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Technology Utilization in Learning: A Phenomenological Study of the Pre-Service Teachers in Northern Philippines

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Abstract: This qualitative research delved into the experiences of the pre-service teachers in using technology in their studies. The phenomenological approach, with interview as the primary data gathering method, was used to elicit their experiences on technology utilization while studying in a higher education institution in the Northern Philippines. The technological devices mostly used by the students are smartphones and laptops. They also avail themselves of the mobile tablets and computer units offered by the University to students. Additionally, the most common digital resources accessed by the students are Google and YouTube among other platforms such as social media. They find these resources convenient and useful in their studies because they are able to access updated information, watch educational videos and actively engage. However, poor internet connection and power interruptions are commonly experienced by the participants, and these affect their use of technology. Financial limitation was also mentioned by the participants as a restricting factor. The University offers free internet access to students, but they still need to spend for their loads in order to access digital resources at home. Despite these challenges, the students are maximizing the use of technology with whatever available resources they have.

Keywords: technology use; students' experiences; pre-service teachers

INTRODUCTION

Technology lies at the heart of globalization encompassing all areas of society such as work, culture, and education (Graddol, 2012). With the twenty-first century as the age of globalization and information technology, recent developments in social media and information technology are taking education in new directions. Technology enables authentic learning and an interactive environment with rich sources of authentic materials, attractive and a friendly interface, vivid pictures, and pleasant sound consequently arousing students' interest in learning (Zhang, 2006).

Integration of technology in education is the current trend. It is the use of technology to improve the educational environment. The impact of technology has become phenomenal in the context of teaching and learning, apart from the role of the teacher. As Sharma (2009) posited, the role of the teacher amalgamated with the role of technology can lead to advanced learning results (Sharma, 2009). It supports classroom teaching through creating opportunities for learners to complete assignments on the computer rather than the normal use of pencil and paper. For learners to maximize technology as a significant part of their learning process, teachers should model the use of technology to support the curriculum (Dockstader, 2008).

Moreover, technology provides students with essential learning tools that facilitate cooperative learning; offers exciting alternatives for developing language skills through experimentation (Ahmadi, 2018); and aids students in learning the operating rules of formal and informal languages (Douglas, 2009). Internet based learning promotes students' autonomy and increases their motivation making the learning experience more student-centered (Ahmadi, 2018). Many schools now encourage students to use online resources to enhance learning and provide online portals that enable students to submit their assignments, check grades, and collaborate with peers (Strain-Moritz, 2016).

Evidently, technology is reshaping the world and the important role that information technology plays in education cannot be overemphasized. Many researchers have proven the benefits of technology in education. It provides teaching resources and brings learning experience to the learners' world (Larsen-Freeman & Anderson, 2011, p.199). The most obvious advantage of using the technological medium for instruction is the ease and timeliness of access. It is helpful for both teachers and students. Furthermore, the use of such technologies within the educational mediums has also facilitated fast and more integrated interactive learning. The use of technology is necessary because technological advancements have led to breaking barriers, and new domains have been explored within this global and informational age.

With the increasing need for technology integration in education to meet the demands of technological advancements, continuing research is also necessary to evaluate how the education sector is coping up with these advancements. Many researchers have looked into the impacts of technology on the learning outcomes of learners, but limited studies delved into the actual experiences of the learners on the use of technology for their learning. Such studies are important to better understand how the students are coping with technological advancement given their diversity. This study, hence, looked into their actual experiences on their technology use for learning specifically their current practices and challenges. The study involved the pre-service teachers who are enrolled in the teacher educations programs in a state university in Northern Luzon, Philippines. The pre-service teachers were chosen as participants because of their vital roles as future educators, who are expected to possess the knowledge and skills necessary to be an effective teacher in an ever-changing world.

