



Lived Experiences of Public School Teachers in Teaching Computer System Servicing in the New Normal

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ABSTRACT

To effectively teach many specialized disciplines, learning by doing is essential. Computer System Servicing (CSS) is one of the skilled subjects where hands-on activities play a major role in ensuring the transfer of learning. The most effective method to teach this subject is for teachers to have direct supervision of their students. However, during the time of COVID-19 pandemic, there was a sudden shift from face-to-face instruction to online distance learning which led to many challenges for teachers, and they were forced to adjust to this new normal mode of education.

The purpose of this qualitative study is to assess teachers' health conditions and identify effective instructional methods and online learning tools in teaching Computer System Servicing via online distance learning from the lived experiences of 8 public school teachers in Marikina City. The participants were chosen through a purposive sampling method, and a validated interview questionnaire was used as an instrument. Moreover, the themes of this study were determined using Giorgi's method of analysis.

Based on the findings, (7) seven themes emerged from the lived experiences of teachers which are: (1) changes in teachers' routines during the pandemic; (2) factors that affect teachers' mental health; (3) teachers' emotional response to the pandemic; (4) decrease in social activities; (5) teachers' response to the challenges of online delivery of lessons; (6) utilizing interactive online tools and platforms in teaching CSS courses online; and (7) a sense of dissatisfaction with teachers' teaching strategies and resources.

It is concluded that the pandemic had significant effects on teachers' well-being; their teaching experiences have been described as challenging; the use of interactive technologies is effective for practical applications of core competencies of CSS; they were not satisfied with their online delivery of instructions due to lack of available resources; and there is a need for the revision of existing CSS self-learning modules.

Keywords: Computer system servicing, public school teachers, pandemic, new normal, online tools, teaching strategies

1. Introduction

Technology and Livelihood Education (TLE) is primarily a skilled subject; therefore, the teacher must involve the student in hands-on teaching-learning experiences. Republic Act 10647, entitled An Act Strengthening the Ladderized Interface Between Technical-Vocational Education and Training (TVET), is the legal basis for teaching TLE. The Commission on Higher Education (CHED), the Technical Education and Skills Development Authority (TESDA), and the Department of Education (DepEd) acknowledge the Republic Act No. 10647, also known as the "Ladderized Education Act of 2014." It allows those in the technical vocational education and training (TVET) stream to continue their study and achieve college degrees by using the TVET ladder or so-called access ramps incorporated into the higher education degree system. This allows students to easily change and advance in their careers at their own speed and requirements. TLE is divided into four areas such as Home Economics (HE), Agriculture and Fishery Arts (AFA), Industrial Arts (IA), and Information and Communication Technology (ICT). These areas have competencies as stated in the training regulation of TESDA and Most Essential Learning Competencies (MELCS) that need to be mastered by the learners. They may take National Certificate II (NCII) which they may use for job applications just in case they don't want to continue their education at the tertiary level.

Teachers have a vital role in ensuring that all the competencies will be able to acquire by the learners. This is only possible if they can discuss and demonstrate the skills to the learners, and if the learners can experience or use those skills in real-life circumstances under the supervision of their teachers. With that, one of the learning modalities that will work well for this kind of setup is face-to-face instruction. However, when the world was struck by the COVID-19 virus, face-to-face discussion was not possible, and both teachers and students had trouble coping with this kind of setup. According to one study, many problems arose such as the difficulty in instructional delivery due to the lack of equipment and technical know-how on the use of ICT (De Villa & Manalo, 2020). This research sought to discover the lived experiences of the public-school teachers in teaching Computer System Servicing online where hands-on activities are essential.

Background of the Study

Learning takes place when appropriate teaching strategies are used with the students. Most of the teachers and even learners are accustomed to the traditional classroom settings wherein the execution of strategies is very easy and evident. The sudden shift in learning modalities arises because of the pandemic. With that, different learning delivery modalities were given a spotlight. One of which is online distance learning which plays a major role in today's educational system.

There are numerous issues that both students and teachers are currently confronting. With school closures in 188 nations (as of April 2020), many are looking for new ways to deliver ongoing education through technologies like the Internet, television, and radio (UNICEF, 2020). Based on the most recent preliminary data, around 6.9 million Filipino underprivileged students have intermittent mobile and internet connections, while 6.8 million have no device at all (Navarossa, 2020). According to a survey conducted in the Philippines by the multisectoral group Movement for Safe, Equitable, Quality, and Relevant Education (SEQuRE), 86.7 percent of students enrolled in modular learning, 66 percent in online learning, and 74 percent in blended learning said they "learned less" as compared to traditional face-to-face instruction (Rappler, 2021). Abante et al. (2021) disclosed some of the problems encountered by public-school teachers in using new modalities based on the teachers' participants' responses such as unstable internet connections, students' lack of interest, difficulties in getting the students' focus on their lessons, the accuracy of the learning competency of the learners, and hardship in relaying the lessons. Teachers may face significant difficulty in adapting to the new normal, as technology and student learning are at risk. These are the difficulties that may arise because of distance education, affecting teachers' ability to provide quality education to students and to provide effective instructional delivery online.

In Marikina City, the Schools Division adapted online and modular modalities. Online learners were attending their classes via google meet and they were submitting their outputs through Gmail, messenger, and e-learning Program, an online platform developed by the SDO-Marikina. Teachers used different online platforms and tools as part of their strategies to make their lessons more engaging and interactive. On the other hand, printed modules and teacher-made activities were given to the modular learners. These activities were being submitted via messenger or personal submission to the school.

Many studies were conducted on teachers' experiences in the new normal, but few of them focused on the experiences of teachers teaching skilled subjects online, specifically Computer System Servicing. Therefore, the researchers intend to uncover how the teachers in the public schools, particularly in Marikina City, taught Computer System Servicing online since it is a skilled subject and there is a need for the learners to have hands-on activities for them to clearly understand the topics and be able to meet the required competencies. Learning by doing is important for the teaching and learning process of both teachers and students. With that, this research will help teachers to discover innovative strategies or online platforms that can be used to teach skilled subjects effectively online.

