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Information Technology (IT) Utilization: Exploring the Faculty's Competence as a Basis for the Distance Education Framework

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Abstract: Information technology competency is one of the fundamental skills that a professional teacher should have. These skills are developed as a result of our educational community's changing needs, the diversity of student groups, and the fast growth of industry. The aim of this report is to assess the faculty's competence in IT utilization. In order to achieve the goal of the study, the descriptive approach was employed. The data revealed that respondents manifested very high competence in information technology utilization.

Keywords: *information technology (IT) utilization, competence, distance education framework*

Introduction

Because it is essential to the development, growth, and well-being of society, a university education is extremely important. Universities are academic institutions tasked with educating students in a wide range of subjects, developing human capital and equipping them with the necessary skills to enhance the job market. They become ready to assume leadership roles in various community centers and jobs as a result. As a result, instructors need to be equipped with the knowledge, abilities, and information needed to meet current demands and actively contribute to achieving the goals of the learning process. An essential quality of a successful tertiary educator is the capacity to carry out their assigned tasks. Engaging with the students to achieve the course objectives is part of the professor's conduct at this phase. This includes the use of information and communication technology (ICT) in the classroom as well as instructional strategies. It is crucial to remember that good instruction is a result of both the teacher's honesty and integrity as well as their approach (Knight, 2010).

According to Habibu, et al. (2012), Information Technology is promising towards improving learners achievement and teacher capacity. Technology can still take a supporting role for in-person teaching and learning during classroom discussion as what Wong, et al. (2006) cited Habibu et al. (2012) point out. Habibu, et al. (2012) add that the use of technology, particularly the use of laptops can aid learners to become informed, lessen the volume of straightforward teaching given to them, and give faculty an opportunity to help these learners with specific inadequacies. It can aid faculty to develop their teaching practice and prepare them with the necessary knowledge, skills, information and abilities to use different computer technologies to access, analyze, process, and spread knowledge to students.

Another important role of technology as what Dayagbil, et al. (2021) assert is that in times of crisis, technology provides innovation and resilient solutions and help anyone to interconnect and even work remotely without the urgency for in person collaboration with peers. That is why many policy changes take place in associations and schools as they embrace new technology for collaborating and working. Indeed, technology is an important part of education. It links students to their teachers amid lockdown and community quarantine. CPUs, PCs, smart gadgets, ipads- these technologies have become essentials under the new normal. These are not merely for fun and leisure anymore. These are now being used by our education sector especially in the distance education.

Through time, the field of distance education has evolved from a basic correspondence curriculum to a highly advanced, dispersed, interactive learning environment. The extent of synchronous and asynchronous connection among people is incomprehensible in the days of mail courses, which were the preferred alternative for traditional education. However, modern interactive telecommunications technologies, such computer conferencing, enable the same. Through online communities, project collaboration, information sharing, and knowledge construction, a new generation of educators, scientists, scholars, researchers, and practitioners are emerging. There is a growing need to re-evaluate the conceptual underpinnings of distance education as the discipline develops. It is necessary to reconsider the theoretical underpinnings and presumptions of

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distance education since it has not kept up with advancements in educational technology (Garrison, 2000).

It is in this light that the researcher was motivated to explore the competence of the faculty on information technology (IT) utilization, which could serve as the baseline for the proposal of distance education.

Related Literature and Studies

Teachers' Competence in Information Technology Utilization

In this time of pandemic which resulted to a sudden shift in the education framework, online training of ICT-related knowledge and skills has stopped to be a choice in the teaching approach. Rather, it has become an imperative in order to pursue the learning process despite a global epidemic. Using technology in the school setting and much more for blended (hybrid) and fully online learning requires training of faculty/teachers to enhance their know-how and practical skills to understand, apply and use the tools of technology in teaching and educational management. Hence, the need to continuously train teachers in the utilization of various technology tools in order to adjust the different components of the curriculum to the new set up due to a pandemic is a test to teachers and school managers (Espino-Diaz, et.al., 2020).