METHOD

Research Design

This qualitative study used the phenomenological approach with interview as the primary method of data gathering. Phenomenology was used to be able to investigate the phenomenon associated with the participants' experiences on the use of technology. As defined by Creswell (2009), "Phenomenology is a research strategy of inquiry in which the researcher identifies the essence of human experiences about a phenomenon as described by participants" (p. 13). It seeks meanings from appearances and arrives at essences through intuition and reflection on conscious acts of experience, leading to ideas, concepts judgments, and understandings (Moustakas (1994, p. 58). The participants in the study were asked open-ended interview questions, such that their specific experiences can be identified for as Moustakas (1994) posited, "The empirical phenomenological approach involves a return to experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience" (p. 13).

Locale and Participants of the Study

The study was conducted in one campus of a state university in Northern Philippines with the pre-service teachers as the participants. It was chosen as a local of the study because digital education is also a

learning mode in higher education and teachers are expected to use various technological devices and tools in teaching (Tahmina, 2023).

The pre-service teachers were chosen as participants because of their significant roles as future educators. They are expected to possess the skills of a 21st century educator which include technological skills.

Data Analysis

The data gathered were analyzed through thematic analysis. Thematic analysis is a qualitative research method that researchers use to systematically organize and analyze complex data sets. It is a constant-comparative method that involves reading and rereading the transcripts in a systematic way (Cavendish, 2011, King, 2004; Rice & Ezzy, 1999). It was used because the researcher believes that a rigorous thematic analysis approach can produce insightful and trustworthy findings (Nowell, Norris, White & Moules, 2017).

RESULTS AND DISCUSSION

Experiences on the Use of Technological Devices and Resources

Affirmative Experiences

A. Technology Makes Learning Convenient

The findings show that the pre-service students are actively using technology in their studies. They make use of whatever device available to them. Smartphone is the most common device used by the participants. One of the participants shared, "It was because of the pandemic that my parents had to buy me a smartphone, need kasi talaga sa online learning (…it is a need in online learning). Now I use it to browse the internet, for English, I search for the definitions of terms and examples when we have activities." The participants recognized that the phone is very helpful to them because they use it in accessing online resources. It can operate like a computer and can be brought anywhere; hence, the use of smartphones as a tool in teaching and learning has become common especially in distance education (Darko-Adjei, 2019). Truly, it is a very useful tool in academics (Akaglo & Nimako-Kodu, 2019; Ifeanyi & Chukwuere, 2018; Tuncay, 2016). It should, however, be noted that the use of smartphones among students may have collateral damages on the physical, psychological, social and the educational well-being of students (Kang & Jung, 2014); hence the need to regulate their use.

Other students have their own laptops while others make use of the mobile tablets and computer units at the University or at internet cafes. However, not everyone personally owns the laptop he/she is using, as one participant mentioned, "It is not my laptop, I borrowed it from my cousin who is also studying here because we need it for our research."

When asked to explain why they use these devices as learning tools, the participants explained that it is because these are available, convenient, and very useful to them. They shared that they use the cellphones for taking videos, photos and in downloading related information that they need in their school requirements. "When we are required to make video presentation like in our literature subject, we use my cellphone because we don't have a video recorder," explained one student. The utilization of these gadgets is important for learning to be comfortable, effective, and efficient consequently improving students' learning outcomes (Haryanto, 2018).

For the electronic resources, most of the pre-service teachers mentioned the internet specifically Google as the main digital resource, which they consult when they need to learn more about a topic not only in English but also in other subjects. This is not surprising for the internet is the primary

source of information (Horrigan, 2006) with Google as a reliant source that students use to perform research ahead of time and tackle multiple homework. It widens the scope of reading and learning, promotes self-learning, encourages, and enhances peer learning as well as ameliorates student's examination preparation (Heliyon, 2018).

YouTube is another common digital resource used by the participants. They use it not just to watch movies but also to watch educational videos. "I am a fan of Ted Talks and other educational videos, like tutorials on correct English pronunciations of some words," a participant shared. Another participant recognized that watching English related videos increased his vocabulary, "This is why I prefer to watch English movies, coz I learn new words." It was previously posited by Nasution (2019) that YouTube is not just a source of entertainment but also a tool for learning. Many studies proved its effectiveness as a learning tool. For language learners, Balbay and Kilis (2017) found out that YouTube videos are beneficial to them. It develops their comprehension skills (Medoukali, 2015) and generally promotes learning (Putri et al., 2020) because of the authentic materials that assist students in learning a language like English (Brinton, 2001).

