

## BLENDING LEARNING IN THE TECHNICAL-VOCATIONAL SCHOOLS: A PHENOMENOLOGICAL STUDY

<sup>1</sup>Cherry Marie C. Paclipan, <sup>2</sup>Virgilio H. Onganiza, <sup>3</sup>Imelda O. Reyes

<sup>1</sup>(Lanao del Norte National Agro-Industrial School, Philippines)

<sup>2,3</sup>(Misamis University, Philippines)

### ABSTRACT

Assessment of needs and challenges in an organization helps improve the quality of instruction. This study explored the challenges encountered by teachers in TVET in province of Lanao del Norte. The transcendental phenomenological design was utilized in this study. The respondents were the 15 instructors who were chosen through purposive sampling. To acquire information from the participants, extensive face-to-face interviews were done with each participant. The Moustakas' method of data analysis was employed in the study. Findings revealed four themes: experiencing slow internet connection, having difficulty in navigating the platform, lack of training in ICT, and the need for internet allowance. Needs assessment; proper inventory of physical facilities and other resources; and training and support from the administrators are factors to be considered in addressing the insufficiency of services provided by TVET institutions.

**KEYWORDS** - ICT, internet allowance, internet connection, platform, training and support.

### I. INTRODUCTION

Schools and universities are urged to act quickly to address the significant disruption that COVID-19 has brought about to the educational system. In order to take rapid and proactive action, higher education institutions are required to develop a resilient learning system employing data that is based on needs and facts (Dayagbil et Al, 2021).

The needs of skill-sector programs (Technical and Vocational Education and Training-TVET) require specific consideration even if approaches to remote learning will undoubtedly vary between elementary (primary) school and postsecondary education. The success of these programs' graduates will be crucial to the recovery of the economy. Remote learning can be used to give students the practical training they need, but some preparations are necessary (Daniel, 2020). The academic achievement of kids can be significantly improved by judicious ICT integration (Ghavifekr & Yulin, 2021).

Due to the widespread use of technology during the pandemic, online learning presents numerous problems and difficulties for all parties since TVET students are more in need of traditional teaching and learning methods, which include technical and practical skills, than of online learning (Yeap et al, 2021). It was extremely difficult for TVET universities to provide practical training using tools and equipment through online instruction (Yeap et al., 2021).

Institutions undoubtedly lack the planning and preparation necessary to prevent the excessive demands and tensions that result from hasty adoption. In this crisis, there is a definite demand for online learning knowledge, and this situation should serve as a reminder for institutions to foster this ability. The inadequate infrastructure for online education, the lack of teacher preparation, the knowledge gap, the complexity of the home environment, and others are all difficulties that have been brought up in the literature (Murgatrottd, 2020).

As a result of the COVID-19 epidemic, extensive, nationwide initiatives are growing and evolving swiftly to assist remote learning, distance education, and online learning (Ali, 2020). The trajectory for flexible learning delivery, the role of technology, the teaching and learning environment, and the necessity of safety and security were some of the emergent themes that were discovered from the qualitative replies (Dayagbil et al, 2021).

Flexible learning refers to the combination of different instructional modalities, such as using online platforms and digital or printed modules (Roxas, 2021). It is a design approach that gives students the option to participate in classrooms synchronously online via videoconferencing, asynchronously through similar learning activities, or face-to-face on campus. To increase equivalence and access to learning, flexible pathways are provided through technologically advanced educational systems (Learning and Teaching at Navitas, 2021). During the height of COVID-19, Flexible Learning (FL) seemed to be the most practical educational method (Almoite et al, 2022)

Work-based learning experiences can be made more affordable, accessible, and of higher quality by utilizing cutting-edge technical solutions such as the online delivery of theory-based lectures via e-apprenticeship models, and digital tools to track learning (Kanwar et al, 2019). The usage of ICT and computer-based teaching technologies has expanded as a result of technology-enabled teaching and learning in the learning centers. More people are using computer-based learning, virtual experiments, and practical training (Chandrasekar, 2022). Technical and vocational training heavily relies on technology to give high-quality information that can assist students in performing their employment tasks (Naido and Dawuwa, 2019).