The teacher's task towards the effective utilization of IT /ICT facilities in the teaching-learning continuum is essential even if the global health crises ended. That is why, as what Espino-Diaz, et al. (2020) assert, teachers need to undergo professional development seminars that will help them to assimilate the pedagogical uses of ICT to enhance new learning ways. Fort (2017) gives eight Computer Skills for every teacher to master, namely:

a. Word Processing Skills. Teachers should be competent in checking, spelling, creating tables, and even inserting hyperlinks into word documents. They must be able to excellently create long but well-formatted files.

b. Spreadsheet Skills. Skills in spreadsheets application will help teacher conduct their duties in a easier yet highly procedural way like registering grades for learners.

c. Database Management Skills. This includes creating database tables, storing and retrieving data from those tables.

d. Electronic Presentation Skills. This is a skill of creating electronic presentations for the classes teachers handle.

e. Internet Navigation Skills. Teachers must be skillful in navigating the net for the correct information or teaching aids they need.

f. E-mail Management Skills. E-mail is at present the most chosen method of written message for majority of people. A teacher will have to be proficient in utilizing electronic messaging and the different applications to use. This includes multiple e-mailing, link attachments, and even the use of electronic mail add-ons.

g. Networking Skills.Teachers who wish to remain relevant in their given fields must find the time to fully grasp the basic of computer networking.

h. Touch Typing. This particular skill lets teachers significantly improve typing speed as well as accuracy. This is brought about by simply relying on motor reflexes as opposed to sight while typing.

On Issues and Challenges in Implementing ICT in Education

A literature review on the issues and challenges in implementing ICT in Education revealed that, indeed incorporating Information and Communication Technology into the teaching-learning continuum is a multifaceted development and one that may confront a number of problems.

Ghavifehr, et al. (2021) conducted a study to investigate the educators' perspective on the problems faced in using ICT gears in the class. A numerical research approach through survey sheets was employed to gather the data randomly from a sample of 100 high school educators in the Malaysian state. The studies showed that the crucial concerns and problems found to be significant in using ICT gears by educators were: inadequate availability and network connectivity, inadequate technical aid, inadequate appropriate training, inadequate time and deficiency of educator's competency. Further, findings from the independent t-test revealed use of ICT gears in the class by male educators is higher compared to female teachers. The findings of this study confirmed or corroborated previous researches on challenges to ICT in education that are mentioned in the literature such as the study of Becta (2004), Sicilia (2005), Toprakci (2006), Newhouse (2002) and Balanskat, et al (2006).

The study of Dayagbil, et al. (2021) examined the challenges and issues in teaching and learning continuity of a state university in the Philippines in which said institutions were formerly dubbed as one of the highest number of COVID positive cases in the country. The study utilized the probing combination-method with triangulation approach,

treated and examined the retrieved information from 3,989 respondents comprising of students and teachers. The findings of the study revealed that during quarantine periods, the educators had to make changes in their teaching approaches following the guidelines set by their respective schools. With this, majority of the learners experienced struggles accomplishing the learning tasks and requirements because of the inadequate access to no accessibility at all to wifi connectivity.

There were the major themes recognized from the subjective answers and these are the course for versatile learning deliverables, the task of IT, the teaching and learning atmosphere, and prioritizing the safety as well as security of everyone-especially the students. The study concluded that in order to ascertain continuity of the teaching-learning cycle, colleges and universities need to transfer to versatile teaching-learning modalities, readjust the program syllabus, equip the faculty, elevate the IT equipment, initiate a strategy and assess all areas of that strategy.

Almaiah, et al. (2020) conducted a study to examine the serious problems that confronted the present virtual learning management systems and study the foremost aspects that help in the smooth utilization of virtual learning management system during a global health crisis. The research utilized the qualitative interview methodology using thematic approach to analysis with the aid of Nvivo program software. The interview conference was implemented to 30 students and 31 experts in online teaching and learning stems at six higher education institutions from Jordan and Saudi Arabia. The research data results revealed two major themes, namely, features affecting online education system, and problems that the online education faces during a global health crisis.