Moreover, social media was also mentioned by the participants as one of their online resources. "Facebook and messenger are useful to us especially for updates" said one student. Another student added that in their literature subjects, they are sometimes required to upload their video outputs in their Facebook accounts and to post academic posts. Its popularity as a source of information is supported by Kim (2014) and Westerman (2013). It is a cheap and convenient tool for obtaining needed information (Ansari, 2020). When used for collaborative learning, social media has a significant impact on interactivity with peers, teachers and online knowledge sharing behavior (Ansari & Khan, 2020). Interactivity with teachers, peers, and online knowledge sharing behavior significantly impacts student's academic performance (Greenhow, 2011). Evidently, various social media platforms created a digital environment for learning. Through it, people can interact easily and conveniently, and social networking is now a global phenomenon that shifted education (Muftah, 2022) especially during the pandemic.

Undoubtedly, these online learning media when used for collaborative learning have significant contribution to students' academic performance and satisfaction (Zhu, 2012). These technological tools are very useful because they possess the major applications needed and for their ease of use and portability to users (Cahyadi, 2014).

Taking the huge scale of the internet into account, the creation of mechanisms designed for effective navigation of the internet, and the collection, analysis, exchange, and distribution of information for the specific use of education acquires great importance (UNESCO, 2002, p. 25). Various internet technologies are used for the solution of various educational tasks, and in the teaching, learning and management of the educational process. Such characteristic offers new opportunities to create very interesting course materials while representing a substantial challenge for the educator for its requirement to rethink the course content in the light of new technologies. Truly, with the increased popularity of the internet, computer technologies are receiving more and more attention as a means of delivering distance learning.

B. Technology Makes Learning Engaging

The participants acknowledged that technology makes learning more interactive and engaging with the use of various multimedia resources. They find technology as very significant in their edu-

cation not only in English but in all their subjects. “It makes learning easier, like when I don’t know the meaning and pronunciation, I can just google it,” a pre-service teacher shared.

Students learn in different ways and technology gives them more flexible learning experiences. Also, technology motivates students to learn as proven by Brown (2019), they look forward to having time on their devices to explore and learn things through websites, videos, apps, and games. Students can learn and have fun at the same time, which helps them stay engaged with the material.

Some of the students also mentioned that they use YouTube video tutorials to better understand a concept or add to what they have learned in the classroom. “I really want to become fluent in English so I watch videos on pronunciation and speaking, “ stated one of the participants. Within massive e-learning courses, video lecture viewing is the primary activity among learners (Sinha, Jermann, Li, & Dillenbourg, 2014). Various forms of visual media designed to enhance student attention and engagement with video lectures include illustrations, images, graphs, maps, animations, videos, slides, and text (Kizilcec, Bailenson, & Gomez, 2015; Mayer, 2014; Schmidt- Weigand & Scheiter, 2011). Efficient delivery of visual media allows students to reason and make inferences by visualizing how certain processes occur (Rasch & Schnotz, 2009). Video lectures provide various learner/system interactional features designed to supplement content delivered through various forms of both auditory and visual media (Alraimi, Zo, & Ciganek, 2015; Breslow et al., 2013). The way in which media is used is possibly the most salient aspect of video lectures because through it, most forms of instruction and learner interaction are possible, and e-learning cannot exist without it. It contributes to the way lectures are perceived by the students, and ultimately influences how they cognitively process information delivered to them (Mayer, 2014).

As proven by various studies, audio visual materials are indeed helpful to both teachers and students; however, caution must still be observed because of potential issues on content and delivery. Problems with information transfer can occur if media are delivered in ways that limit learners’ concentration, attention, interest, and engagement (Curry, Bernard, & Kolek, n.d.; Koumi, 2013), and overload working memory (Cierniak, Scheiter, & Gerjets, 2009; Mayer, 2014; Rasch & Schnotz, 2009).