2. Review of Related Literature

Learning Modalities

In 2020, The Department of Education, differentiated these modalities for us to clearly understand what these are all about. Face-to-face learning involves the teacher facilitating learning and engaging learners' active participation using various technologies accessed through the internet while they are geographically separated during instruction. Online learning involves the teacher facilitating learning and engaging learners' active participation using various technologies accessed through the internet while they are geographically separated during instruction. In addition, blended learning is a style of learning that combines face-to-face and online distance learning (ODL), face-to-face and modular distance learning (MDL), face-to-face and TV/Radio-based Instruction (RBI), and face-to-face learning with two or more types of remote learning. Finally, homeschooling is an alternative delivery mode (ADM) that attempts to give learners equal access to high-quality basic education in a home-based setting, supervised by qualified parents, guardians, or tutors who have received the required training. Many similarities exist between online and traditional education. Students must still show up for class, learn the content, turn in assignments, and work on group projects. Teachers must still create curricula, improve instructional quality, respond to class queries, encourage students to learn, and grade assignments. Despite their essential commonalities, the two modalities have a lot of distinctions. Classroom instruction has a reputation for being teacher-centered and requiring passive learning from students, whereas online training is frequently student-centered and involves active learning (Paul, 2019). Many challenges arise during the early stages of implementing these modalities. These processes include how teachers prepare, distribute, and collect modules, as well as how they monitor students' learning, examine, and assess their outputs, and provide feedback on their performance (Castroverde & Acala, 2021). Not only do issues on the part of the teachers arise, but also the students have trouble attending online learning because of the lack of their resources. It's also true that not all teachers and pupils have internet or technology access. In relation to that, one of the challenges they face is a lack of understanding about how to use online platforms and internet resources (Gillet-Swan 2017).

Online Platforms

Because face-to-face learning is risky, most institutions prefer distance online learning. Online learning encompasses a wide range of computer-based learning platforms and delivery methods, as well as genres, formats, and media such as multimedia, educational programming, simulations, games, and the use of new media on fixed and mobile platforms across all disciplines (Keengwe & Kidd, 2010). It is a teaching and learning process between teachers and students who interact through various digital media. Online education encompasses more than just direct instruction. Any tasks or exercises that the instructor posts online are regarded as a part of online learning (Basar et al., 2021). Teachers employ a variety of online platforms and tools to deliver their courses and evaluate their students' performance. Many people, however, are skeptical of this modality's efficacy. There have long been concerns about the quality of online learning in comparison to traditional learning environments (Abuhassna, 2020). According to a survey, 30 percent of Filipino

respondents claimed the present distance learning model is effective in a range of 20 to 50 percent. On the other hand, 14% of respondents stated that this type of learning model is 80 to 100% successful (Statista, 2021). The benefits and drawbacks of distance online learning are being studied. Distance learning courses are less expensive than traditional education courses, and there is no need to commute, so you can learn from anywhere at any time. You can also save time and money because distance learning courses are less expensive than traditional education courses. Furthermore, rather than being bound by a set schedule, it allows learners to create their study regimens at their leisure (Sadeghi, 2019). However, there are certain drawbacks, such as the necessity for students and teachers to learn about the platforms and technologies that will be utilized in online discussion and evaluation of student performance.

Learning Management System

Learning Management Systems are software applications designed to facilitate the delivery of education and training programs. These systems have a variety of features such as grading, course content management, tracking, and reporting tools which make it easier for educators to organize their courses and for learners to access and interact with the content. In addition to these basic functionalities, Learning Management Systems also offer online discussion forums, synchronous interactive online instruction, and social learning networks, such as Moodle, Edmodo, Canvas, TalentLMS, etc. With that, the learning process is strengthened by Learning Management Systems (LMS) through virtual classroom settings. With intervening mechanisms that encourage online collaborative groupings, professional training, discussions, and communication among other LMS users, a typical LMS promotes an inclusive learning environment for academic development (Bradley, 2021). Learning management systems (LMS), which enable remote learning and guarantee the continuity of the learning process, were essential in supporting education during the COVID-19 pandemic. Here's how LMS systems have been used in education during the pandemic:

1. **Remote Learning:** LMS platforms have replaced traditional delivery methods for online education. Course materials, assignments, and assessments were accessible to teachers and students from any location with an internet connection. This made it possible for learning to continue even while actual classrooms were closed.
2. **Content Distribution:** LMS platforms provided a centralized location for teachers to upload and distribute learning resources such as lecture notes, presentations, videos, and e-books. Students could access these materials at their convenience, allowing for self-paced learning.
3. **Communication and Collaboration:** LMS systems facilitated communication and collaboration between teachers and students (Edebatu et al., 2019). They typically included features such as discussion forums, messaging tools, and video conferencing capabilities. These features allowed for interactive discussions, Q&A sessions, and group projects, fostering engagement and participation (Toro, 2018).
4. **Assessments and Grading:** LMS platforms offered tools for creating and administering online assessments. Teachers could create quizzes, tests, and assignments that students could complete remotely. Some LMS systems even provided automated grading functionality, saving teachers time and effort.
5. **Progress Tracking:** LMS systems allowed teachers to monitor students' progress and performance. They could track attendance, view assignment submissions, and generate reports to assess individual and class-wide performance. This helped identify areas where additional support was needed.
6. **Personalization and Differentiation:** LMS platforms often included features that supported personalized learning. Teachers could tailor content and assignments to students' needs and interests. Adaptive learning technologies within some LMS systems helped adjust the learning experience based on each student's strengths and weaknesses.
7. **Parental Engagement:** LMS platforms provided parents with access to their child's educational progress, including grades, assignments, and communication with teachers. This enhanced parental involvement and allowed for better support at home (Laho, 2019).
8. **Professional Development:** LMS systems also supported professional development for teachers. They offered online courses, webinars, and resources to help educators adapt to remote teaching methods and acquire new skills.