Findings of the study revealed that the crucial features that impacted the utilization of online education system were: (1) IT features, (2) online education system quality features, (3) societal features, (4) self-efficacy features and (5) faith features. Moreover, the findings revealed that there are three major areas of concern that impede the operation of online education system, namely, (1) shift organization problems, (2) online education system mechanical problems and (3) monetary assistance problems.

Habibu, et al. (2012) implemented research to find out the problems encountered by educators in utilizing ICT in class situations among technical and higher institutions in Uganda. Fifty-five percent of a sample from 150 educators and 57% of a portion of school managers joined the study. The results of the research reported that educators had a strong wish to incorporate IT into the learning cycle even if experiencing difficulties. The problem of complications confronted to educators were catalogued into 3 stages: 1) upper level, 2) intermediate level and 3) lower level. In the upper-level of applications, deficiency of adequate seminars, shortage of educational tools and CPU problem were recognized. The middle level problems were educators' hesitancy to utilize new equipment, lack of interest, lack of money, interruption in managing documents, lack of capable staffs and time restriction. The study results recognized lack of self-reliance, lack of information, program material and administrative influence were the lower-level problems.

Distance Education Framework

Scholars studying "distance education" soon realized that "distance" is not what defines their profession, according to Vrasidas & Glass (2002). Researchers in remote education who tried to save the idea of "distance" by using something like "transactional distance" ended up with a few dull experiments that exemplified the worst aspects of Meehl's (1978) "soft psychology." The hilarious lack of focus on how technology affects students, teachers, content, interaction, cooperation, and knowledge building in distant education research is due to the meaninglessness of "distance" in the context of studying technologically mediated teaching.

A number of research problems that have been significantly underemphasized come to light when we place technology at the center of our attention. A move like this shouldn't imply that technology is more significant than the student and the educational process; rather, it should show how studying technology affordances and how they affect the way students interact with teachers and content will help us better understand how technology-mediated interactions affect social presence, structure, learner control, and feedback. To explore how the combination of technology, subject matter, instructional strategies, and other contextual factors creates the right conditions to support knowledge construction and learning when teachers and learners are apart, technology should not be studied in an empty space or as a "mere vehicle" (Clark, 1983, 1994). Instead, it should be studied within the framework and structure of a program (Jonassen et al., 1994; Kozma, 1991, 1994).

Research Objective

Determine the competence for information technology (IT) utilization among faculty in Teacher Education Institutions.

Methodology

The study employed a descriptive-quantitative research design utilizing a questionnaire to determine the status of information technology utilization among the faculty in teacher education institutions (TEIs). This study was conducted in Zamboanga City, located at the southernmost tip of the Zamboanga Peninsula in Mindanao, Philippines. In this study, two (2) public and two (2) private teacher education institutions randomly selected served as the venues. The names of these institutions were deliberately not mentioned for ethical considerations.

The respondents of the study were tertiary faculty members of the four teacher education institutions who were selected using total enumeration sampling. In order to meet the research objective, a researcher-made instrument that was validated by three experts and underwent pilot testing was utilized.

Results and Discussions

As shown in Table 1, the mean scores of the TEI faculty in the use of computer programs revealed that they are Very Highly Competent in the use of Microsoft Word (M=4.43), Microsoft PowerPoint (M=4.34) and Microsoft Excel (M=4.20). They also consider themselves Highly Competent in Multimedia (M=3.79), Graphical Application (M=3.72, Desktop Publishing (M=3.49) and in Drill/Practice Program Tutorials (M=3.46).

In Computer Operations, the TEI faculty regard themselves as Very Highly Competent in finding information on the Internet as shown by the highest mean score of 4.54 and in logging into the Network (M=4.31). They consider themselves as Highly Competent in the utilization of the software (M=4.10), Technical specification of the Computer (M=3.59), and Desktop Publishing program for lecture (M=3.56).

