
Research Article

The Case of Distance Learning Modalities Among Technical Vocational Students in One State College in The Philippines

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Abstract:

This study discusses the perception of the Bachelor of Technical-Vocational Teacher Education (BTVTEd) students during the implementation of distance learning along with their specialization courses in Camarines Sur Polytechnic Colleges (CSPC). This study aimed to generate students' learning experience and determine factors affecting the teaching-learning process and the implementation of the distance learning modality of CSPC. This study utilized a descriptive method of research. An adapted survey questionnaire was used to gather the data, and a weighted mean was employed to analyze and determine the factors affecting students' performance in the distance learning modality.

This study revealed that the students rated an overall rating of 2.95 with a verbal interpretation of Agree along with computer expertise, the flexibility of distance learning, the usefulness of distance learning, and distance learning satisfaction. This means they were satisfied with the teaching-learning process they experienced in their major courses. Thus, the researcher recommended reinforcing its programs along with the new normal approaches in education to achieve its vision of providing the best polytechnic education to its students by continuously creating opportunities such as training and seminars for the teaching staff and students to be fully equipped with the necessary skills for distance learning and the digital advancements in education.

Keywords: BTVTEd, Camarines Sur Polytechnic Colleges, COVID-19, Distance Learning, Specialized Courses

Introduction

In response to growing concerns about the spread of COVID-19 and the demands to contain the widespread coronavirus, many educational institutions worldwide have suspended face-to-face classes. The Coronavirus has exposed new vulnerabilities in educational systems all over the world. Society requires flexible and resilient education systems as the world faces uncertain futures. Like many other aspects of everyday life, COVID-19 has seriously impacted students, instructors, and educational organizations around the globe (Mailizar et al., 2020). However, since nobody knows when this pandemic will disappear entirely, educational institutions across the globe have decided to use the already available technical resources to create online learning material for students of all academic fields (Kaur, 2020).

The Bachelor of Technical Vocational Teacher Education (BTVTEd) program aims to develop highly competent and motivated teachers in their area of specialization, technical and vocational education (CMO 79, 2017). These pre-service teachers are expected to be educators in the TLE and TVL tracks for junior and senior high school. TVET trainers/assessors and college instructors possess the necessary knowledge, skills, attitudes, and values in technical vocational education.

Aside from the professional education and experiential learning courses that the students are required to complete in the BTVTEd program, a specialized course in their chosen area of specialization is an integral part of the acquisition of practical skills concerning the competency standards, which provides them with a hands-on/practical learning experience through laboratory activities and industry immersion.

As a polytechnic education provider, programs such as the Bachelor of Technical Vocational Teacher Education (BTVTEd) aim to provide students with the necessary skills in teaching and their field of specialization. The shift from traditional face-to-face to distance learning was an unprecedented challenge in teaching, especially in the specialized courses requiring practical/hands-on experience. COVID-19 has dramatically affected the education landscape; thus, the academic community utilized different modalities such as various digital platforms such as the CSPC's STUDENT INFORMATION AND ACCOUNTING SYSTEM (SIAS), and the GOOGLE Workspace to brave and champion the new normal way of education.

Objectives of The Study

This study aimed to assess the perception of BTVTEd major in Electronics Technology students. Specifically, it sought to achieve the following objectives:

1. determine students' perceptions of distance learning, computer expertise, flexibility, usefulness, and satisfaction
2. determine the factors affecting students' learning in distance education
3. develop a plan of action or intervention for improved instruction and learning in distance education

Scope and Limitation

This study aimed to assess the perception of BTVTED major in Electronics Technology students in their specialization courses in the distance learning modality implemented due to the pandemic. The study was conducted in Camarines Sur Polytechnic Colleges. The study's respondents were the BTVTED students enrolled in the ELX 3 Digital Electronics course during the first semester of the academic year 2022-2023. An online survey questionnaire was utilized to gather the respondents' responses.

Review of Literature and Related Studies

Since March 2020, schools in many parts of the world have been using distance learning strategies such as online classes, printed modules, and TV/radio lessons to ensure that a learning environment is maintained where the students are located. (Asian Development Bank, 2021).