Living in a country that is gifted with diversity, contextual difficulties that frequently arise while implementing a student-friendly teaching learning strategy in TVET should not be underestimated (Subedi & Shreshtha, 2020). Without a question, technology is a constant force that is altering how teaching and learning are conducted. Modern teaching and learning techniques use a range of cloud computing, learning analytics, big data, and artificial intelligence technologies (Cheung et al., 2021). Both teachers and students should be concerned with the design of the learning environment (Cox, 2019).

Students today face greater challenges than ever before, many of which are hidden from view. Students are far more inclined to express their opinions in class if they feel protected and valued. This makes it possible for the teacher to form genuine connections with their students which enhances the environment of safety and security in the classroom (McDonald, 2019). Hence, this study explored the challenges encountered by teachers in TVET in the Division of Lanao del Norte.

## 2. METHODS

### **Research Design**

This study used a phenomenological design and a qualitative methodology. As a qualitative, non-dualistic research methodology that recognizes and preserves research participants' discourse, phenomenology is defined (Barnard, McCosker & Gerber, 1999). This method is suitable for examining the difficulties teachers in the TESDA Technical Institutes of Lanao del Norte face when implementing ICT-based learning methodologies.

### **Research Setting**

This study was conducted in the province of Lanao del Norte, particularly among the five TESDA Technology Institutions (TTI) or TESDA Administered Schools. The five TESDA Technology Institutions (TTI) or TESDA Administered Schools are using ICT-based learning delivery methods and which are dispersedly located throughout the province.

### **Participants of the Study**

Fifteen (15) instructors, three of whom represent each of the five TTIs, are participants in this study who were chosen through purposive sampling. The following participant criteria were used for the purpose of sampling: (1) experience in building a blended online learning module; (2) continuous blended learning delivery; and (3) willingness to engage in the study. Prior authorization was obtained for the person to participate.

### **Research Instrument**

In-depth interviews were conducted using interview guide questions from Appendix D. The participants' difficulties with online classes will be the subject of an interview. The researcher created the interview guide (Appendix D) for this study. The content validity test for the creation of the interview guide questions was delegated to experts in qualitative research. Before the study, interview questions were tested to see if they were clear and to make sure they would elicit information in response to the research questions.

### **Data Collection**

Permission from the Provincial Director of TESDA Lanao del Norte and the Graduate School office of Misamis University was acquired prior to the study's execution. In order to conduct interviews with the participants, proper permission was also secured from the administrators of the vocational schools of LNNAIS, STS, PTC-Lanao del Norte, as well as the center chief of RTC Iligan.

Following the letter request's approval, information describing the participants' struggles in ICT-based classrooms was acquired using a structured interview guide that the researcher had developed. On the predetermined day, the researcher interviewed the subject. It was made clear to participants that their information would be kept confidential and that they might leave the study at any moment.

Forms for informed consent were given to the participants to complete. The interviews were planned after the final participant group was chosen, digitally recorded, and then transcribed. We conducted a face-to-face interview to get the answers. The researcher made sure that the COVID-19 Inter Agency Task Force (IATF) safety rules and procedures were followed while conducting the in-person interview. The interview was taped on a digital recorder by the researcher, who also took notes.

The interview began with the participants being introduced and the interview's goal being reviewed. The study's written report's drafts were sent to the participants for evaluation in order to get further input on its accuracy.

### **Ethical Considerations**

With the use of informed consent, the values of personal freedom and respect were protected. Before the interview, the participants gave their written, informed consent. The following information was provided to the participants: a. the purpose of the inquiry; b. potential benefits to them or others; c. privacy protection; d. the best way to contact the researcher with questions about the study; and e. the terms of engagement, which comprise the right to decline or abandon at any point without consequences. The participants were informed that their participation was entirely voluntary and that they might end it at any time.