Overall, learning management systems have played a crucial role in enabling remote education during the pandemic. They have provided a comprehensive platform for content delivery, communication, assessment, and tracking, ensuring continuity in education and supporting the learning needs of students and teachers alike.

Videoconferencing

Videoconferencing is a tool that has become increasingly popular for online discussions in recent years. It allows people from different locations to connect in real-time, communicate and collaborate just as effectively as if they were face-to-face. Universities are now using videoconferencing tools like Google Meet, Microsoft Teams, or Zoom to organize online lectures and discussions for students who cannot attend a physical classroom. They were highlighted during the outbreak of COVID-19 where face-to-face instruction was prohibited. These video conferencing tools have chat, share screen, file sharing, and recording features which helped teachers and students deliver the lesson effectively. Even once work situations return to normal, these tools are still frequently utilized for collaboration, and it is anticipated that they will continue to be useful tools for teaching instruction and enhancing students' learning (Journal of Instructional Pedagogies, n.d.). Video conferencing has grown in popularity and usage, especially in recent years. It offers numerous benefits, such as:

1. **Remote collaboration:** Regardless of their geographical locations, students and teachers can efficiently collaborate and communicate using video conferencing. It makes it possible for them to collaborate, minimizing the need for travel and the time and money incurred by face-to-face meetings.

2. Increased productivity: Video conferencing facilitates real-time decision-making and faster problem-solving by enabling immediate interaction and feedback. It also allows for the simultaneous participation of multiple individuals or teams, streamlining the workflow and minimizing delays (Adipat, 2021).
3. Flexibility and convenience: Participants can join video conferences from anywhere with an internet connection, making it convenient for individuals working remotely or those unable to attend in-person meetings due to various reasons.
4. Enhanced collaboration features: Many video conferencing platforms offer additional features like screen sharing, virtual whiteboards, polling, and breakout rooms, enabling interactive presentations, brainstorming sessions, and group discussions (Team, n.d.).

It's worth noting that while video conferencing has numerous benefits, it also has some drawbacks. These can include technical issues, such as poor internet connectivity, audio or video quality problems, and potential security and privacy concerns. However, advancements in technology and increased adoption have led to improvements in these areas over time.

Virtual Machines

As education becomes increasingly technology-driven, virtual machines are quickly gaining popularity as a way to teach concepts related to computer science and information technology. Virtual machines, or software-based representations of physical computers, provide students with a simulated environment in which to practice programming, networking, data analysis, and other computer-related skills. This approach allows students to experiment with different operating systems, software packages, and configurations without compromising the integrity of their own machines. In addition, virtual machines provide a scalable solution for computer labs in education, enabling multiple students to access the same resources regardless of their location or physical infrastructure (Xie, 2023).

VirtualBox

VirtualBox can be a valuable tool for teaching the core competencies of computer system servicing during online distance learning. Here's how it can be used:

1. Virtual Machine Setup: VirtualBox allows you to create and manage multiple virtual machines (VMs) on a single physical computer (What Is a Virtual Machine? | VMware Glossary, 2022b). You can set up VMs to replicate different computer systems, operating systems, and network configurations. This allows students to practice computer techniques in virtualized environments without the need for physical hardware.
2. Hands-on Practice: Students can perform hands-on exercises and simulations on virtual machines. They can practice installing and configuring operating systems, troubleshooting hardware, and software issues, setting up networks, and managing user accounts. VirtualBox provides a safe and controlled environment where students can experiment and learn without the risk of damaging real computer systems (Syamsuddin, 2017).
3. Remote Access: VirtualBox enables remote access to virtual machines, which is particularly useful in online distance learning. Instructors can share virtual machine images with students, who can then download and run them on their own computers using VirtualBox. This allows students to access the virtual environment from anywhere, collaborate with peers, and receive remote assistance and guidance from instructors.
4. Snapshot and Restore: VirtualBox offers snapshot functionality, allowing students to take snapshots of VMs at different stages of their configuration or troubleshooting process. If they encounter a problem or make a mistake, they can easily revert to a previous snapshot and start again. This feature promotes experimentation and exploration, as students can freely explore different scenarios and learn from their mistakes without worrying about irreversible consequences (VirtualBox Meaning, Working, Installation, Uses, 2022b).
5. Resource Optimization: VirtualBox allows instructors to create and distribute pre-configured virtual machine images to students. This eliminates the need for each student to install and configure the virtual machines individually, saving time and resources. Instructors can also create and share virtual appliances, which are self-contained virtual machines with specific configurations and software setups, tailored to teach specific aspects of computer system servicing.
6. Integration with Teaching Materials: Instructors can integrate VirtualBox into their teaching materials by providing step-by-step instructions, screenshots, and video tutorials on how to perform various computer system servicing tasks within the virtualized environment (Oracle VM VirtualBox, n.d.-b).

It is important to note that while VirtualBox is a powerful tool for teaching computer system servicing, it should be supplemented with theoretical explanations, demonstrations, discussions, and real-world examples to ensure a comprehensive learning experience.