Distance education has been promoted to address the issues related to geographical distance and the many reasons that prevent in-person learning and face-to-face classes, such as the pandemic. It is sometimes referred to as e-learning or online learning. It is an institution-based formal education where learners, resources, and instructors use interactive telecommunications systems to connect (Kim, 2020).

Higher education utilized Zoom and Google Hangouts, and teachers were encouraged to use websites such as Facebook, WhatsApp, and Google Forms. Among those involved were EdTech Hub, UNESCO Education Alliance, Learning Keeps Going (US consortium), Inter-Agency Network for Education in Emergencies (INEE), Commonwealth of Learning, and several other organizations (World Bank, 2020).

The Commission on Higher Education (CHED) gave higher education institutions (HEIs) the freedom to implement available distance learning, e-learning, and other alternative modes of education delivery (De Vera III, 2020).

This platform challenges teachers and students as it involves something new. It calls for an 'adopt quickly' response to the new normal in teaching and learning amidst the pandemic (Tanhueco-Tumapon, 2021).

Only a few studies have investigated the implementation of distance education and e-learning since COVID-19 is a new phenomenon with new impacts on the education sector. Students in selected HEIs in the CALABARZON region have faced problems such as a lack of resources, difficulty accessing a Wi-Fi connection, and a lack of valuable training among both the students and faculty members (Reyes-Chua et al.,2020)

Factors such as training, attitude, technical competence, time constraints, pedagogy, and methodology were among the significant distance learning education elements (Phan & Dang, 2017).

Adapting blended learning increases learner safety and autonomy, improves the feedback system, increases efficiency, and allows for flexibility (ciit.edu.ph, 2020).

Students have positive experiences with online learning platforms such as Canvas. The platform's benefits include conducting continuous assessments, participating in online discussions, and receiving immediate feedback. Supplementing these activities with face-to-face mentoring from instructors and real-time simulations improves students' learning and allows for social interaction (Gossai, 2020).

There are still gaps and challenges in terms of teacher capacity, the situation, the context of the learner, and the efficiency of the learning environment, even though innovations have been made by HEIs in the Philippines in terms of alternative learning modes and technologies for delivering education (Joaquin et al.,2020).

Theoretical Framework

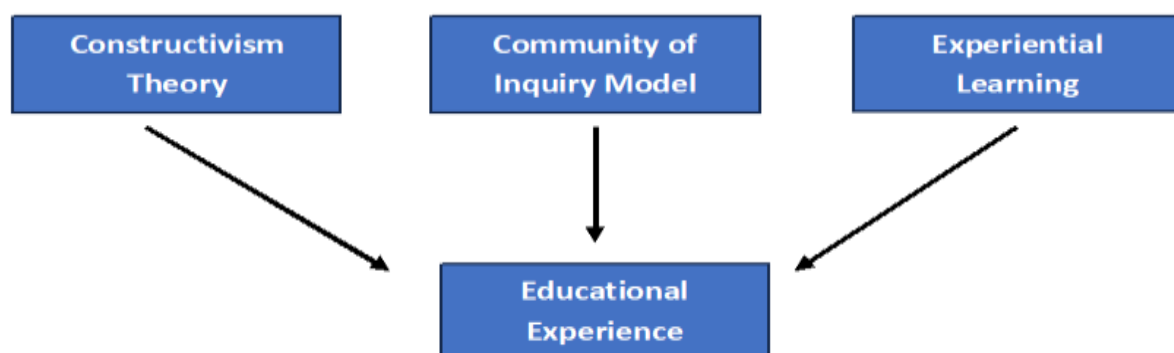


Fig. 1. Theoretical Paradigm

Figure 1 shows the theoretical paradigm of the study. The study referred to the different theories and concepts that were adopted. The constructivism theory emphasizes the active role of learners in constructing knowledge through social interaction, which is highly relevant to the online learning environment (Jaradat, 2021). With the different online platforms, learning specialized courses in electronics technology is still possible despite the absence of face-to-face interaction. The Community of Inquiry (CoI) model highlights the importance of cognitive, social, and teaching presence in creating a meaningful and collaborative online learning experience (Banayo & Barleta, 2021). The utilization of different digital tools in teaching in an online landscape addressed the needs of the teachers and students in creating a meaningful and collaborative learning experience. David Kolb's Experiential Learning

Theory, a widely recognized framework, describes how people learn through experience and emphasizes the importance of reflection and active experimentation in learning (Institute for Experiential Learning, 2023). The study determined the students' online learning experience with their specialized course in Electronics Technology.

