that this new opportunity to conduct classes online has given them more confidence and enabled them to experiment with and apply new teaching strategies. Additionally, they highlighted a lack of job satisfaction while enrolled in online courses. Some of them even believed that their lack of computer literacy was to blame for their inability to use the online education platform efficiently. The majority of participants complained how uninterested and unengaged their students were. They asserted that the main problem was that students commonly used excuses such as network problems, dysconnectivity, and poor audio and video quality to justify their absences. They struggled to determine whether these excuses were sincere or merely an effort to skip class. Apps for educational technology are becoming more and more popular as more classes and assignments are being completed online in response to the Covid-19 pandemic.

4.2 Proposed Program to Enhance Faculty Preparedness for Transitioning to Online Teaching within the Global Higher Education Landscape

Based on the findings of the study, the development of the Digital Readiness Enhancement and Advancement in Education (DREAE) Program utilizing the technology acceptance model (TAM) emerged as a strategic response to the challenges and opportunities faced by faculty members in transitioning from traditional face-to-face teaching to online instruction within the global higher education landscape.

The TAM framework, which considers the perceived ease of use and perceived usefulness of technology, provides a valuable lens through which to understand and address the complex dynamics of online teaching adoption. The findings highlight several key insights. The first is challenges in technology adoption, which include the challenges faced by faculty members, such as poor Internet connectivity, cheating, poor student attendance, and difficulty in monitoring student progress. These challenges underscore the need for effective technological solutions and support mechanisms. The second insight is positive perceptions of technology. Participants recognized the positive aspects of online teaching, such as improved accessibility, safety, time management, convenience, exposure to technology, and environmental benefits such as reduced paper usage. These positive perceptions indicate a willingness to embrace technology if the challenges can be mitigated. Third, institutional support, in the form of training, webinars, seminars, Internet access, and the provision of teaching resources, was crucial in helping faculty members navigate the transition to online teaching. Fourth, there is a need for training and professional development. Participants emphasized the importance of ongoing training and professional development to enhance their technological skills and adapt to the evolving landscape of online education. The fifth insight is student engagement, as concerns about student engagement and participation in online classes highlight the importance of designing engaging and interactive online learning experiences. Sixth, accessibility and infrastructure: Addressing issues related to technology infrastructure, gadget availability, and Internet connectivity is essential to ensure equitable access to online education. The seventh insight is cheating and assessment. Strategies for addressing challenges related to cheating and assessing student progress in the online environment need to be developed. Lastly, rapport building: Finding ways to foster teacher-student relationships in the digital space should be a priority.

Considering these insights, the DREAE Program was designed to offer comprehensive support for faculty members transitioning to online teaching. It aims to:

- a. provide targeted training and professional development opportunities to enhance faculty members' technological skills and confidence in online teaching;
- b. address challenges related to Internet connectivity and resource availability, ensuring that both educators and students have access to the necessary tools and infrastructure;
- c. promote best practices in online teaching, with a focus on student engagement and assessment strategies that maintain academic integrity;

- d. facilitate the adoption of technology by emphasizing the perceived ease of use and usefulness of digital tools;
- e. encourage collaboration and knowledge sharing among faculty members, leveraging social learning environments to support professional development; and
- f. leverage institutional support to create a conducive environment for effective online teaching.

The DREAE Program, grounded in the TAM framework, recognizes that successful technology adoption in higher education requires not only the provision of tools but also the cultivation of a positive attitude toward technology. By addressing challenges and fostering a supportive ecosystem, this program aims to empower faculty members to excel in the digital teaching landscape, ensuring the continued delivery of quality education in the face of evolving educational paradigms.

The DREAE Program will be implemented throughout the 2023–2024 school year at Ifugao State University. The strategies, activities, and success indicators, and the work plan are outlined in tables 1 and 2, respectively, which ensure a comprehensive understanding of the program’s flow and execution, guided by TAM principles to maximize faculty acceptance and technology utilization.

The TAM was integrated into the conceptualization of the DREAE Program. With that, we are confident in its ability to enhance faculty members’ readiness and proficiency in online teaching, thus contributing to a more resilient and effective higher education landscape.