### **Data Analysis**

The phenomenological reduction data analysis method developed by Moustakas (1994) was applied in this investigation. Also, the transcripts of every participant obtained from the interviews were examined utilizing Moustakas' techniques. The processes in the phenomenological reduction are (1) Bracketing, (2) Horizontalization, (3) Clustering into Themes, (4) Textural Description, (5) Structural Description, and (6) Textural-Structural Synthesis, and they serve as a guide for assessing the data acquired.

**Bracketing.** I used bracketing as a tactic to reduce the influence of preconceived notions and first impressions. By choosing the subject and target audience, planning the interviews, collecting and analyzing the data, and communicating the research findings, I was able to reach a deep level of inquiry.

**Horizontalization.** Officially speaking, "horizontalization" is the collection of all verbatim remarks that will have an impact on the investigation. I first weighed each statement equally. As a result, claims that were assessed to be unimportant, pointless, overlapping, or outside the scope of the study were ignored. The remaining portions of the data, known as "horizons," were then considered to constitute the fundamental and important parts of the phenomenon. According to Moustakas, there are no boundaries to the horizons and horizontalization is an ongoing process.

**Clustering.** The final step before reaching study results is clustering. Condensing experiences into core themes, limiting experiences to invariant horizons, and confirming the invariant horizons using a variety of data sources are all necessary steps. By categorizing the claims into themes and ensuring that each subject is stated with just one meaning, I was able to reduce the assertions into horizons. In order to validate the invariant boundaries identified through the study, I examined the findings of research studies using methods other than those used in the study to collect data, such as observation, field note-taking, focus group interviews, and related literature. The phenomenon is said to be "texturally linguistically encoded" in this way. To ensure that the representations are accurate, it is essential to complete this validation stage.

**Textural description.** Textural description, commonly known as "what happened," is an account of the experience of the phenomena. I used verbatim excerpts from the interview to create a textural representation of the participants' experiences before narrating the meaning units that formed from the themes. The textural description includes a creative variation, a unique point of view, and insights into the structural description—or how it happened. It is viewed as a creative variation to investigate the specifics and organizational patterns of participants' experiences while separating them from natural tendency. It creates a structural description by adding it at the conclusion of each paragraph of textural descriptions.

As part of the textural-structural synthesis process, I combined the meaning units of each participant and produced a composite of textual and structural descriptions that apply to each one of them. In a third-person narrative or synthesis, every participant is portrayed. The final phase of this method's major goal is to capture the essence of the phenomenon experience.

### 3. RESULTS AND DISCUSSIONS

The participants of the study were the teachers in the Technical-Vocational Education and Training (TVET) institutions in Lanao del Norte. Among the participants, eight are males while seven are females. There were four participants whose ages ranged from 26-30; 3 participants were aged between 31-35; 4 were within the ranged Of 36-40; and four participants were also above 41 years old. Six of them—the majority—served the organization for between six and ten years; five served for between eleven and fifteen years; three were still serving for between one and five years; and only one has been with the organization for more than fifteen years. The participants' replies throughout the interviews revealed the following themes: a slow internet connection, trouble navigating the platform, a lack of ICT training, and the necessity for internet allowance.

#### **Experiencing Slow Internet Connection**

A slow internet connection refers to a low speed or limited bandwidth that affects the ability of a device to connect to the internet and access online content. This can result in slow page loading times, buffering when streaming video, difficulty in downloading large files, and other issues. Factors that can contribute to a slow internet connection include the distance from the device to the nearest internet service provider hub, the quality of the device's hardware, the number of users connected to the network, and network congestion.

In the study, the participants experienced difficulty in their work due to poor internet connection. Participants 1, 2, and 7 stressed that they cannot work well because of the slow internet connection. They need wifi in developing learning modules at home. The slow connections consumed much of their time, hence, this lessens their productivity. They cannot also input data easily if they do not have strong connectivity. Participant 5 pointed out that he wanted to buy an internet modem on his own but could also not afford. In addition, aside from the slow internet connection, the lack of computers is also a problem because not all of them have the gadgets brought from home. These were the answers of the participants:

“Slow internet connection is the thing that suppresses my productivity. It requires so much of my time to just be connected in the internet. Though the office provided wifi but most of my time spent in developing modules are at home.” P1