Conceptual Framework

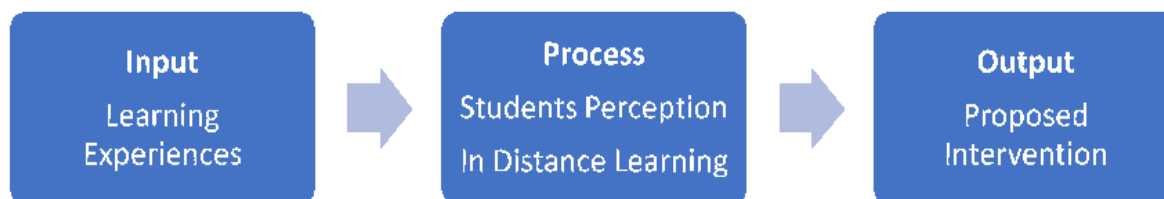


Fig. 2. Conceptual Paradigm

Figure 2 shows the study's conceptual paradigm. Three phases were employed in this study. The researcher utilized the input, process, and output (IPO) model, which is widely used in systems analysis and regarded as the most basic structure for describing a process.

Input. This research determined the students' learning experience during distance learning with their specialized course ELX 3 Digital Electronics for the Academic year 2022-2023, including the issues and challenges they experienced in learning the specialized courses, computer expertise, flexibility of distance learning, usefulness of distance learning, and distance learning satisfaction.

Process. The research used the descriptive method, which covered the data-gathering procedure using the adapted questionnaire that determined students' perceptions and experiences in distance learning as the basis for planning the intervention.

Output. After collecting the data, the researcher designed a plan of action or intervention to improve instruction and learning in distance education for the Bachelor of Technical -Vocational Teacher Education major in Electronics Technology program under the ELX 3 Digital Electronics course.

Methodology

Research Method

A descriptive research design was utilized in this study. The study likewise employed a purposive sampling technique. The main objective of purposive sampling is to produce a sample that can be logically assumed to be representative of the population ("Purposive Sample," 2008). Problems 1 and 2 were answered using the adapted survey questionnaire through a 4-point Likert Scale. This research utilized quantitative research. The researcher used questionnaires to gather data on the students' perception and learning experience in their specialized courses in the distance learning modality. Research ethics were strictly observed during the study.

Respondents/Participants of the Study

One set of respondents/participants in this study was utilized. The respondents were the Bachelor of Technical Vocational Teacher Education major in Electronics Technology first-year students composed of 24 (nine females and fifteen males) enrolled in ELX 3 Digital Electronics during the AY 2022-2023.

Instrument

The researcher utilized an adapted survey questionnaire from the study of Naidoo, N. (2021), Design, Implementation, and Evaluation of a Distance Learning Framework to Adapt to the Changing Landscape of Anatomy Instruction in Medical Education During COVID-19 Pandemic: A Proof-of-Concept Study. Frontiers was used as the primary research instrument to answer problems 1 and 2 through a 4-point Likert scale where 4- Strongly Agree, 3- Agree, 2-Disagree, 1-Strongly Disagree.

Data Collection Procedure

The researcher sought permission to distribute the questionnaires to the respondents/participants. The researcher used electronic/digital platforms such as Google Forms due to the limitations of face-to-face interaction.

Before administering the survey questionnaire, proper orientation was given to explain the nature and importance of the study to the participants. The researcher ensured their answers were treated with the utmost respect and confidentiality under the Data Privacy Act. The survey questionnaire was not timed, but the respondents/participants were asked to answer honestly based on their experience.

The data was collected once the respondents/participants completed the questionnaire. Each submitted questionnaire was checked to ensure that all the items were answered. The data was tallied, and the results were analyzed and interpreted.

Data Analysis

The data was analyzed using different statistical tools. The quantitative analysis included the presentation of the descriptive statistical data. The weighted mean was used to analyze the survey questionnaire results. Through the result, the students' perceptions were determined based on their answers from different parameters, and likewise, the factors affecting their learning were formulated. The data were supported by statistical tools such as SPSS/SSB in analyzing and interpreting the results.