Virtual Desktop/Laptop

Installing and configuring computer systems is the first core competency of Computer System Servicing. Students are required to assemble and disassemble a computer system and become familiar with its many components. Teaching computer assembly can be challenging and often requires hands-on experience for students to fully comprehend the concepts involved. Online education was employed to save the educational system during the pandemic, and hands-on activities were severely affected. With that, students' interest in the topic can often be weaker, as they wish to move on to other more practical aspects (Checa et al., 2021). To address this challenge, virtual reality can be utilized to make learning more enjoyable and engaging with the goal of enhancing motivation and attention while lowering costs (Taylor-Nelms & Hill, 2014). Virtual desktop technology can be implemented as a tool for practical teaching of computer assembly. Virtual technology can be an effective method of teaching as it allows for a safe and controlled

environment for students to practice different disassembly and assembly operations of computer systems. The Virtual Laptop and Virtual Desktop are standalone learning technologies created to enhance in-class instruction and offer a hands-on, interactive learning experience in settings with limited physical resources. They allow the students to learn the step-by-step procedures in assembling and disassembling a desktop computer, explore the components and test their knowledge virtually (Sanghera, 2016). In addition to that, students interact with them as if they were working on real computer systems. It offers a hands-on learning experience without the need for physical hardware or the risk of damaging real equipment. Moreover, the virtual desktop also includes a range of tools and utilities commonly used in IT, such as diagnostic software, operating systems, and networking tools. Students can use these tools to perform tasks, diagnose problems, and learn how to resolve common IT issues.

Online Teaching Strategies

Teachers' effective strategies are extremely beneficial in delivering lessons and assuring students' learning, whether face-to-face or online. One of their responsibilities, as facilitators of learning, is to implement effective and efficient teaching practices. Technology is a great method to increase students' engagement and get them excited about the lesson, especially during this time of pandemic. Moreover, selecting appropriate online teaching strategies will get students' interest to learn. Interest has a vital role because it leads to motivation in learning and can improve learning outcomes (Saturo, Sari & Fathurrochman, 2020). To create meaningful online teaching opportunities during the pandemic, educators should consider adapting methods and means for teaching-learning evaluation along with management strategies to a virtual environment while ensuring that online instructional design is highly relevant to student learning. Various online teaching strategies, such as using graphical presentations since most of our learners are visual learners, using virtual whiteboards, the flipped classroom method, live online discussions, group discussions and debates, gamification, and video recordings, can all be used to teach online more effectively.

Challenges of Online Distance Learning

There are no perfect learning modalities since we are dealing with diverse learners and teaching with technology is not a one size fits all approach (Orlando & Attard, 2015). The incorporation of technology adds new aspects to consider in terms of teaching pedagogy and the design of learning experiences (Gillet-Swan, 2017). Teachers have difficulty engaging students in online discussions due to several reasons such as students' lack of interest, being distracted by noise and home surrounding setup while attending the online class, and they were out of focus due to long screen time. Abante et al. (2021) explained that the difficulties encountered by public and private school teachers were the same. The study discovered several difficulties, including poor internet access, limited student resources, uncooperative parents, and lack of training on various web platforms for online teaching and assessment of learning.

Computer Systems Servicing

The Technical Education and Skills Development Authority (TESDA) issued a document called Training Regulations (TR), which serves as the foundation for developing a competency-based curriculum, instructional materials, and competency assessment methods. It establishes the competency standards for a national qualification, as well as how such a qualification can be obtained, assessed, and recognized.

The COMPUTER SYSTEMS SERVICING NC II Qualification consists of competencies that one must possess such as installing and configuring computer systems, setting-up computer networks and servers, and maintaining and repairing computer systems and networks (TESDA Training Regulation).

3. Theoretical Framework

This study is supported by Experiential Learning Theory, which emphasized the importance of experience and its role in the learning process, distinguishing it from other learning theories (Kolb, 1984). According to experiential learning theory, learning is the process of transforming experience into knowledge. With that, the combination of grasping and transformation experience yields knowledge (Kolb & Kolb, 2009). Moreover, effective learning occurs when a person goes through four stages: (1) having a concrete experience, wherein the learners encounter new experiences or situations or reinterpret an existing experience, (2) observing and reflecting on that experience, the learner evaluates the new experience considering prior knowledge. Any disparities between experience and comprehension are especially significant. (3) forming abstract concepts (analysis) and generalizations (conclusions), is the stage at which you decide how you will do things differently. and (4) testing hypotheses in future situations, resulting in new experiences.

Social Constructivist Theory was also employed in this study to investigate and analyze the lived experiences of Public School teachers teaching Computer System Servicing through online distance learning. This theory is founded on the premise that people actively construct or create their own knowledge, and that reality is determined by their experiences. In this study, the researchers analyzed the participants' experiences to create knowledge through in-depth interviews. These theories provided the greatest explanation for why this study exists.

4. Research Methodology

The researchers employed the phenomenological research design to describe the experiences of Public School teachers teaching Computer System Servicing through online distance learning. Phenomenological studies investigate human experiences through the descriptions provided by the participants. These are referred to as lived experiences (Donalek, 2004). The lived experience is what gives meaning to everyone's perception of a specific

phenomenon and thus presents to the individual what is true or real in his or her life (Giorgi, 1997). In addition to that, the goal of phenomenological analysis is not to explain or discover causes. Its goal is instead to clarify the meanings of phenomena based on lived experiences. As such, phenomenology represents a significant shift away from positivist cause-effect thinking and toward human subjectivity and discovering the meaning of actions (Giorgi, 2005).

The study was conducted in 5 public schools in District I of Marikina City specifically the Sta. Elena High School, Barangka National High School, Tañong High School, Calumpang National High School, and San Roque National High School. The names of these schools are derived from the barangays of Marikina City in which they are established and located. These schools are offering Computer System Servicing as the Technology and Livelihood Education (TLE) specialization of their grade 9 and grade 10 students.

The participants of the study were 8 public school teachers from the Department of Education (DepEd) who are currently teaching Computer System Servicing, have taught the subject for more than 2 years, and already obtained a National Certificate II. These 8 participants are from 5 public schools in Marikina City. The researchers selected the participants of this study based on their experiences and expertise in teaching Computer System Servicing at Grade 9 and Grade 10 levels.

