Challenges, Issues, And Opportunities in Digitalizing Teaching and Learning

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Abstract—*The widespread use of technology and the digitalization of our daily lives are influencing the way society is today. The main purpose of the study was to identify the challenges, issues, and opportunities in digitalizing the teaching and learning. The participants answered the self-made survey questionnaire using the demographic profile in terms of age, gender, civil status, course, year level, monthly allowance, and employment status. It examined the challenges and issues encountered by the participants in the digitalization of the teaching and learning. It also examined the opportunities that were perceived by the participants. It showed a great significant relationship between the demographic profile, the challenges, issues, and opportunities of the digitalization based on the information gathered. Descriptive research was used in this study to determine the current conditions, practices, perceptions, processes, and precise interpretations regarding the data collected using statistical methods. This research methodology employed a deliberate process of data collection, analysis, categorization, and tabulation. The study found out that the participants agreed that the digitalization of teaching and learning presents new opportunities, challenges, and problems. For improving the digitalization of teaching and learning, many challenges, issues and opportunities, the results include the improvement of the Internet connectivity, educational technology, and the learning management system.*

I. INTRODUCTION

Some educators and technology enthusiasts forecast that education will eventually be a wholly digital endeavor strengthened by artificial intelligence and virtual reality. Our current society is being shaped by the digitalization of our everyday lives and the widespread use of technology. Artificial intelligence, robotics, and augmented and virtual realities (AR/VR) advancements enable the integration of various technologies into a growing number of societal processes and action spheres (WBGU, 2019). The use of desktop computers, mobile devices, the Internet, software programs, and other forms of digital technology to instruct students of all ages is referred to as "digitalization in education." Ebooks, online universities, computer-based testing, and edutainment are just a few examples of how education is currently becoming more digital. Our activities, workplace environments, including education, and everyday actions are all being transformed by digital media. Learning processes can be supported and enhanced by applications, games, computer programs, social media, and other tools. The COVID-19 pandemic and the ensuing social isolation restrictions hastened the adoption of digital media in education and distance learning (Kohler, et al., 2022). The new UNESCO program "ESD for 2030" as its goal to improve learners' knowledge and decision-making skills through the use of digital technology in education. Undoubtedly, there are obvious and immediate global challenges brought on by a changing climate that have an increasing impact on how we live our daily lives (IPCC 2021. The Sustainable Development Goals (SDGs), which address regional and national issues related to these important future issues, were adopted by the international community in 2015. Everyone's way of living, thinking, and acting must fundamentally change for these goals to be realized in society (Sterling 2010, UNESCO 2017).

II.   PROCEDURE

Conceptual Framework

The conceptual framework of the study shown in Figure 1 illustrates the flowchart to be performed in the study.

This flowchart serves as the study's research paradigm. The demographic profile of the students, including their age, gender, civil status, course, year level, monthly stipend, and employment status should be determined by the researcher to critically analyze the results of the study. Additionally, it will highlight the difficulties, opportunities, and challenges that the student participants faced during the digitalization of the teaching and learning process.   The survey questionnaire will be used in this study along with the qualitative research to discover the solutions to the issues. As a result, recommendations will be brought out to enhance the digitalization of the teaching and learning process.

Figure 1
Research Paradigm
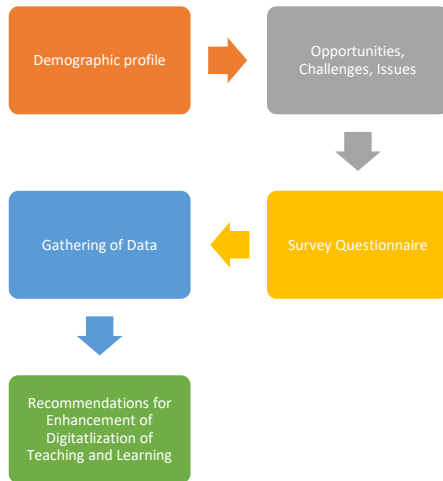
RESEARCH DESIGNS AND METHODOLOGY

This chapter describes the processes for carrying out the research study. This will also depict the flow of the study as well as the process of gathering data and information to be used. This chapter is made up of the following sections: Methods of Research, Participant of the Study, Data Gathering Instruments, Validation of Instruments, Statistical Treatment of Data and Statistical Formula to Used.

Methods of Research

Descriptive method was used in this investigation based on the data collected. This research methodology employed a purposeful process of data collection, analysis, categorization, and tabulation to ascertain the current circumstances, practices, perceptions, processes, and precise interpretations regarding the data collected using statistical methods. This approach was chosen for this study because it best meets the goal of the investigation.