Research Protocol

An informed consent form was given to the respondents before data gathering. The consent form ensures agreement between the researcher and the respondents. Important provisions of the Data Privacy Act were included to safeguard the confidentiality of the data gathered among the respondents of this study.

Results and Discussion

1. Perception of students in distance learning along with computer expertise, the flexibility of distance learning, the usefulness of distance learning, and distance learning satisfaction.

Table 1. Perception of Students in Distance Learning along Computer Expertise

Parameters	Frequency								$\sum fx$	\bar{X}	Descriptive Interpretation
	4		3		2		1				
	f	fx	f	fx	f	fx	f	fx			
1.) Computer Expertise											
a.) This course helps me use the internet source more efficiently	6	24	13	39	3	6	2	2	71	2.9	Agree
b.) My use of electronic gadget increases after taking this course	3	12	13	39	8	16			67	2.7	Agree
c.) My knowledge about the use of electronic gadgets increases with the course's assignments and projects	4	16	16	48	2	4	2	2	70	2.9	Agree
d.) This course contributes to my knowledge of searching on the internet.	10	40	7	21	6	12	1	1	74	3.0	Strongly Agree
Average										2.8	Agree

Computer Expertise refers to using electronic devices, such as computers, mobile phones, etc., in the distance learning modality in the ELX 3 course. With the shift from the traditional modality to the distance learning modality, the use of different digital tools became rampant in implementing the distance learning modality brought about by the pandemic, which is also vital in this 21st-century era. Table 1 shows that in terms of computer expertise, a weighted mean of 2.8 with a descriptive interpretation of Agree. This means that during distance learning, the students' skills in using electronic gadgets and the internet were enhanced by using different digital tools to implement distance learning for this course.

Table 2. Perception of Students in distance learning along Flexibility of distance learning

Parameters	Frequency								$\sum fx$	\bar{X}	Descriptive Interpretation
	4		3		2		1				
	f	fx	f	fx	f	fx	f	fx			
2.) Flexibility of distance learning											
a.) In terms of use of time and location, distance learning is flexible	6	24	12	36	5	10	1	1	71	2.9	Agree
b.) Distance learning is appropriate to students with different learning capacities	3	12	16	45	3	6	2	2	65	2.7	Agree
c.) Distance learning allows me to allocate my time better	5	20	13	39	5	10	1	1	70	2.9	Agree
Distance learning allows me to work at home comfortably	4	16	16	48	3	6	1	1	71	2.9	Agree
Average										2.8	Agree

In the distance learning modality, flexibility is one of the critical components, giving a unique approach and advantage compared with the traditional learning modality. Because of the flexibility of distance learning, most students learned concepts through self-paced approaches aside from the implementation of synchronous and asynchronous sessions, which developed their individualized progress, which is also anchored with outcomes-based education. Another significant contribution of this flexibility is that the students are given more time and opportunity to work on their tasks regardless of the time and location, giving them a convenient way of doing their work for the teacher and the students. Table 2 shows that regarding the flexibility of distance learning, a weighted mean of 2.8 was obtained with a descriptive interpretation of Agree. This means that the course's implementation of distance learning allows them to continuously learn despite their different circumstances. This also developed not just their theoretical knowledge about the course but, most importantly, they learned how to manage themselves to learn, attend, and achieve the learning objectives of their course.

Table 3. Perception of Students in distance learning along with Usefulness of distance learning

Parameters	Frequency								$\sum fX$	\bar{X}	Descriptive Interpretation
	4		3		2		1				
	f	fx	f	fx	f	fx	f	fx			
Usefulness of distance learning	4	16	14	42	5	10	1	1	69	2.8	Agree
a.) Evaluation of the success in distance learning is quite objective											
Distance learning provides me with a valuable learning experience	5	20	14	42	5	10			72	3	Strongly Agree
c.) A degree in distance learning is as valuable as a degree in traditional education	4	16	12	36	8	16			68	2.8	Agree
d.) I believe distance learning is useful	3	12	14	42	6	12	1	1	67	2.7	Agree
Distance learning minimizes the inequalities in education	4	16	16	48	3	6	1	1	71	2.9	Agree
Average										2.8	Agree