“And next is the intermittent internet connection. You cannot work well if you don't have strong internet connection. You cannot input data easily if you don't have strong connectivity of internet.” P2

“The challenges I've encountered in the development of my online modules are the slow internet connectivity.” P7

“With the new technology it is very promising but due to limited connectivity trainees couldn't access the technology.” P12

“A little bit hard because of the internet connection is so slow. And I can't afford to buy internet connection for my own.” P5

“Slow internet access and the lack of computer units provided in school. I wish that the ratio of computer in my class is 1 computer to each one of my students because not all of them have the gadgets brought from home.” P4

Reliable internet connections and usable equipment such as laptops, computers, and mobile phones, should be taken into account when conducting online teaching and learning (Fernandez, 2020). Educators should explore the pedagogical viewpoints of online learning as well, since these will benefit online learning practices (Chia-Wen, 2020). (Pei & Wu, 2019).

To resolve slow internet connections, it may be necessary to upgrade equipment, move to a more centralized location, or upgrade to a higher-speed internet service. Additionally, it is important to regularly monitor the speed and performance of an internet connection to identify and resolve any issues as they arise.

### **Having Difficulty in Navigating the Platform**

Difficulty in navigating a platform can occur when users are unfamiliar with the platform's features and how to access them. Navigating online platforms can be challenging, especially if the platform is complex or has a large number of features. One of the difficulties the participants faced was the difficulty in navigating the learning management system (LMS) as stated by participant 9. He also found it hard to find or edit video contents that can help him in the learning process. Participant 6 mentioned that he had undergone the training but he not yet so comfortable with it. However, participant 5 is positive that in a few months he can learn other ways which are simpler and easier.

“The following are the challenges that I have encountered in developing my online modules: 1. navigating through the LMS platform, which is new to me, 2. Finding and/or editing video contents that can help aid in the training process.” P9

“I learned it during our training in facilitating e-learning system. But I am not yet so comfortable with it. I Am learning each day.” P6

“Internet connection and how to manipulate the Moodle platform since I am not yet at a level of mastery on it. Maybe in a few months I can learn other ways which are simpler and easier.” P5

The findings supported the claim that teachers who used the online platform lacked the necessary knowledge and skills. Yet, not everyone was satisfied with the flexibility, academic freedom and autonomy, professional contacts, and professional progress that are essential to online learning (Mansbach & Austin, 2018). Due to their ignorance of the necessary techniques, resources, and tools, they struggled to instruct and produce material on the platform (Cross & Polk, 2018).

If users are unable to navigate the platform effectively, they may be less likely to return in the future, leading to decreased user retention. If they are unable to find what they are looking for or complete tasks on the platform, they may become frustrated and disengage. Hence, it is important for online platform creators to prioritize usability and make sure their platforms are easy to navigate. This can be achieved through clear labeling, intuitive design, onboarding and tutorials, and responsive support.

### **Lacking Training in ICT**

If individuals are not trained in ICT, they may struggle to use technology effectively, leading to inefficiency and frustration. They may not be able to adequately prepare their students for the digital world, limiting their future job opportunities and competitiveness. Lack of ICT training can exacerbate the digital divide, as individuals who are not trained in ICT may have limited access to technology and the benefits it provides. They may be resistant to incorporating technology into their teaching, slowing the adoption of technology in the classroom.

In this connection, participant 5 emphasized the need for specialization training for trainers in ICT in training delivery. As a Computer Systems Servicing trainer, participant 14 I feel the need to be updated with what the latest technologies, especially in computer hardware and software. Participant 3 pointed out that the Information and Communication Technological maturity of participant-learners is rapidly increasing, thereby prompting for more utilization of ICT. These responses from the participants backed them up:

“Need for specialized training for trainers in using ICT in training delivery.” P5

“As a Computer Systems Servicing trainer, I should be updated with what the latest technologies are, especially in computer hardware and software.” P14

“The Information and Communication Technological maturity of participant-learners is rapidly increasing, thereby prompting for more utilization of ICT.” P3

In order to successfully adopt a blended learning environment during this epidemic, instructors must concentrate on training in technology usage and be ready to introduce and oversee all activities during the instructional hour. The trainees' computer literacy is also a problem, which makes it more difficult to communicate from trainer to trainee and vice versa. These responses from the participant backed them up.