Table 1: Strategies, activities, and success indicators in the implementation of the DREAE Program

Individuals targeted	Activities/strategies	Success indicators
Faculty members	- Orientation of instructors on effective ways to enhance faculty preparations in online teaching	- Increased awareness of faculty members for online teaching preparation
	- Training and workshops on methodologies for educational technologies in online teaching	- Wider ability and mastery of faculty members in integrating and utilizing educational technologies for online teaching
	- Attending conferences related to faculty preparation in online teaching	- Adoption and proficiency in innovative and updated teaching strategies for online teaching
	- Team teaching activities	- Strengthened communication and collaboration among faculty members

	- Regular reflection on the challenges encountered in online teaching	- Reduction of challenges faced in online teaching
Administration	- Regular attendance in meetings about faculty preparation in online teaching	- Enhanced awareness of school administration regarding faculty preparation for online teaching
	- Initiated school learning action cell (SLAC)/learning action cell (LAC) sessions to discuss guidelines for integrating and utilizing educational technologies in online teaching	- Establishment of positive attitudes among school administrators toward educational technologies in online teaching
Partner agency - International Society for Technology in Education (ISTE) and SEAMEO Innotech	- Orientation of the partner agency	- Increased awareness of the partner agency regarding faculty preparation for online teaching
	- Initiate partnership for faculty preparation in online teaching	- Strengthen partnership between the university and other agencies for faculty preparation in online teaching
	- Conduct monthly meetings to discuss the status of the integration and utilization of educational technologies in online teaching	- Acceptance of the partnership between the university and other agencies for faculty preparation in online teaching

Table 2: Work plan of the proposed DREAE Program on enhancing faculty preparation in transitioning from face-to-face to online teaching

Activities	Goals	Persons involved
1. Identification of challenges affecting faculty preparation in online teaching	- To determine the challenges affecting faculty preparation in online teaching	- Faculty members, campus executive director
2. Planning for the implementation of the DREAE Program	- To develop a comprehensive plan for program implementation	- Faculty members, campus executive director
3. Preparation of the proposed DREAE Program related to faculty preparation in online teaching	- To create a written basis to guide faculty members in implementing the DREAE Program	- Faculty members, campus executive director
4. Approval of the DREAE Program by administrators	- To obtain consent for the DREAE Program implementation	- Faculty members, campus executive director
5. Implementation of the DREAE Program	- To enhance faculty preparation in online	- Faculty members, campus executive director

	teaching through the DREAE Program	
6. Monitoring and evaluation of the DREAE Program	- To monitor and evaluate the progress and impact of the DREAE Program	- Faculty members, campus executive director
7. Evaluation of the implementation of the DREAE Program	- To assess the overall effectiveness of the DREAE Program	- Faculty members, campus executive director
8. Submission of the output to Research Development of the university	- For final approval by Research Development of the University	- College dean and Research Development personnel

5. Conclusions

In this study, Ifugao State University faculty members shared their experiences about transitioning to online teaching due to the pandemic. Their backgrounds varied, with some having prior online teaching experience and familiarity with technology. While some preferred traditional teaching, others acknowledged the time and effort needed to master online instruction. Challenges during the transition included unstable Internet connection, limited interaction, delays in work collection, assessment difficulties, and concerns about cheating and lower attendance. Despite these challenges, faculty remained motivated by their dedication to students, passion for teaching, and financial commitments. The study revealed the complexities of the global higher education landscape's transition to online teaching. To enhance faculty preparedness, we proposed the DREAE Program on Online Teaching, aiming to empower faculty with skills and resources.

Ifugao State University supports its faculty through technological skill development, teaching materials, and training opportunities. While some faculty members enthusiastically embraced the shift, others are still adapting to the digital teaching environment. Despite the challenges, faculty see online teaching as a modernized and globalized approach to education. The study recommends exploring alternative information dissemination methods, such as the modular approach, to provide offline access to educational materials. It emphasizes the need for regular, tailored training sessions and comprehensive institutional support, including resources and technology infrastructure. Support systems for addressing Internet connectivity and technical challenges should be established.

This study serves as a valuable reference for future research on faculty preparedness for online teaching, offering insights into the experiences and challenges encountered. By building on this foundation, future studies can contribute to the ongoing improvement of online education practices.

Acknowledgement

The authors would like to extend their sincerest gratitude to the Ifugao State University for the research support extended and to all participants for their generous involvement.