Education is a continuous process despite any circumstances. The usefulness of distance learning refers to how valuable their learning experience is in the distance learning modality in the ELX 3 course. The shift from the traditional modality to distance learning offered different approaches to teachers and students. In the first phase of implementing this learning modality, everyone was hesitant if this was a good move as part of our learning contingency plan due to the pandemic. Electronic gadgets, the internet, and digital platforms were new to everyone. In the long run, everyone is embracing the changes as they shift to the new normal in education. Digital simulation tools such as TINKERCAD, an OPEN-SOURCE online website, made different practical tasks in electronics possible without the traditional face-to-face laboratory work. Table 3 shows that computer expertise got a weighted mean of 2.8 with a descriptive interpretation of Agree. This clearly showed how useful the distance learning implemented for this course gave them an insightful learning experience and promoted inclusive education.

Table 4. Perception of Students in distance learning satisfaction

Parameters	Frequency								$\sum fX$	\bar{X}	Descriptive Interpretation
	4		3		2		1				
	f	fx	f	fx	f	fx	f	fx			
Distance learning satisfaction	4	16	15	45	4	8	1	1	70	2.9	Agree
a.) In this course, I am pleased with the timely responses to my questions											
The content of this course meets my expectations	6	24	15	45	3	6			75	3.1	Strongly Agree
c.) I advise other students to take this course	6	24	13	39	4	8	1	1	72	3	Strongly Agree
d.) I like the content of the course which draws examples from real life	8	32	13	39	3	6			77	3.2	Strongly Agree

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The student-centered instruction offered in this course through distance learning is enjoyable	5	20	15	45	4	8			73	3	Strongly Agree
Average										3	Strongly Agree

Distance learning satisfaction refers to the impact of the distance learning modality in the ELX 3 course. Since everyone was unfamiliar with this approach, determining the students' satisfaction with distance learning is crucial in knowing if the modality has effectively taught ELX 3 courses. Table 4 shows that the computer expertise got a weighted mean of 3 with a descriptive interpretation of Agree. This showed that the students were satisfied with the delivery of the teaching-learning process using the distance learning modality for this course.

2. Factors affecting students' learning in distance education.

a. Learner Characteristics

Based on the data gathered for the age, 97% of the respondents were 18-24 years old, while 3 % were 25-34 years old. For the sex, 54.5% were Male, while 45.5% were Female. For the learning experience, 15.2% had less than six months of participating in distance learning programs, 12.1 % answered 6-12 months, 51.5% with 1-2 years, and 21.2% with more than two years. Regarding the satisfaction of the quality of materials in distance learning, 27.3% answered with very satisfied, 69.7% somewhat satisfied, and 3% very dissatisfied. With the level of satisfaction with the level of support provided by the distance learning program, 24.2% answered with very satisfied, 66.7% answered with somewhat satisfied, and 9.1% with somewhat dissatisfied. For the technical issues experienced in distance learning, 87.9% answered Yes, while 12.1% answered No.

b. Instructional Variables

Regarding the quality of instruction provided in distance learning, 24.2% answered Excellent, 69.7% answered Good, and 6.1% answered Fair. For the responsiveness of the instructor to questions and concerns, 48.5% answered Very Responsive and 51.5% with Somewhat Responsive. For the learning activities' engagement level, 48.5% answered Very Engaging, 48.5% answered Somewhat Engaging, and 3% answered Somewhat Unengaging. For the relevance of the learning activities to the course material, 63.6% answered Very Relevant, 33.3% answered Somewhat Relevant, and 3% answered Very Irrelevant. For workload management, 24.2% answered Very Manageable, 72.7% Somewhat Manageable, and 3% Somewhat Unmanageable. For the time spent studying in the distance learning program, 39.4% answered less than 5 hours, 33.3% with 5-10 hours, 15.2% with 10-15 hours, 9.1% with 15-20 hours, and 3% with more than 20 hours.