In choosing the sample of participants, the researchers used a purposive sampling method. Purposeful sampling is a qualitative research technique for identifying and selecting information-rich studies to make the most efficient use of limited resources (Patton, 2002). This entails locating and selecting individuals or groups of individuals who are particularly knowledgeable or experienced about a topic of interest (Cresswell & Plano Clark, 2011). The population of the study is Grade 9 or Grade 10 public school teachers who taught Computer System Servicing using the different online platforms available on the web during the pandemic. Also, they have already passed the National Certificate II (NC II) of the Technical Education and Skills Development Authority (TESDA). The researchers are confident that the experiences of the participants would be beneficial in obtaining detailed information about the study.

In this research, a validated interview questionnaire was used as an instrument to gather the needed data for this study. The interview questionnaire was validated by three (3) experts in the field of research and education, a master teacher of TLE, a research professor of FEU Roosevelt, and a master teacher in English, at Barangka National High School. The primary source of information was a semi-structured interview done in person with the approval of the school heads of 5 Public Schools in Marikina. Phenomenological questions were asked and with the participants' permission, the interview was recorded.

The researchers obtained permission to perform the research study through a letter sent via e-mail to the office of the superintendent of the School Division of Marikina City. The approved letter of permission to conduct research was also sent to the school heads of five (5) Public Schools in Marikina in which the study was conducted. The researchers went to these schools and gave the consent form to the participants to read and understand what the study was all about before the conduct of the interview. To establish rapport with the participants, the researchers started by asking how they were doing on that day, how long have they been teaching Computer System Servicing, and what they liked about being a CSS teacher. Following that, the discussion moved on to the actual phenomenological interview questions, during which the researchers took notes to capture important information stated by the participants during the actual interview process. Interviews were recorded electronically with the participants' approval. After the conduct of the interview, the researchers listened to the audio recordings again and took comprehensive notes then transcribed them to a Microsoft Word file.

Giorgi's method of analysis was used which entails several step-by-step procedures. Step 1. Getting To Know the Data. Researchers interviewed the participants and then listened to or read the transcripts of the interviews several times to become acquainted with the data. Step 2. Identifying Meaning Units. In this step, the entire description was divided into smaller pieces composed of words or phrases that expressed a distinct and coherent meaning. Step 3. Re-Grouping Meaning Units in Clusters. During this phase, the identified meaning units were clustered based on their intertwining meanings so that they could more fully express the participant's lived experiences (Giorgi, 2009). Step 4. Transformation of the Meaning Units into Descriptive Expression. This step involved comprehension, evaluations, and the coherent organization of the constituents of the described experience. This step yielded individual descriptions which served as the basis of further analysis. This step produced individual descriptions that served as the foundation for further analysis. Step 5. Synthesis and Integration. After identifying the descriptive expression, researchers looked for statements that could be considered true or common in most cases.

5. Results and Discussion

This study was guided by five research questions:

Problem 1: How would you describe your experiences as a teacher in the new normal in terms of physical, mental, emotional, and social health conditions?

The highlighted themes from the actual semi-structured interviews reflected the live experiences of Computer System Servicing teachers in the phenomenon. The following were the (4) four identified themes reflected in the individual responses of the participants in teaching CSS through online distance learning modality: (a) Changes in teachers' routines during the pandemic, (b) Factors that affect teachers' mental health, (c) Teachers' emotional response to pandemic, and (d) Decrease in social activities. The COVID-19 pandemic had a significant impact on teachers' physical, mental, emotional, and social well-being. When it comes to the physical aspect, the majority of participants stated that changes in eating habits and a lack of exercise caused them to gain weight. Effective delivery of lessons, utilizing online platforms or tools, and ensuring students' learning were not the only things that CSS teachers were prioritizing during the pandemic. Additional workloads were also assigned to them, adding to the teachers' stress. Moreover, participants had to adjust their teaching strategies, core competencies, activities, and even their attitudes toward work to meet the demand of online distance learning.

Despite all the challenges encountered by the participants, positive attitudes toward work still remained and revealed that they were all emotionally stable. Finally, because of the Department of Health's (DOH) preventative measures and health procedures, they all elected to stay at home to ensure their safety and that of their families.

Problem 2: How would you describe your experiences as a Computer System Servicing teacher during the pandemic?

Teachers' response to the challenges of online delivery of lessons was the only theme revealed in the data analysis. Most of the participants in the narratives revealed that teaching Computer System Servicing through online distance learning was challenging. Many issues arose and were identified; however, participants responded positively and professionally to these challenges. CSS teachers had to adjust their teaching strategies and content due to several issues such as students' having no available computers to use for topics that required hands-on activities and difficulty for the teachers to demonstrate the core competencies during online discussions. As a result, participants used alternative methods to deliver the competencies to the students such as the use of videos, interactive tools, and virtual machines. Effective utilization of online tools and platforms is one of the demands of online learning. With that, teachers had to equip themselves with these tools and be able to apply these in the teaching and learning process. Participants revealed that they needed to re-learn various ICT skills in order to make instruction more engaging and effective. In addition, Most Essential Learning Competencies were the basis for the self-learning modules designed by the teachers of DepEd Marikina. These self-learning modules saved the educational system during the pandemic; however, not all the core competencies in CSS were able to be included in these modules.

Problem 3: How would you decide on suitable online platforms or applications for teaching the lessons with hands-on activities online?

Utilizing interactive online tools and platforms in teaching CSS courses online is the major theme that emerged from this research question based on the descriptions of the participants. The interactivity of tools and platforms gains students' interests and motivation. Since face-to-face instructions were forbidden during the pandemic, these were given a spotlight. Google Classroom and Marikina's e-learning were the identified platforms that helped the participants in monitoring students' progress in learning and were also used for real-time discussions. CSS subject is requiring the students to perform hands-on activities but due to lack of available resources, participants looked for an alternative method to deliver lessons that required actual performance of the skills. The use of virtual machines was effective for that problem because it was used as a substitute for actual hands-on.

Problem 4: How do you describe the strategies or your teaching practices in delivering the lessons that need hands-on activities?