“Instructors need to be tech-savvy and prepared to introduce and supervise all activities within the instructional hour in order to successfully adopt a blended learning environment.” P2



“Transition from face to face to blended teaching has a lot of factors to be considered such as poor trainees’ computer literacy skills, which adds to the difficulty of communication from trainer to trainee and vice versa.” P7

Teachers need to be trained by administrators in the planning and execution of digitally-based learning activities. They will be more equipped for the teaching-learning process (Rapanta, Botturi, Goodyear, Guàrdia, & Koole, 2020). Despite employing digital technology to provide courses, it can be difficult to maintain students' interest in technology-mediated learning. Therefore, in order to motivate them to perform and offer excellent courses, teachers need to possess fundamental teaching skills with the use of ICT as an outcome from their training (Schmidt, Tschida, & Hodge, 2016).

To address the implications of a lack of ICT training among teachers, it is important to prioritize professional development and training programs that focus on technology education. This can be achieved through partnerships between schools, universities, and technology companies, as well as government-led initiatives. By providing teachers with the necessary ICT training, they can effectively incorporate technology into their teaching and better prepare their students for the digital world.

#### **The Need for Internet Allowance**

Providing an internet allowance to teachers can have several benefits. Teachers who have access to the internet can more easily access online educational resources, lesson plans, and other tools that can enhance their teaching. They can more easily communicate with students and parents, sending updates and providing information about assignments, grades, and other important topics. They can also incorporate technology into their teaching, providing students with a more engaging and interactive learning experience. Hence, participant 5 suggested that each trainer be given budget for data purchase but he said that we need to ask permission from COA first. According to participant 4, technology can be expensive, hence, internet allowances may be given to each trainer. In addition, participant 5 suggested to provide financial assistance on all TESDA Training Institutions and build fast and efficient IT systems to respond to the challenges of the digital economy.

“Technology can be expensive maybe give trainers Internet Allowance”. P4

“I suggested that each trainer be given budget for data purchase but he said that we need to ask permission from COA first.” P5

“Provide financial assistance on all TESDA Training Institutions and build fast and efficient IT systems to respond to the challenges of the digital economy.” P15

Technology support has been offered by increasing internet capacity and offering lecturers free access to the internet in order to ensure consistent connectivity across the university (Dayagbil,2021). The Malaysian government agreed with this finding and supported it by providing teachers and students with internet permits so they may continue their online education. Owing to this concession, educators and students can do online learning for free (Selvanathan,2020).

Providing an internet allowance to teachers is an investment in their professional development and ability to effectively incorporate technology into their teaching. By providing access to the internet, teachers can improve the quality of education they provide to their students and better prepare them for the digital world.

#### **4. CONCLUSION**

Slow internet connections can stem from various technical issues such as outdated hardware, incorrect network settings, or poor signal strength, along with high network traffic or congestion. Similarly, difficulties in navigating platforms may arise due to factors like complex user interfaces, lack of familiarity, unclear instructions, technical issues, and limited technical skills. To address these challenges, providing clear instructions, user-friendly interfaces, and training support can significantly improve individuals' ability to navigate platforms effectively, thus enhancing productivity and access to information.

Moreover, the lack of ICT training can lead to limited technical skills, reduced productivity, and decreased access to opportunities. Investing in ICT training can mitigate these consequences, keeping individuals competitive and unlocking new opportunities. Additionally, providing internet allowances and increasing bandwidth can bring numerous benefits such as improved productivity, collaboration, access to information, and motivation, ultimately resulting in cost savings for companies. Recommendations include upgrading internet packages, providing user tutorials, offering training opportunities, and implementing mentorship programs to empower individuals with the

necessary skills and resources to thrive in today's digital world. The administration may provide a sufficient internet allowance and access to software that meet the needs of employees, supporting the overall success of the organization. This entails ensuring that employees have adequate resources to carry out their tasks efficiently and effectively. Furthermore, addressing insufficient bandwidth in an internet connection is crucial. This involves assessing current bandwidth usage, considering future needs, evaluating service providers, upgrading infrastructure, utilizing traffic shaping and prioritization techniques, monitoring network performance, and planning for future upgrades. By implementing these measures, organizations can optimize their internet connectivity, enhance productivity, and facilitate smoother operations in an increasingly digital environment.