Participants of the Study

This study focused on the opportunities, challenges, and issues associated with digitalizing teaching and learning. The senior students from AY-2022–2023 who were chosen for the study are from the Philippine State College of Aeronautics. Primary data and information will be conducted using survey and interviews. A total of one hundred two (100) senior students from AY-2022–2023 will be included to participate in the study. The study concentrated on how students at PhilSCA perceive the digitalization of the teaching and learning process.

The proponent used convenience sampling method because it is efficient, and simple to implement. The participants are selected based on the availability and willingness to take part.

Data Gathering Instruments

The study was conducted in Philippine State College of Aeronautics wherein there were 100 students available under study. Upon approval of the letter of request submitted to the PhilSCA administration, the researcher-made questionnaire was conducted to 100 participants. The survey questionnaire was composed of three parts.

The first part provides questions about the demographic profile of the participants. The second part includes the challenges, issues and opportunities in digitalizing teaching and learning. The last parts were composed of the recommendations based from the findings of the study and the enhancement of digitalizing the teaching and learning.

Statistical Treatment of Data

The following statistical methods and tools will be applied to the methodology:

Frequency and Percentage: The formula is as follows:

$$P = \frac{f}{n} \times 100$$

Where:

P = percentage
f = frequency
n = number of selected respondents

Weighted Mean

To analyze the data, it is a technique to evaluate the propensity of the data gathered to display the information, concept and understanding of the participants. To interpret the classification of the subjects, the degree of the perceived evaluation, the frequency of the noticeable difference and the assessment of the weighted mean.

Formula of weighted mean is:

$$\sum = \frac{Fx}{N}$$

Where:

M = Weighted mean
∑ = Summation
F = Frequency
x = The weight of the participants
N = Number of participants

Likert Scale.

This measurement was used to determine the challenges and issues being encountered by the participants in the digitalization and the opportunities of the digitalization as perceived by the participants with its verbal interpretation that was shown below (Table 1) by Gujarati (2003).

Table 1
Four Point Likert Scale

Assigned Points	Numerical Ranges	Verbal Interpretations
4	3.26 - 4.00	Strongly Agree
3	2.51 - 3.25	Agree
2	1.76 - 2.50	Disagree
1	1.00 - 1.70	Strongly Disagree

III.   RESULTS

Presentation, Analysis and Interpretation of Data

This chapter discussed the results of the study together with the analysis and interpretation of data. The results are presented in a tabular form to have clear visualization of the findings of the study.

Demographic profile of the participants in terms of:

1.1 Age

Table 1
FREQUENCY AND PERCENTAGE
DISTRIBUTION OF PARTICIPANT'S PROFILE
IN TERMS OF AGE

Age	Frequency (f)	Percentage %
18-21	79	60.77
22-25	42	32.31
26-29	7	5.38
30-33	2	1.54
Total	130	100.00

Table 1 illustrated the age range of the participants from the study. The table shows that the age group of 18-21 years old garnered 79 counts or 60.78% of the sample, followed by the participants with ages 22-25 years old with 42 counts or 32.31% of the sample, age group between 26-29 years old got 7 counts or 5.38% of the sample and participants who are 30-34 years got 2 counts or just 1.54% of the sample.

1.2   Gender

Table 2
FREQUENCY AND PERCENTAGE
DISTRIBUTION OF PARTICIPANT'S PROFILE
IN TERMS OF GENDER

Gender	Frequency (f)	Percentage %
Male	96	73.85
Female	34	26.15
Total	130	100.00

Table 2 shows the profile of the participants according to gender. Clearly, there are 96 males or about 73.85% of the total participants, and 34 females, or about 26.15% of the total participants. This indicates that there are more males than females who really want to engage in aeronautics.

According to Wolfteller (2021), aerospace and aviation have serious man problems despite support programs, mentorships, training, resource groups, workshops, outreach efforts, and other corporate initiatives that ostensibly strive to improve gender parity, men continue to drastically outnumber women in the industry. Nonetheless, everybody deserves to be successful someday. As Wolfteller (2021) said that success will be achieved the day that competence and skill, rather than gender or machismo, always determine who steers the future.

1.3   Civil Status

Table 3
FREQUENCY AND PERCENTAGE
DISTRIBUTION OF PARTICIPANT'S PROFILE
IN TERMS OF CIVIL STATUS

Civil Status	Frequency (f)	Percentage %
Single	130	100.00
Married	0	0
Total	130	100.00

Table 3 shows the result of the study, wherein 100% of the respondents are single.