6. References

- Alawamleh, M., Al-Twait, L. M., & Al-Saht, G. R. (2020). The effect of online learning on communication between instructors and students during Covid-19 pandemic. *Asian Education and Development Studies*, 11(2), 380–400. <https://doi.org/10.1108/aeds-06-2020-0131>
- Albrahim, F. A. (2020). Online teaching skills and competencies. *Turkish Online Journal of Educational Technology-TOJET*, 19(1), 9–20. <https://eric.ed.gov/?id=EJ1239983>
- Allen, I. E., & Seaman, J. (2014). *Grade change: Tracking online education in the United States*. Babson Survey Research Group. <https://files.eric.ed.gov/fulltext/ED602449.pdf>
- Barbour, M. K., LaBonte, R., Kelly, K., Hodges, C., Moore, S., Locke, B., Trust, T., Bond, A., & Hill, P. (2020). *Understanding pandemic pedagogy: Differences between emergency remote, remote, and online teaching*. Canadian eLearning Network. <https://bitly.ws/35oMI>
- Bitner, N., & Bitner, J. O. E. (2002). Integrating technology into the classroom: Eight keys to success. *Journal of Technology and Teacher Education*, 10(1), 95–100. <https://www.learntechlib.org/p/9304/>
- Blas, T., & Fernández, A. (2009). The role of new technologies in the learning process: Moodle as a teaching tool in physics. *Computers & Education*, 52(1), 35–44. <https://doi.org/10.1016/j.compedu.2008.06.005>
- Bower, B. L. (2001). Distance education: Facing the faculty challenge. *Online Journal of Distance Learning Administration*, 4(2), 1–6. <https://ln.run/8tC4k>
- Cadavid, J. M., Jaramillo, S. G., & Ospina, A. A. P. (2022). *Teaching through flipped classroom and learning communities: Analysis of a computer programming course during pandemic* [Conference session]. 2022 XVII Latin American Conference on Learning Technologies (LACLO). <https://doi.org/10.1109/lacl056648.2022.10013449>
- Conrad, R. M., & Donaldson, J. A. (2011). *Engaging the online learner: Activities and resources for creative instruction* (Vol. 36). John Wiley & Sons. <https://ln.run/29pgk>
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design*. Sage. <https://shorturl.at/cvE89>
- Eddles-Hirsch, K. (2015). Phenomenology and educational research. *International Journal of Advanced Research*, 3(8), 251–260. <https://bitly.ws/35oL8>
- Eddy, P. L., Sydow, D. L., Alfred, R. L., & Garza-Mitchell, R. L. (2015). *Developing tomorrow's leaders: Context, challenges, and capabilities*. Rowman & Littlefield. <https://ln.run/z0Alt>
- Evolution of Distance Education: Implications for Instructional Design on the Potential of the Web. (2008). *TechTrends*, 52(4), 66–70. <https://doi.org/10.1007/s11528-008-0179-0>
- Greenhow, C., Graham, C. R., & Koehler, M. J. (2022). Foundations of online learning: Challenges and opportunities. *Educational Psychologist*, 57(3), 131–147. <https://doi.org/10.1080/00461520.2022.2090364>
- Johnson, N., Veletsianos, G., & Seaman, J. (2020). U.S. faculty and administrators' experiences and approaches in the early weeks of the COVID-19 pandemic. *Online Learning*, 24(2), 6–21. <https://doi.org/10.24059/olj.v24i2.2285>
- Kaup, S., Kaup, S., Jain, R., Shivalli, S., & Pandey, S. (2020). Sustaining academics during COVID-19 pandemic: The role of online teaching-learning. *Indian Journal of Ophthalmology*, 68(6), 1220. https://doi.org/10.4103/ijo.ijo_1241_20
- Khanom, M., Hoque, A., Sharif, P. I., Uddin, A. T. M. M., Hossain, M. A., & Sabuj, M. U. (2021). Teachers' perception on virtual teaching learning activities and assessment: Web-based study on a non-government medical college in Bangladesh. *Bangladesh Journal of Medical Education*, 12(1), 3–9. <https://doi.org/10.3329/bjme.v12i1.52303>
- Koenig, R. (2019, December 11). Most students and faculty prefer face-to-face instruction, EDUCAUSE surveys find. *EdSurge*. <https://ln.run/0B3Ph>