### REFERENCES

1. Al-Ansi, A. M., Garad, A., & Al-Ansi, A. (2021). ICT-based learning during Covid-19 outbreak: Advantages, opportunities and challenges. *Gagasan Pendidikan Indonesia*, 2(1), 10-26. Retrieved on December 13, 2022 from <https://jurnal.untirta.ac.id/index.php/GAGASAN/article/view/10176>
2. Ali, W. (2020, October). Educational Challenges Amidst Covid-19 Pandemic. Retrieved on July 21, 2022 from [https://www.researchgate.net/publication/344600870\\_Educational\\_Challenges\\_Amidst\\_Covid-19\\_Pandemic](https://www.researchgate.net/publication/344600870_Educational_Challenges_Amidst_Covid-19_Pandemic)
3. Almoite, A., & Pacursa, L. (2022, March). lexible Learning Engagements: Exploring the Lived Experiences of the Learners in the New Normal. Retrieved on July 21, 2022 from <https://www.scirp.org/journal/paperinformation.aspx?paperid=116342>
4. Azmi, C., & Widiaty, I. (2021, March). ICT-based e-learning implementation. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1098, No. 2, p. 022109). IOP Publishing. Retrieved on December 13, 2022 from <https://iopscience.iop.org/article/10.1088/1757-899X/1098/2/022109/meta>
5. Billon, M., Crespo, J., & Lera-Lopez, F. (2021). Do educational inequalities affect Internet use? An analysis for developed and developing countries. *Telematics and Informatics*, 58, 101521. Retrieved on December 13, 2022 from <https://www.sciencedirect.com/science/article/abs/pii/S0736585320301805>
6. Chandrasekar, B. (2022b, March 16). Application of Augmented Reality in TVET, a Modern Teaching-Learning Technology. Retrieved July 21, 2022 from <https://www.intechopen.com/chapters/79968>
7. Cheung, S., Kwok, L. F., Phusavat, K., & Hao Yang, H. (2021, March 15). Shaping the future learning environments with smart elements: challenges and opportunities. Retrieved July 22, 2022 from <https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-021-00254-1>
8. Chillemi, O., Galavotti, S., & Gui, B. (2020). The impact of data caps on mobile broadband Internet access: A welfare analysis. *Information Economics and Policy*, 50, 100843. Retrieved on December 13, 2022 from <https://www.sciencedirect.com/science/article/abs/pii/S0167624519300046>
9. Cox, J. (2019, May 3). Classroom Management for an Effective Learning Environment. Retrieved July 22, 2022, from <https://www.teachhub.com/classroom-management/2019/05/classroom-management-for-an-effective-learning-environment/>
10. Cross, T., & Pollk, L. (2018). Burn Bright, Not Out: Tips for Managing Online Teaching. *Journal of Educators Online*, 15(3), n3. Retrieved on December 13, 2022 from <https://eric.ed.gov/?id=EJ1199109>
11. Daniel, S. J. (2020, April 20). Education and the COVID-19 pandemic. Retrieved July 21, 2022 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7167396/>
12. Dayagbil, F. T., Palompon, D. R., Garcia, L. L., & Olvido, M. M. J. (2021, July). Teaching and learning continuity amid and beyond the pandemic. In *Frontiers in Education* (Vol. 6, p. 678692). Frontiers Media SA. Retrieved on December 28, 2022 from <https://www.frontiersin.org/articles/10.3389/educ.2021.678692/full>
13. Dayagbil, F., Palompon, D., Garcia, L., & Olvido, M. M. (2021, July 23). Teaching and Learning Continuity Amid and Beyond the Pandemic. Retrieved July 21, 2022 from <https://www.frontiersin.org/articles/10.3389/educ.2021.678692/full#B14>
14. Deng, H., Jing, X., & Shen, Z. (2022). Internet technology and green productivity in agriculture. *Environmental Science and Pollution Research*, 29(54), 81441-81451. Retrieved on December 28, 2022 from <https://link.springer.com/article/10.1007/s11356-022-21370-z>
15. Dietrich, N., Kentheswaran, K., Ahmadi, A., Teychené, J., Bessière, Y., Alfenore, S., ... & Hébrard, G. (2020). Attempts, successes, and failures of distance learning in the time of COVID-19. *Journal of Chemical Education*, 97(9), 2448-2457. Retrieved on December 28, 2022 from <https://pubs.acs.org/doi/abs/10.1021/acs.jchemed.0c00717>
16. Dube, B. A., Nhamo, E., & Magonde, S. (2018). Factors affecting ICT integration in the teaching and learning of physical education in South Africa: A case of Johannesburg East cluster primary schools in the Gauteng Province. *International Journal of Sport, Exercise and Health Research*, 2(1), 88-92. Retrieved on December 28, 2022 from <https://rb.gy/fjyqsr>