1.4 Year Level

Table 4
FREQUENCY AND PERCENTAGE
DISTRIBUTION OF PARTICIPANT'S PROFILE
IN TERMS OF YEAR LEVEL

Position	Frequency (f)	Percentage %
First Year	29	22.30
Second Year	29	22.30
Third Year	40	30.80
Fourth Year	32	24.60
Total	130	100.00

Table 4 shows the result of the profile of the participants according to year level. The third-year category got the highest frequency with 40 participants or 30.80% of the total participants. This is followed by the fourth-year category with 32 frequencies or about 24.60% of the total participants. Lastly, both first-year and second-year categories got 29 frequencies, or about 22.30% of the total participants.

1.5   Monthly Allowance

Table 5
FREQUENCY AND PERCENTAGE
DISTRIBUTION OF PARTICIPANT'S PROFILE
IN TERMS OF MONTHLY ALLOWANCE

Monthly Allowance	Frequency (f)*	Percentage %
1500-below	46	35.38
1501-2000	12	9.23
2001-2500	7	5.38
2501-3000	11	8.46
3001-3500	4	3.08
3501-4000	7	5.38
4001-4500	5	3.85
4501-5000	12	9.23
5001-5500	3	2.31

5501-above	23	17.69
Total	130	100.00

Table 5 illustrated the monthly allowance by the participants in the study. Clearly stated, the 1500-below bracket garnered 35.38% of the sample, followed by the 5501-above bracket with 17.69% of the sample, 1501-2000 and 4501-5000 both represent 9.23% of the sample while the 2501-3000 bracket garnered 8.46% of the sample. On the other hand, both the 2001-2500 and 3501-4000 brackets got 5.38% of the sample. Lastly, the 3001-3500 bracket got 3.08% of the sample and the 5001-5500 bracket got 2.31 of the sample.

This indicates that not all of the participants have the financial means to pay for the digital technology equipment they need for their research.

1.6 Employment Status

Table 6

FREQUENCY AND PERCENTAGE DISTRIBUTION OF PARTICIPANT'S PROFILE IN TERMS OF EMPLOYMENT STATUS

Employment Status	Frequency (f)	Percentage %
Unemployed	115	88.46
Working Part-Time	11	8.46
Working Full-Time	4	3.08
Total	130	100.00

Table 6 shows the profile of the participants according to employment status. As a result, 88.46 of the participants are unemployed, 8.46% of them are working part-time, and 3.08% of them work full-time. Hence, students are totally focusing on their studies but some are doing jobs for their personal purposes.

Challenges, issues, and opportunities being encountered by the participants in the digitalization of teaching and learning.

Table 7
MEAN RESULTS ON THE CHALLENGES AND ISSUES IN TEACHING AND LEARNING STRATEGIES, TECHNOLOGY AND OTHER RESOURCES

Challenges and Issues	Mean	Interpretation
Some Teachers have lack of training and tools in digital mode of teaching.	2.99	Agree
Not all teachers have needed/ proper gadgets to enable them to teach online.	2.83	Agree
Some teachers have internet problems, poor quality video and audio, downtime, and connection losses.	3.36	Strongly Agree
Most teachers got caught unaware and did not know about new online modality. With the data and setups required, the whole process is becoming overwhelming to them.	2.79	Agree
Most hard of hearing students find it difficult to study since there are no interpreters online for their needs.	2.99	Agree
With hackers and other cyber-crimes, it's becoming unsafe teaching online due to data infringement and hackers sending harmful content	2.91	Agree

during class streaming affecting teachers. Most teachers also don't know how to protect their devices, making the whole class prone to cyber-attacks.		
We often struggle with self-discipline, and online schooling can make it more challenging. We who have procrastination difficulties can find ourselves having trouble sitting down and doing the work without someone telling us to do so.	3.19	Agree
Not all students have needed/ proper gadgets to enable them to attend online classes.	2.98	Agree
Some students have internet problems, poor quality video and audio, downtime, and connection losses.	3.55	Strongly Agree
With digital learning, it can be easy to ignore an assignment or even an entire class since attendance usually isn't enforced.	3.01	Agree
We have difficulty communicating and engaging with our teachers via digital learning.	3.05	Agree
With hackers and other cyber-crimes, it's becoming unsafe learning online due to data infringement and hackers sending harmful content during class streaming affecting students. Most students also don't know how to protect their devices, making the whole class prone to cyber-attacks.	3.03	Agree
It's easy for students to become distracted when learning online, making it difficult for teachers to maintain control.	3.34	Strongly Agree
General Weighted Mean	3.08	Agree