In the preparation of learning materials for offline or face-to-face learning, the TEI faculty rated themselves Very Highly Competent in preparing Printed E-learning materials, digital modules (e-modules saved in storage device, and activity sheets and study guide. The mean score of 4.23 bears this out.

In utilizing Online Learning Platforms, the TEI faculty are Very Highly Competent in using Google classroom (M=4.38), Highly Competent in using Zoom (M=4.18) and Microsoft Teams (M=3.51) and only Moderately Competent in the use of Moodle (M=2.72) and Edmodo (M-2.61).

For the three Flexible Learning Modalities, the data in Table 5 show that the TEI faculty are Very Highly Competent in using Desktop Computer/Personal Computer, Laptop, Mobile Phone, LCD Projector, Video Camera and storage devices(USB, Hard disk, and CD Rom)and television as borne out by the mean scores.

In assessing/evaluating students' performance in Offline or Face-to-Face Learning and Blended Learning through performance based assessment, the findings revealed that the TEI faculty are Very Highly Competent in assessing and evaluating Portfolio, Video recorded student reports, automated exams with pool/bank of questions and Project or Task-based assessment using rubrics . In assessing /evaluating Research Paper, the TEI faculty are Highly Competent.

In the case of Online Learning using performance-based assessment, the TEI faculty rated themselves Very Highly Competent in assessing /evaluating Portfolio, Automated exams with pool/bank of questions, video recorded student reports and research paper. They consider themselves Highly Competent in assessing and evaluating Project-based or Task-based assessments using rubrics.

In general, it can be said that in terms of faculty competence in IT utilization, the TEI faculty have Very High Competence as supported by the Grand Mean of 4.24. These findings on faculty competence in TEIs in Zamboanga City negate or debunk what Dela Fuente & Binas (2020) found out that the teachers' ICT competence in different skill set is just intermediate. Perhaps this was true 20 years ago or 10 years ago but in this Digital age and in this time of pandemic ICT or IT is considered a necessity and teachers are observed to be very enthusiastic about digital technology. This could be why the present study found the TEI faculty to be very highly competent in utilizing IT in all the Flexible Learning Modalities.

Table 1. Competence Of TEIs Faculty For Information Technology (IT) Utilization

ITEMS	Weighted Mean	Description
1. How competent are you in the use of the following computer programs?		
a. Microsoft Word	4.43	VHC
b. Microsoft Excel	4.20	VHC
c. Microsoft PowerPoint	4.34	VHC
d. Graphical Applications	3.72	HC
e. Desktop Publishing	3.49	HC
f. Multimedia	3.79	HC
g. Drill/Practice Program Tutorials	3.46	HC
2. Which of the following computer operations are you competent in?		
a. Finding information on the Internet	4.54	VHC
b. Utilization of the Software	4.10	HC
c. Logging into the Network	4.31	VHC
d. Technical specification of the computer	3.59	HC
e. Desktop publishing program for lecture	3.56	HC

Legend:

1.00-1.79 – Not Competent (NC) 2.60-3.39 – Moderately Competent(MC)

1.80-2.59 – Somewhat Competent(SC 3.40 – 4.19 – Highly Competent(HC)

4.20 – 5.00 –Very Highly Competent(VHC)

3. How competent are you in the preparation of the following learning materials for offline or face-to-face learning?		
a. Printed E-learning materials (for students)	4.23	VHC
b. Digital modules (e-modules saved in storage device)	4.23	VHC
c. Activity sheets and study guide	4.23	VHC
4. How competent are you in utilizing the following Online Learning platforms?		
a. Google Classroom	4.38	VHC
b. Zoom	4.18	HC
c. Moodle	2.72	MC
d. Edmodo	2.61	MC
e. Microsoft Teams	3.51	HC
5. How competent are you in the use of the following technology for Offline Learning or Face-to-face Learning?		
a. Desktop Computer/Personal Computer	4.30	VHC
b. Laptop	4.59	VHC

c. Mobile Phone	4.56	VHC
d. LCD Projector	4.41	VHC
e. Video Camera	4.36	VHC
f. Storage devices (USB, Hard Disk, CD Rom's etc.)	4.21	VHC
g. Television	4.28	VHC
6. How competent are you in using the following technology for Blended Learning?		
a. Desktop Computer/Personal Computer	4.30	VHC
b. Laptop	4.51	VHC
c. Mobile Phone	4.51	VHC
d. LCD Projector	4.36	VHC
e. Video Camera	4.31	VHC
f. Storage devices (USB, Hard Disk, CD Rom's etc.)	4.39	VHC
g. Television	4.30	VHC