3. Plan of action or intervention for improved instruction and learning in distance education.

Key Area	Plan of Action	Timeline	Needed Resources	Responsible Person	Possible Means of Verification
Computer Expertise	Training/Workshop in Computer/Electronic Gadget Operation and Learning Management System Configuration	Annually	Technical Support from MICT, Administrative support from CSPC,	MICT Personnel, VPAA College Dean, Faculty, Students	Attach training design, attendance sheets and results of training evaluation, Learning Management System
Flexibility of distance learning	Basic Pedagogy, Andragogy Orientation and 21 st Century Learning approach conducted for teaching personnel and students	As per scheduled	Technical Support from MICT, Administrative support from CSPC,	MICT Personnel, VPAA College Dean, Faculty, Students	Attach training design, attendance sheets and results of training evaluation, outputs
Usefulness of distance learning	Training/Workshop in Digital Education and Learning Management System	As per scheduled	Technical Support from MICT, Administrative support from CSPC,	MICT Personnel, VPAA College Dean, Faculty, Students	Attach training design, attendance sheets and results of training evaluation, outputs
Distance learning satisfaction	Training/Workshop in Education 4.0 and OBE	Annually	Technical Support from MICT, Administrative support from CSPC,	MICT Personnel, VPAA College Dean, Faculty, Students	Attach training design, attendance sheets and results of training evaluation, outputs

Conclusion

Distance learning is an educational process where students receive instruction through online classes, video recordings, video conferencing, or any other audio/visual technology medium. It enables people to receive education without being physically present in a classroom (*Distance Learning: The Ultimate Guide to Online Learning*, n.d.). The pandemic brought many changes, including shifting from traditional face-to-face to distance learning. A significant relationship exists between learners' online learning environment and learning experiences in the new normal education (Velasco, 2023). Based on the data gathered, the students who rated the conduct of distance learning in ELX 3 got an overall rating of Agree along with computer expertise, the flexibility of distance learning, the usefulness of distance learning, and distance learning satisfaction, which means that they were satisfied with the teaching-learning experience they experienced in their specialization courses. For the factors affecting students, most respondents were young adults, considering they are at the tertiary level with a short to moderate duration of learning experience in the distance education modality. There was also a significant level of satisfaction with the quality of materials and support the institution gave them. Technical concerns were present from a significant portion of the respondents, which affected the overall learning experience and satisfaction of the respondents. Addressing these issues significantly improved the effectiveness and satisfaction of the distance learning modality. Under the Instructional Variables, the respondents positively perceived the parameters such as quality of instruction, responsiveness of instructors, engagement of learning activities, relevance of learning materials, and workload management. However, there are still areas for improvement, such as addressing fairness in instruction quality, enhancing instructor responsiveness, and ensuring that learning activities remain engaging and relevant. Additionally, understanding and managing the workload to cater to the diverse time commitments of respondents could further enhance their learning experiences.

Recommendations

As a state college providing polytechnic education, various trainings and workshops have already been conducted to address this educational landscape change. The state-of-the-art equipment used in distance learning and the CSPC Learning Management System were also significant advantages of this institution in delivering this new trend in education. However, CSPC still needs to reinforce its programs along with the new normal approaches in education to achieve its vision, which is to provide the best polytechnic education to its students by continuously providing opportunities such as training and seminars for the teaching staff and students to be fully equipped with the necessary skills for the distance learning and the digital advancements in education. Though it is evident that distance learning has been broadly satisfactory for the student-respondents enrolled in the ELX 3 course, there are still areas for improvement, such as addressing the technical concerns, which is a common issue in the distance learning the institution must prioritize resolving this concerns promptly by providing technical support, training, workshops and seminars which can help teachers and students navigate through technical challenges more efficiently. Instructors may incorporate digital elements into daily lessons to maintain high engagement and collaboration.

Also encouraging active participation through discussions, group projects, and real-world case studies can make the learning experience more dynamic and meaningful for students. Lastly, to manage workload effectively, providing flexibility in the deadlines for the different requirements and enhancing materials for self-paced learning will help alleviate the pressure on the students and improve their overall learning experience.