Table 7 shows the mean result of the challenges and issues in teaching and learning strategies, technologies, and other resources. Based on the result under teaching strategies, technologies, and other resources, participants strongly agree that some teachers have internet problems, poor quality video and audio, downtime, and connection losses with a weighted mean of 3.36. This is followed by we often struggle with self-discipline, and online schooling can make it more challenging. We who have procrastination difficulties can find ourselves having trouble sitting down and doing the work without someone telling us to do so with a weighted mean of 3.19. Followed by most hard-of-hearing students find it difficult to study since there are no interpreters online for their needs, and some teachers lack of training and tools in the digital mode of teaching with both 2.99 weighted mean. Likewise, with the weighted means of 2.91, 2.83, and 2.79 respectively, participants also agree that with hackers and other cyber-crimes, it's becoming unsafe to teach online due to data infringement and hackers sending harmful content during class streaming affecting teachers. Most teachers also don't know how to protect their devices, making the whole class prone to cyber-attacks, not all teachers have needed/ proper gadgets to enable them to teach online, and most teachers got caught unaware and did not know about new online modality. With the data and setups required, the whole process is becoming overwhelming to them.

While on the learning strategies, technologies, and other resources, the highest weighted means are 3.55 and 3.34 respectively which indicates that participants strongly agree that some students have internet problems, poor quality video and audio, downtime, and connection losses, and it's easy for students to become distracted when learning online, making it difficult for teachers to maintain control. The participants agree that they are having difficulty communicating and engaging with our teachers via digital learning is indicated by the weighted mean of 3.05, followed by hackers and other cyber-crimes, it's becoming unsafe to learn online due to data

infringement and hackers sending harmful content with a weighted mean of 3.03, and with digital learning, it can be easy to ignore an assignment or even an entire class since attendance usually isn't enforced that has a weighted mean of 3.01. Lastly, with a weighted mean of 2.98, the participants agree that not all students have needed/ proper gadgets to enable them to attend online classes. This scenario is the same with what Kumar (2015) wrote in his article. He said that electronic learning is flexible but various problems may arise. The learning environment for students completely changes when they switch from traditional classroom instruction with in-person instructors to computer-based instruction in a virtual classroom. Many students struggle to keep up with their virtual classmates because their weak monitors make it difficult to follow the Course Management System, which negatively affects their ability to learn. These students are not provided with the high bandwidth or the robust internet connection that online courses require. Despite the fact that most students are tech-savvy and can therefore effectively operate computers, a lack of computer literacy is a significant problem among today's students. Many of them are unable to use simple programs like Microsoft Word and PowerPoint and are consequently unable to manage their files. Furthermore, due to their lack of computer expertise, many students find it challenging to fix simple computer issues. Since online courses demand a lot of time and rigorous labor, time management is a challenge for eLearners. To their surprise, many online students lack the necessary self-motivation, despite the fact that it is a prerequisite for effective eLearning.

Table 8
MEAN RESULTS ON THE OPPORTUNITIES IN TEACHING AND LEARNING STRATEGIES, TECHNOLOGY AND OTHER RESOURCES

Opportunities	Mean	Interpretation
Online learning solutions provide much-needed effectiveness for teachers, allowing them to maximize the potential for individual learning curves and styles within the classroom. Many online learning solutions account for self-paced learning and allow students and teachers to work together to meet scheduled targets.	3.06	Agree
Online learning enables teachers to tap into this realm of constant learning by embracing the real-world application of theory through multimedia, video, chat, and interactivity.	3.15	Agree
Educators can effectively harness the power of everyday technology to bring educational theories into the classroom.	3.09	Agree
Online learning is an incredible way to compensate for reduced access to teaching information and time dedicated to tracking student progress. The practical benefits to teachers can be measured in terms of time-based efforts and workload reduction.	3.11	Agree
Using an LMS allows teachers to quickly create tests and quizzes using a preexisting or ever-expanding question bank. LMS technology also permits the automation of marking those tests and quizzes. Practical benefits also include the ability to track the submission of digital assignments and reuse or reconstruct a course curriculum using new course templates.	3.21	Agree