17. Famularsih, S. (2020). Students' experiences in using online learning applications due to COVID-19 in English classroom. *Studies in Learning and Teaching*, 1(2), 112-121. Retrieved on December 28, 2022 from <https://scie-journal.com/index.php/SiLeT/article/view/40>
18. Ghavifekr, S., & Yulin, S. (2021, March). Role of ICT in TVET Education: Teaching & Learning amid COVID-19 Pandemic. Retrieved July 21, 2022 from <https://myjms.mohe.gov.my/index.php/ijares/article/view/12927>
19. Hargittai, E., Piper, A. M., & Morris, M. R. (2019). From internet access to internet skills: digital inequality among older adults. *Universal Access in the Information Society*, 18, 881-890. Retrieved on December 28, 2022 from <https://link.springer.com/article/10.1007/s10209-018-0617-5>
20. Hasan, A., Elmualim, A., Rameezdeen, R., Baroudi, B., & Marshall, A. (2018). An exploratory study on the impact of mobile ICT on productivity in construction projects. *Built Environment Project and Asset Management*, 8(3), 320-332. Retrieved on December 28, 2022 from <https://www.emerald.com/insight/content/doi/10.1108/BEPAM-10-2017-0080/full/html>
21. Hogan, R. L., & McKnight, M. A. (2007). Exploring burnout among university online instructors: An initial investigation. *The internet and higher education*. Retrieved on October 15, 2022 from <https://www.emerald.com/insight/content/doi/10.1108/BEPAM-10-2017-0080/full/html>
22. Hubináková, H., & Mikula, M. (2018). The importance of the Internet in the Life of Students of Media Studies. *Media Literacy and Academic Research*, 1(1), 31-42. Retrieved on October 15, 2022 from <https://www.ceeol.com/search/article-detail?id=660058>
23. Kanwar, A., Balasubramanian, K., & Carr, A. (2019, September 7). Changing the TVET paradigm: new models for lifelong learning. Retrieved July 21, 2022 from <https://www.tandfonline.com/doi/full/10.1080/14480220.2019.1629722>
24. Learning and Teaching at Navitas. (2021, April 1). Introducing Flexible Learning. Retrieved July 21, 2022 from <https://learningandteaching-navitas.com/introducing-flexible-learning/>
25. Lehner, F., & Sundby, M. W. (2018). ICT skills and competencies for SMEs: Results from a structured literature analysis on the individual level. *The im*. Retrieved on October 15, 2022 from [https://link.springer.com/chapter/10.1007/978-3-319-63257-5\\_5](https://link.springer.com/chapter/10.1007/978-3-319-63257-5_5)
26. Mansbach, J., & Austin, A. E. (2018). Nuanced perspectives about online teaching: Mid-career and senior faculty voices reflecting on academic work in the digital age. *Innovative Higher Education*, 43(4), 257-272. Retrieved on October 15, 2022 from doi: <http://dx.doi.org/10.1007/s10755-018-9424-4>
27. McDonald, L. (2019, July 22). How to Create a Safe Learning Environment in the Classroom? Retrieved July 22, 2022 from <https://www.graduateprogram.org/2019/07/how-to-create-a-safe-learning-environment-in-the-classroom/>
28. Murgatroid, S. (2020, March). COVID-19 and Online Learning. Retrieved July 22, 2022, from [https://www.researchgate.net/publication/339784057\\_COVID-19\\_and\\_Online\\_Learning](https://www.researchgate.net/publication/339784057_COVID-19_and_Online_Learning)