References

1. Mailizar, M., Almanthari, A., Maulina, S., & Bruce, S. (2020). Secondary School Mathematics Teachers' Views on E-learning Implementation Barriers during the COVID-19 Pandemic: The Case of Indonesia. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(7), em1860. <https://doi.org/10.29333/ejmste/8240>
2. Kaur, G. (2020). Digital Life: Boon or bane in the teaching sector on COVID-19. *CLIO an Annual Interdisciplinary Journal of History*, 6(6), 416–427.
3. Asian Development Bank. (2021). COVID-19 and education in Asia and the Pacific guidance note. <https://www.adb.org/sites/default/files/institutional/document/672491/covid-19-education-asia-pacific-guidance>
4. Kim, J. (2020, July 30). Learning and Teaching Online During Covid-19: Experiences of Student Teachers in an Early Childhood Education Practicum. SpringerLink. <https://link.springer.com/article/10.1007/s13158-020-00272-6>
5. De Vera III, P. (2020, Sept 02). CHED Memorandum Order No. 04: Guidelines on the implementation of flexible learning. <https://ched.gov.ph/wp-content/uploads/CMO-No.-4-s.-2020-Guidelines-on-the-Implementation-of-Flexible-Learning.pdf>
6. Tanhueco-Tumapon, T. (2021, January 15). Education and the “new normal.” *The Manila Times*. <https://www.manilatimes.net/2020/06/04/campus-press/education-and-the-new-normal/729288>
7. Reyes-Chua, E., Sibbaluca, B. G., Miranda, R. D., Palmario, G. B., Moreno, R. P., & Solon, J. P. T. (2020). The Status of the Implementation of the E-learning Classroom in selected Higher Education Institutions in Region IV-A amidst the COVID-19 crisis. *Journal of Critical Reviews*, 7(11). <https://doi.org/10.31838/jcr.07.11.41>
8. Joaquin, J. J. B., Biana, H. T., & Dacela, M. A. (2020). The Philippine Higher Education Sector In the Time of COVID-19. *Frontiers in Education*, 5:576371. <https://doi.org/10.3389/feduc.2020.576371>

9. Jaradat, S. (2021). Undergraduates' Perspectives and Challenges of Online Learning during the COVID-19 Pandemic: A Case from the University of Jordan. <https://eric.ed.gov/?id=EJ1292899>
10. Banayo, A. F., & Barleta, C. J. (2021). Online education as an active learning environment in the New normal. *International Journal of Educational Management and Development Studies*, 2(4), 72–96. <https://doi.org/10.53378/352078>
11. Institute for Experiential Learning. (2023, December 27). What is experiential learning? - Institute For Experiential Learning. <https://experientiallearninginstitute.org/what-is-experiential-learning/>
12. World Bank. (2020). How countries are using Edtech (including online learning, radio, and television, texting) to support access to remote learning during the COVID-19 pandemic. <https://www.worldbank.org/en/topic/edutech/brief/>
13. Phan, T. T. N., & Dang, L. T. T. (2017). Teacher Readiness for Online Teaching: A Critical Review. *International Journal Open Distance E-Learn*. IJODEL, 3(1), 1–16.
14. CIIT Philippines (2020). Get to know more about blended learning in the Philippines. CIIT Philippines. <https://www.ciit.edu.ph/blended-learning-in-the-philippines/>
15. Gossai (2020). Bridging the gap in online college education: A qualitative phenomenological study. *American College of Education*, 143, <https://www.proquest.com/openview/73c5ed2be3257b52af5a497588b09294/1?pq-origsite=gscholar&cbl=18750&diss=y>
16. Naidoo, N. (2021). Design, Implementation, and Evaluation of a Distance Learning Framework to Adapt to the Changing Landscape of Anatomy Instruction in Medical Education During COVID-19 Pandemic: A Proof-of-Concept Study. *Frontiers*. <https://www.frontiersin.org/articles/10.3389/fpubh.2021.726814/full>
17. CHED (2017). CMO 79, s. 2017: Policies, Standards, and Guidelines for the Bachelor of Technical-Vocational Teacher Education (BTVTEd). <https://ched.gov.ph/wp-content/uploads/2017/11/CMO-No.-79-s.-2017.pdf>
18. Purposive Sample. (2008). *Encyclopedia of Survey Research Methods*. <https://doi.org/10.4135/9781412963947.n419>
19. *Distance Learning: The Ultimate Guide to Online Learning*. (n.d.). <https://www.educationcorner.com/distance-learning/distance-online-learning-guide.html>
20. Velasco, R. (2023, January 5). Online education as an active learning environment in the new. IIARI. https://iiari.org/journal_article/v2-4-197/