A sense of dissatisfaction with teachers' teaching strategies and resources is the major theme that emerged from this research question based on the descriptions of the participants. Having available resources was one of the factors that CSS teachers were taking into consideration in delivering the core competencies of the CSS subject effectively. Shortage in teaching and learning resources was a big problem since most of the students didn't have computers at home. With that, participants found it difficult to perform hands-on activities in an online distance set-up as well.

Problem 5: What intervention programs can be done to address the challenges of teachers?

Based on the suggestions and demands of the participants, teaching CSS in the new normal requires innovative strategies, revision of self-learning modules, effective utilization of interactive online platforms and tools, use of virtual machines for lessons that requires hands-on activities, and availability of teaching and learning resources. The researcher crafted an Intervention Program Plan that addresses teachers' challenges in online distance learning, in response to the participants' concerns.

6. Conclusion

The following are the conclusions made based on the findings of the study conducted by the researchers.

1. Based on the participants' narratives, it was reflected that the pandemic has significant effects on teachers' well-being specifically in the physical, emotional, mental, and social aspects.
2. Participants' experiences in teaching online have been described as challenging in terms of teaching strategies, resources, content, and use of technology.
3. Based on the participants' narratives, interactive technologies are effective for lessons that call for practical applications of core competencies in CSS.
4. The lack of available resources and difficulty in demonstrating the core competencies during online classes were the reasons why teachers were not satisfied with the delivery of lessons through online distance learning.
5. In conclusion, based on the findings of this study, the participants suggest revisiting the CSS learning modules, teachers' training on the effective utilization of the available technologies, innovative teaching strategies and approaches in teaching CSS through online distance learning should be included in the intervention program, developed by the researchers, that addresses CSS teachers' challenges in teaching the subject online.

Recommendation

Based on the conclusions drawn from the study, the following recommendations are formulated:

1. Teachers in Computer System Servicing should continually work to assess and enhance the existing self-learning modules to improve knowledge transfer. Content and activities should be scrutinized.

2. Teachers may collaborate with their fellow educators in developing digitized learning modules and interactive or gamified PowerPoints to increase students' interest and desire to learn.
3. School administrators may consider providing teachers with extensive training on the use of interactive technologies, also allowing them to use or borrow the tools that are available in the classroom. CSS is a skilled subject, and the availability of devices and other resources is necessary.
4. "Skills Demonstration Festival" may also take into consideration to be included in annual school calendar activities. This activity will showcase the best teaching strategies used in teaching the subject through online distance instruction.

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References

- Abante, A.S., Cruz, R.P., Guevarra, D.F., & Lanada, M.I.B. (2021). Comparative analysis on the challenges of online learning modality and modular learning modality: a basis for training program. <https://ijmra.in/v4i4/Doc/17.pdf>
- Abuhasna, H. (2020, October 2). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction - International Journal of Educational Technology in Higher Education. SpringerOpen. <https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-020-00216-z#Sec3>
- Adipat, S. (2021). Why Web-Conferencing Matters: Rescuing Education in the Time of COVID-19 Pandemic Crisis. *Frontiers in Education*, 6. <https://doi.org/10.3389/educ.2021.752522>
- Alberto D. Yazon, Eden C. Callo (2021). Assessing Teacher's Knowledge, Self-efficacy, and Practices (KSP) in Adopting Flexible Learning during the Covid-19 Pandemic. *Universal Journal of Educational Research*, 9(1), 136 - 144. DOI: 10.13189/ujer.2021.090115.
- Allegretto, S., & Mishel, L. (2019). The teacher weekly wage penalty hit 21.4 percent in 2018, a record high: Trends in the teacher wage and compensation penalties through 2018. Economic Policy Institute. <https://www.epi.org/publication/teacher-pay-gap-2018/>
- Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and information technologies*, 25(6), 5261-5280.
- Aslam, Sana and Sonkar, Sharad Kumar, "Platforms and Tools used for Online Learning all over the World during Covid-19: A Study" (2021). *Library Philosophy and Practice* (e-journal). 6205. <https://digitalcommons.unl.edu/libphilprac/6205>
- Aydin, M. (2017). Uzaktan ogretici yeterliliklerinin ve yeterlilik boyutlarının belirlenmesi [Determination of distance instructors competencies and competency dimensions]. (Master's dissertation). Karadeniz Technical University Graduate School of Educational Sciences, Trabzon, Turkey. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 472008.
- B. (2021, July 20). Distance learning in the Philippines: A year of hits and misses. *RAPPLER*. <https://www.rappler.com/newsbreak/in-depth/distance-learning-philippines-assessment-2020-2021/>
- Basar, Z. M., Mansor, A. N., Jamaludin, K. R., & Alias, B. S. (2021). The Effectiveness and Challenges of Online Learning for Secondary School Students – A Case Study. *Asian Journal of University Education*, 17(3), 119. <https://doi.org/10.24191/ajue.v17i3.14514>
- Benefits of Physical Activity. (2022, June 16). Centers for Disease Control and Prevention. <https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm>
- Bose, M. (2022, August 18). A Complete Guide to Using VirtualBox on Your Computer. Official NAKIVO Blog. <https://www.nakivo.com/blog/use-virtualbox-quick-overview/>