Legend:

1.00-1.79 – Not Competent (NC) 2.60-3.39 – Moderately Competent(MC)

1.80-2.59 – Somewhat Competent(SC 3.40 – 4.19 – Highly Competent(HC)

4.20 – 5.00 –Very Highly Competent(VHC)

7. How competent are you in using the following technology for Online Learning?		
a. Desktop Computer/Personal Computer	4.36	VHC
b. Laptop	4.54	VHC
c. Mobile Phone	4.52	VHC
d. LCD Projector	4.31	VHC
e. Video Camera	4.34	VHC
f. Storage devices (USB, Hard Disk, CD Rom's etc.)	4.31	VHC
g. Television	4.20	VHC
8. How competent are you in assessing/ evaluating students' performance in Offline Learning or Face-to-face learning through performance-based assessment? like:		
a. Portfolio	4.36	VHC
b. Research paper	4.10	HC
c. Video recorded student reports	4.30	VHC
d. Automated exams with pool/bank of questions	4.23	VHC
e. Project-based or task-based assessment using rubrics	4.23	VHC
9. How competent are you in assessing/ evaluating students' performance who are on Blended Learning using performance-based assessment like?		
a. Portfolio	4.28	VHC
b. Research paper	4.16	HC

c. Video recorded student reports	4.28	VHC
d. Automated exams with pool/bank of questions	4.28	VHC
e. Project-based or task-based assessment using rubrics	4.28	VHC
10. How competent are you in assessing/evaluating students' performance in Online Learning using performance-based assessment like?		
a. Portfolio	4.26	VHC
b. Research paper	4.20	VHC

Legend:

1.00-1.79 – Not Competent (NC) 2.60-3.39 – Moderately Competent

1.80-2.59 – Somewhat Competent(SC 3.40 – 4.19 – Highly Competent(HC)

4.20 – 5.00 –Very Highly Competent(VHC)

c. Video recorded student reports	4.23	VHC
d. Automated exams with pool/bank of questions	4.25	VHC
e. Project-based or task-based assessment using rubrics	4.18	HC
GRAND MEAN	**4.24**	**VHC**

Legend:

1.00-1.79 – Not Competent (NC) 2.60-3.39 – Moderately Competent

1.80-2.59 – Somewhat Competent(SC 3.40 – 4.19 – Highly Competent(HC)

4.20 – 5.00 –Very Highly Competent(VHC)

Conclusions and Recommendations

The TEI faculty rated themselves as Very Highly Competent in using computer program like Microsoft Word (M=4.43), Microsoft Powerpoint (M=4.34) and Microsoft Excel (M=4.20). They also rated themselves as Very Highly Competent in finding information on the Internet (M=4.54) and Logging into the Network (M=4.31). In the other computer programs like Graphical Application, Desktop Publishing, Multimedia, and Drill (Practice Program Tutorials) as well as in Computer Operations like utilization of Software, Technical Specification of the Computer and Desktop publishing programs for lecture, the TEI faculty said they are Highly Competent as evidenced by their weighted mean scores. Hence, the TEI administrators should commend their faculty for their very high competence in information technology utilization and prod them to continue on updating their technological and digital skills, especially in this digital age where technology is fast changing and evolving, so that they can maintain their very high competence in integrating new IT in their teaching, be it in face-to-face learning, blended learning, or online learning. This could also serve as a baseline for the proposed distance education among teacher education institutions in the nearby provinces and municipalities on the Zamboanga Peninsula.

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