- Lee, M. H., & Tsai, C. C. (2008). Exploring teachers' perceived self-efficacy and technological pedagogical content knowledge with respect to educational use of the World Wide Web. *Instructional Science*, 38(1), 1–21. <https://doi.org/10.1007/s11251-008-9075-4>
- Mas, A. (2006). Pay, reference points, and police performance. *Quarterly Journal of Economics*, 121(3), 783–821. <https://doi.org/10.1162/qjec.121.3.783>
- Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching–learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, 1, 100012. <https://doi.org/10.1016/j.ijedro.2020.100012>
- Moghavvemi, S., & Salarzadeh Janatabadi, H. (2018). Incremental impact of time on students' use of e-learning via Facebook. *British Journal of Educational Technology*, 49(3), 560–573. <https://doi.org/10.1111/bjet.12545>
- Moghavvemi, S., Sulaiman, A., Aziz, A. A., & Wai, P. S. (2017). *The impact of Facebook usage on academic performance* [Conference session]. 2017 International Conference on Research and Innovation in Information Systems (ICRIIS) (pp. 1–5). IEEE. <https://ln.run/xMyYZ>
- Moghavvemi, S., Sulaiman, A., Jaafar, N. I., & Kasem, N. (2018). Social media as a complementary learning tool for teaching and learning: The case of YouTube. *The International Journal of Management Education*, 16(1), 37–42. <https://doi.org/10.1016/j.ijme.2017.12.001>
- Moralista, R. B., & Oducado, R. M. F. (2020). Faculty perception toward online education in a state college in the Philippines during the coronavirus disease 19 (COVID-19) pandemic. *Universal Journal of Educational Research*, 8(10), 4736–4742. <https://doi.org/10.13189/ujer.2020.081044>
- Moustakas, C. (1994). *Phenomenological research methods*. <https://doi.org/10.4135/9781412995658>
- Osim, T. A., & Ewona, I. O. (2023). An investigation of the challenges of virtual learning in tertiary institutions in Cross River State: The post Covid-19 era. *World Journal of Advanced Research and Reviews*, 19(3), 796–812. <https://doi.org/10.30574/wjarr.2023.19.3.1887>
- Pandit, D., & Agrawal, S. (2021). Exploring challenges of online education in Covid times. *FIIB Business Review*, 11(3), 263–270. <https://doi.org/10.1177/2319714520986254>
- Ranieri, M., Rosa, A., & Manca, S. (2016). Unlocking the potential of social media for participation, content creation, and e-engagement. In E. L. Brown, A. Krasteva, & M. Ranieri (Eds.), *E-learning and social media: Education and citizenship for the digital 21st century* (pp. 223–248). Information Age Publishing. <https://ln.run/s5UUR>
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education*, 2(3), 923–945. <https://doi.org/10.1007/s42438-020-00155-y>
- Robinson, D. J. (2017). *A Delphi study to examine the quality measurement standards by online instructors using the Quality Matters Rubric as a basis for creating instructional materials* [Doctoral dissertation]. Kent State University. OhioLINK Electronic Theses and Dissertations Center. <https://ln.run/skrKV>
- Sharma, K. (2020, April 23). Why online classes may not be such a good idea after all, especially for kids. *The Print*. <https://ln.run/CLXDV>
- Sife, A., Lwoga, E., & Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International Journal of Education and Development Using ICT*, 3(2), 57–67. <https://ln.run/qrFnk>
- Sonnenburg, N., & Hornberg, S. (2022). A global perspective on schooling in the COVID-19 pandemic era. *Tertium Comparationis*, 2022(03), 241–249. <https://doi.org/10.31244/tc.2022.03.01>

- Vähäsantanen, K., Hökkä, P., Paloniemi, S., Herranen, S., & Eteläpelto, A. (2016). Professional learning and agency in an identity coaching programme. *Professional Development in Education*, 43(4), 514–536. <https://doi.org/10.1080/19415257.2016.1231131>
- Verma, G., Campbell, T., Melville, W., & Park, B. Y. (2020). Science teacher education in the times of the COVID-19 pandemic. *Journal of Science Teacher Education*, 31(5), 483–490. <https://doi.org/10.1080/1046560x.2020.1771514>
- Wang, W. H., Hao, Y. M., Cao, Y. H., & Li, L. (2013). A cloud-based real-time mobile collaboration wiki system. *Applied Mechanics and Materials*, 441, 928–931. <https://doi.org/10.4028/www.scientific.net/amm.441.928>
- WHO (World Health Organization). (2020, March 11). *WHO Director-General's opening remarks at the media briefing on COVID-19*. <https://ln.run/qKQ4v>
- Wu, S. Y. (2021). How teachers conduct online teaching during the COVID-19 pandemic: A case study of Taiwan. *Frontiers in Education*, 6. <https://doi.org/10.3389/feduc.2021.675434>
- Xia, J., Fielder, J., & Siragusa, L. (2013). Achieving better peer interaction in online discussion forums: A reflective practitioner case study. *Issues in Educational Research*, 23(1), 97–113. https://ln.run/S-7_0