- Bouslog, M. (2022b, September 28). Effective Teaching Strategies Used in Today's Classrooms. Graduate Programs for Educators. <https://www.graduateprogram.org/2019/08/teaching-strategies-used-in-todays-classroom/>
- Bradley, V. M. (2021). Learning Management System (LMS) use with online instruction. *International Journal of Technology in Education*, 4(1), 68-92.
- Cambridge Dictionary. (2022, November 30). challenge meaning: 1. (the situation of being faced with) something that needs great mental or physical effort in. . . . Learn more. <https://dictionary.cambridge.org/us/dictionary/english/challenge>
- Carrillo, C., & Flores, M.A., (2020). COVID-19 and teacher education: a literature review of online teaching and learning practices. <http://www.tandfonline.com/doi/pdf/10.1080/02619768.2020.1821184?needAccess=true>
- Castroverde, F., & Acala, M. (2021). Modular distance learning modality: Challenges of teachers in teaching amid the Covid-19 pandemic. *International Journal of Research Studies in Education*, 10(8), 7-15.
- Catane, G. (2020, December 9). Integration of Technology in the New Normal Learning Landscape. DepED, Division of Malaybalay City. <https://www.depedmalaybalay.net/articles/integration-of-technology-in-the-new-normal-learning-landscape.html>
- Checa, D., Miguel-Alonso, I., & Bustillo, A. (2021). Immersive virtual-reality computer-assembly serious game to enhance autonomous learning. *Virtual Reality*. <https://doi.org/10.1007/s10055-021-00607-1>
- Cipriano, C., Rappolt-Schlichtmann, G., & Brackett, M. A. (2020). Supporting school community wellness with social and emotional learning (SEL) during and after a pandemic. Edna Bennett Pierce Prevention Research Center, Pennsylvania State University. https://www.conexionternura.com/media/documents/Supporting_School_Community_Wellness.pdf
- Cresswell, J. W., & Plano, C. VL (2011). *Designing and conducting mixed method research*. Thousand Oaks, CA.
- DepEd Learning Delivery Modalities for School Year 2021–2022. (2020, May 27). https://www.teacherph.com/DepEd-Learning-Delivery-Modalities/#Traditional_Face-to-Face_Learning. https://www.teacherph.com/depEd-learning-delivery-modalities/#Traditional_Face-to-Face_Learning
- De Villa, J. A., & Manalo, F. K. B. (2020). Secondary teachers' preparation, challenges, and coping mechanism in the pre-implementation of distance learning in the new normal. *IOER International Multidisciplinary Research Journal*, 2(3), 144-154.
- Donalek, J. G. (2004). Demystifying nursing research: Phenomenology as a qualitative research method. *Urologic Nursing*, 24, 516–517
- Dung, D. T. H. (2020). The advantages and disadvantages of virtual learning. *IOSR Journal of Research & Method in Education*, 10(3), 45-48.
- Edebatu, D. C., Ekwonwune, E. N., & Ezeobi, C. (2019). Learning Management System for Improved Service Delivery in Tertiary Institution. *Int'l J. of Communications, Network and System Sciences*, 12(03), 37–48. <https://doi.org/10.4236/ijcns.2019.123004>
- Education and COVID-19. (2021, December 6). UNICEF DATA. <https://data.unicef.org/topic/education/covid-19/>
- Encarnacion, R. E., A. D., & Hallar, B. A. (2021). The impact and effectiveness of e-learning on teaching and learning. *International Journal of Computing Sciences Research*, 5(1), 383-397. doi: 10.25147/ijcsr.2017.001.1.47
- Experiential Learning | Center for Teaching & Learning. (n.d.). © 2022 Boston University. <https://www.bu.edu/ctl/guides/experiential-learning/>
- Gillett-Swan, J. (2017). The challenges of online learning: Supporting and engaging the isolated learner. *Journal of Learning Design*, 10(1), 20-30.
- Giorgi, A. (1997). The theory, practice, and evaluation of the phenomenological method as a qualitative research procedure. *Phenomenological Psychology*, 28(2), 235-260.
- Giorgi, A. (2005). The phenomenological movement and research in the human sciences. *Nursing Science Quarterly*, 18(1), 75-82.
- Hill, M., Sharma, M. D., & Johnston, H. (2015). How online learning modules can improve the representational fluency and conceptual understanding of university physics students. *European Journal of Physics*, 36(4). <https://doi.org/10.1088/0143-0807/36/4/045019>
- Holstermann, N., Grube, D. & Bögeholz, S. Hands-on Activities and Their Influence on Students' Interest. *Res Sci Educ* 40, 743–757 (2010). <https://doi.org/10.1007/s11165-009-9142-0>
- I. Borrelli, P. Benevene, C. Fiorilli, F. D'Amelio, G. Pozzi, Working conditions and mental health in teachers: a preliminary study, *Occupational Medicine*, Volume 64, Issue 7, October 2014, Pages 530–532, <https://doi.org/10.1093/occmed/kqu108>
- Isabirye, A. K., & Makoe, M. (2028). Phenomenological analysis of the lived experiences of academics who participated in the professional development programme at an Open Distance Learning (ODL) university in South Africa. *Indo-Pacific Journal of Phenomenology*, 18(1) pp. doi: 10.1080/20797222.2018.1450764
- Jeffrey Rafn, President, Northeast Wisconsin Technical College. (2020, August 4). Hands-On Learning During a Hands-Off Pandemic. *The EvoLLution*. <https://evollution.com/programming/applied-and-experiential-learning/hands-on-learning-during-a-hands-off-pandemic/>