Other students engage in online activities or games, which provide immediate feedback, so they know if they’re on the right track. Examples of these are word games and students who understand the material right away can find more difficult problems or activities to supplement their knowledge, while those who need more practice can use a different activity that provides more repetition. Indeed, technology integration offers variety to students in a way that a typical classroom lecture cannot.

They also shared that when it comes to updated information, they access online resources. A student described his experience in using online resources as helpful, more relevant and timelier. These resources help students access vast information, evidence, facts, reports, news, research studies, theses, and other reliable resources. It provides probable, supplementary, and clearer description, details, explanations, discussions, rationalizations, examples and illustrations, and justifications on a given topic.

While using gadgets for online classes is useful and effective, it also has some disadvantages. As proven by Legg (2020), social media and mobile devices may lead to psychological and physical issues and they may also contribute to more serious health conditions. As mentioned by one participant, long exposure to gadgets caused him headaches and eye pains which may be due to radiation

(Mukherji, 2018). This implies that the teaching and learning modes should be varied as no single approach is enough. While technology should be maximized in teaching and learning, it should also be balanced with other modes of learning such as printed materials and classroom-based interactions.

Challenges Experienced by the Pre-Service Teachers in Using Technology for Learning

A. Poor Internet Connection and Power Interruptions

The student participants shared that while they are enjoying the advantages of technology, there are circumstances that are out of their control, which affect their learning. Among these are poor internet connection and power interruptions. As one participant stated, "*Ang hina ng* internet connection *natin dito kaya minsan hindi naka* submit on time (Internet connection here is very weak that's why sometimes I do not submit my requirement on time)." Another participant mentioned power interruptions as a problem, "*Minsan sa klase taz biglang* brown out, *wala na*, activity *na* lang kasi di *maka* PowerPoint *si* teacher (Sometimes in class and it's suddenly brown out, we resort to activities because the teacher cannot project her PowerPoint lessons." These problems are common in the province and for students who are heavily dependent on technology and for classes needing technology, lack of internet can negatively affect their performance (Lynch, 2017). In distance education, students without internet cannot connect with teachers and classmates nor do independent research. These problems can have a major setback on students learning.

B. Financial Constraints

The participants acknowledged that adapting to trends such as using technology in their studies entails finance. The Participant 34 explained, "Since the use of the internet is necessary, we also need money for load." A number of participants mentioned no load and no data as problems encountered in accessing online resources, as one of them elaborated, "Sometimes, we spend so much on load, *eh kulang* allowance *namin* (…our allowance is not enough), especially when we use applications and watch YouTube videos in order to learn more about a topic." Technology has been widely used platform to aid the students continue their education and to access websites and different platforms of technology; however, it cannot be denied that not all students are financially capable of sustaining their internet use, especially for paid applications and resources. While the University provides free internet connection to students, they still have to access the internet outside school.

Another related problem is the need for updated gadgets or devices like a laptop, which some of the participants cannot afford. "I really need a laptop, but my parents cannot afford, *buti na* lang may laptop *ang* friend *ko kaso mahirap iyong walang magamit* (…it's good that my friend have a laptop but it's difficult when you don't have anything to use)," a participant expressed.

Utilizing different types of technology in the classroom, including virtual classroom, creates pathways for differentiated instruction to meet the unique needs of students as individual learners within a broader environment; however, it can be an additional burden to some students who are not financially capable to secure the needed devices or gadgets.

CONCLUSION

The pre-service teachers, like all students, recognize the importance and benefits of technology to their education. Despite the limitations, they are still maximizing the use of technology with whatever resources

available to them. The University also offers computer units, free internet and mobile tablets for students to use in their studies.

The findings also prove that no approach or mode of teaching and learning is encompassing and final and while technology should be maximized, the need for balance and flexibility is also vital. Not all students have the means for sustaining the use of technology, and while the University offers free internet and devices for students, there are still factors that are beyond the control of the University, the teacher, and the student. Also, future researchers may consider looking into the teachers' practices relevant to technology integration in their teaching.

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