29. Raja, R., & Nagasubramani, P. C. (2018). Impact of modern technology in education. *Journal of Applied and Advanced Research*, 3(1), 33-35. Retrieved on October 31, 2022 from <https://rb.gy/jfio6q>
30. 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*, 1-23. Retrieved on October 31, 2022 from <https://link.springer.com/article/10.1007/s42438-020-00155-y>
31. Roxas, J. F. (2021, May 24). Flexible learning as the new normal. Retrieved July 21, 2022 from <https://businessmirror.com.ph/2021/05/24/flexible-learning-as-the-new-normal/>
32. Safdar, G., Javed, M. N., & Amin, S. (2020). Use of internet for education learning among female university students of Punjab, Pakistan. *Universal Journal of Educational Research*, 8(8), 3371-3380. Retrieved on October 31, 2022 from <https://m5.gs/eDVBeG>
33. Schmidt, S. W., Tschida, C. M., & Hodge, E. M. (2016). How faculty learn to teach online: What administrators need to know. *Online Journal of Distance Learning Administration*, 19(1), 1-10. Retrieved on October 31, 2022 from <https://bit.ly/34KjBwE>
34. Selvanathan, M., Hussin, N. A. M., & Azazi, N. A. N. (2020). Students learning experiences during COVID-19: Work from home period in Malaysian Higher Learning Institutions. *Teaching Public Administration*, 0144739420977900. Retrieved on October 31, 2022 from <https://journals.sagepub.com/doi/full/10.1177/0144739420977900>
35. Subedi, R., & Shrestha, M. (2020, February). Student Friendly Teaching and Learning Environment: Experiences from Technical Vocational Educational Training Schools in Nepal. Retrieved July 21, 2022 from [https://www.researchgate.net/publication/339589094\\_Student\\_Friendly\\_Teaching\\_and\\_Learning\\_Environment\\_Experiences\\_from\\_Technical\\_Vocational\\_Educational\\_Training\\_Schools\\_in\\_Nepal](https://www.researchgate.net/publication/339589094_Student_Friendly_Teaching_and_Learning_Environment_Experiences_from_Technical_Vocational_Educational_Training_Schools_in_Nepal)



36. Teräs, M., Teräs, H., Arinto, P., Brunton, J., Daryono, D., & Subramaniam, T. (2020). COVID-19 and the push to online learning: reflections from 5 countries. Retrieved on November 2, 2020 from [https://www.theseus.fi/bitstream/handle/10024/345401/COVID\\_19\\_and\\_the\\_push.pdf?sequence=1](https://www.theseus.fi/bitstream/handle/10024/345401/COVID_19_and_the_push.pdf?sequence=1)
37. Yeap, C. F., Suhami, N., & Nasir, M. K. (2021, August). Issues, Challenges, and Suggestions for Empowering Technical Vocational Education and Training Education during the COVID-19 Pandemic in Malaysia. Retrieved July 21, 2022 from <https://www.scirp.org/journal/paperinformation.aspx?paperid=111136>
38. Zhu, W., Li, Y., Li, S., Xu, Y., & Cui, X. (2020). Optimal bandwidth allocation for web crawler systems with time constraints. *Journal of Ambient Intelligence and Humanized Computing*, 1-14. Retrieved on October 31, 2022 from <https://link.springer.com/article/10.1007/s12652-020-02377-1>