- Journal of Instructional Pedagogies. (n.d.). COPE: Committee on Publication Ethics. <https://publicationethics.org/members/journal-instructional-pedagogies>
- Karis, D., Wildman, D., & Mané, A. (2016). Improving remote collaboration with video conferencing and video portals. *Human-Computer Interaction*, 31(1), 1-58.
- Keengwe, J., & Kidd, T. T. (2010). Towards best practices in online learning and teaching in higher education. *MERLOT Journal of Online Learning and Teaching*, 6(2), 533-541.
- Kolb, A. Y., & Kolb, D. A. (2009). Experiential learning theory: A dynamic, holistic approach to management learning, education and development. *The SAGE handbook of management learning, education and development*, 42, 68.
- Kundu, A., & Bej, T. (2021). COVID 19 response: An analysis of teachers' perception on pedagogical successes and challenges of digital teaching practice during new normal. *Education and information technologies*, 1-24.
- Laho, N. S. (2019b). Enhancing School-Home Communication through Learning Management System Adoption: Parent and Teacher Perceptions and Practices. *School Community Journal*, 29(1), 117-142. <http://files.eric.ed.gov/fulltext/EJ1219893.pdf>
- Laying the Policy Infrastructure for Education Reforms. (2015, September 24). <https://Nro13.Neda.Gov.Ph/Laying-the-Policy-Infrastructure-for-Education-Reforms/>. <https://nro13.neda.gov.ph/laying-the-policy-infrastructure-for-education-reforms/>
- McLeod, S. (2017). Kolb's learning styles and experiential learning cycle. *Simply psychology*, 5.
- Morrison, S. (2021, October). Secondary Principal Leadership and the Impact on Engaging Hands-on Learning Strategies. *SFA ScholarWorks*. <https://scholarworks.sfasu.edu/slr/vol16/iss1/1/>
- Navarosa, D. B. (2021, December 16). Education in the New Normal: A Closer Look at the Philippines' Learning Solutions Amidst the Pandemic. *Medium*. <https://medium.com/underscore-online/education-in-the-new-normal-a-closer-look-at-philippines-learning-solutions-amidst-the-pandemic-ba0adc339d8f>
- Ogunyemi, A., & Johnston, K. (2010). The use of virtual machines to support hands-on learning experiences in undergraduate systems-oriented courses. In *Proceedings of the 4th International Conference on Dynamic Informatics*.
- Ozamiz-Etxebarria, N., Berasategi Santxo, N., Idoiaga Mondragon, N., and Dosil Santamaría, M. (2021b). The psychological state of teachers during the COVID-19 crisis: the challenge of returning to face-to-face teaching. *Front. Psychol.* 11:620718. doi: 10.3389/fpsyg.2020.620718
- Orlando, J., & Attard, C. (2015). Digital natives come of age: The reality of today's early career teachers using mobile devices to teach mathematics. *Mathematics Education Research Journal*, 28, 107-121. doi:10.1007/s13394-015-0159-6
- Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage publications.
- Paul, J. (2019). A Comparative Analysis of Student Performance in an Online vs. Face-to-Face Environmental Science Course From 2009 to 2016. *Frontiers*. <https://www.frontiersin.org/articles/10.3389/fcomp.2019.00007/full>
- Republic Act No. 10647 | GOVPH. (2014, November 21). *Official Gazette of the Republic of the Philippines*. <https://www.officialgazette.gov.ph/2014/11/21/republic-act-no-10647/>
- Roe, J. E. A. M. (n.d.-c). *Experiential Learning Theory – Theoretical Models for Teaching and Research*. *Experiential Learning Theory*. <https://opentext.wsu.edu/theoreticalmodelsforteachingandresearch/chapter/experiential-learning-theory/>
- Rolland B., Haesebaert F., Zante E., Benyamina A., Haesebaert J., Franck N. Global changes and factors of increase in caloric/salty food intake, screen use, and substance use during the early COVID-19 containment phase in the general population in France: Survey study. *JMIR Public Health Surveill.* 2020;6:e19630. doi: 10.2196/19630.
- Sadeghi, M. (2019). A Shift from Classroom to Distance Learning: Advantages and Limitations. *International Journal of Research in English Education*.
- Sanghera, J. (2016). Cisco ITE DS. *www.academia.edu*. https://www.academia.edu/28481195/Cisco_ITE_DS
- Social constructivism in education. (2020, May 9). *The advocate*. <https://www.theadvocate.org/social-constructivism-in-education/>
- Statista. (2021, September 10). View on the effectiveness of online learning over in-person schooling Philippines 2021. <https://www.statista.com/statistics/1262427/philippines-view-on-effectiveness-of-distance-learning-compared-to-face-to-face-schooling/>
- Sutarto, S., Sari, D. P., & Fathurrochman, I. (2020). Teacher strategies in online learning to increase students' interest in learning during COVID-19 pandemic. *Jurnal Konseling dan Pendidikan*, 8(3), 129-137.
- Taylor-Nelms, L., & Hill, V. (2014). Assessing 3D Virtual World Disaster Training Through Adult Learning Theory. *International Journal of Serious Games*, 1(4). <https://doi.org/10.17083/ijsg.v1i4.40>
- Team, I. (n.d.). Improve Collaboration with Video Conference Tools | IR. <https://www.ir.com/guides/video-conference-tools>

The ultimate list of effective online teaching methods. (2021, November 22). Education Technology for Digital Assessments, Exams, Admissions and Trends. <https://blog.epravesh.com/effective-online-teaching-methods/>

TOP: All courses. (n.d.-b). <https://e-tesda.gov.ph/course/index.php?categoryid=16>

Toro, V. R. a. J. T. M. (2018, January 1). Learning Management Systems. Pressbooks. <https://pressbooks.pub/edd7032017f2/chapter/2/>

VirtualBox Meaning, Working, Installation, Uses. (2022b, August 12). Spiceworks. <https://www.spiceworks.com/tech/cloud/articles/what-is-virtualbox/>

Western Governors University. (2020, June 8). Experiential Learning Theory. <https://www.wgu.edu/blog/experiential-learning-theory2006.html>

What Are Online Learning Tools? - Definition, Types & Examples. (2021, February 6). Retrieved from <https://study.com/academy/lesson/what-are-online-learning-tools-definition-types-examples.html>.

What is a Virtual Machine? | VMware Glossary. (2022b, August 4). VMware. <https://www.vmware.com/topics/glossary/content/virtual-machine.html>

WHO. WHO Director-General's opening remarks at the mission briefing on COVID-19. [Online]. Available from: <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-mission-briefing-on-covid-19> [Accessed on 1st June 2020]. <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-11-march-2020> (2020).

Xie, Z.. (2023, January 25). Data Center Based on Cloud Computing Technology. Ijiiis International Journal of Informatics and Information Systems, 6(1), 31-37. <https://doi.org/10.47738/ijiiis.v6i1.128>