Digital learning provides schedule flexibility and cost-effectiveness for educators, as well as access to new learning platforms and the opportunity to learn from celebrated educators located elsewhere in the world via long-distance education.	3.25	Agree
Teaching with e-learning resources as a means of updating and honing one's approach to teaching forces teachers to constantly up their game, in turn making professional development a daily activity.	3.12	Agree
Among the many benefits of an online learning, I find virtual classrooms are great for people who are advancing their education while working.	3.26	Strongly Agree
Education can be expensive, but virtual learning can provide a number of ways for students to save. Not having to commute to campus can help you save on transportation costs.	3.28	Strongly Agree
Because your schedule isn't dictated by classes, you can spend more time doing the things you want. Plus, in addition to saving money, not having to commute also means saving time because you don't need to travel to-and-from campus.	3.35	Strongly Agree
Another reason why online school is better for some is the increased variety of education options. Since students are not required to travel to campus for courses schedule on specific days and times, students can enroll in the courses they are most interested in.	3.31	Strongly Agree
Just like courses taken in a traditional classroom setting, virtual learning can provide you with a number of career advancement opportunities.	3.17	Agree
Online students have better opportunities to collaborate with classmates through virtual group work and meetings. One of the benefits of online courses are the message boards and grouping tools that allow students to post their feedback on readings and other assignments and respond to their classmates.	2.86	Agree
Students who find their focus suffer from classroom activity may benefit from online classes. Students who aren't as assertive may have better opportunities to participate in class discussions when communicating online.	3.04	Agree
Online courses teach students how to manage their time better since the student bears the responsibility of engaging with the course instead of simply showing up to class on an assigned day and time. As a result, students not only gain knowledge from the coursework, but they also sharpen their time management skills.	3.09	Agree
Students receive feedback right away in online modality. In a traditional classroom setting, students may need to wait a week or two to receive feedback on their assignments. By receiving feedback sooner, students can learn faster and make adjustments for future assignments.	3.04	Agree
If a student didn't quite understand some of the content covered in a video lecture, they can go back and listen to it again. Students can use lecture videos as a supplemental tool to help with completing assignments.	3.37	Strongly Agree
General Weighted Mean	3.16	Agree

Table 8 shows the weighted result of the response of the participants on the opportunities in teaching and learning strategies, technology, and other resources. Under the opportunities in teaching strategies, technology, and other resources, participants agree with a weighted mean of 3.25 that digital learning provides schedule flexibility and cost-effectiveness for educators, as well as access to new learning platforms and the opportunity to learn from celebrated educators located elsewhere in the world via long-distance

education. Followed by the opportunity in using an LMS allows teachers to quickly create tests and quizzes using a preexisting or ever-expanding question bank. LMS technology also permits the automation of marking those tests and quizzes. Practical benefits also include the ability to track the submission of digital assignments and reuse or reconstruct a course curriculum using new course templates with a weighted mean of 3.21, online learning enables teachers to tap into this realm of constant learning by embracing the real-world application of theory through multimedia, video, chat, and interactivity with a weighted mean of 3.15, online learning is an incredible way to compensate for reduced access to teaching information and time dedicated to tracking student progress. The practical benefits to teachers can be measured in terms of time-based efforts and workload reduction with a weighted mean of 3.11, and educators can effectively harness the power of everyday technology to bring educational theories into the classroom with a weighted mean of 3.09. The lowest weighted mean under opportunities in teaching strategies, technology, and other resources was garnered by online learning solutions providing much-needed effectiveness for teachers, allowing them to maximize the potential for individual learning curves and styles within the classroom. Many online learning solutions account for self-paced learning and allow students and teachers to work together to meet scheduled targets with a weighted mean of 3.06.

On the other hand, under opportunities in learning strategies, technology, and other resources, participants strongly agree that (1) among the many benefits of an online learning, students find virtual classrooms are great for people who are advancing their education while working, (2) education can be expensive, but virtual learning can provide a number of ways for students to save. Not having to commute to campus can help you save on transportation costs, (3) because your schedule isn't dictated by classes, you can spend more time doing the things you want. Plus, in addition to saving money, not having to commute also means saving time because you don't need to travel to-and-from campus, (4) online school is better for some is the increased variety of education options. Since students are not required to travel to campus for courses scheduled on specific days and times, students can enroll in the courses they are most

interested in, and (5) if a student didn't quite understand some of the content covered in a video lecture, they can go back and listen to it again. Students can use lecture videos as a supplemental tool to help with completing assignments with the weighted mean of 3.26, 3.28, 3.35, 3.31, and 3.37, respectively. While the indicator that just like courses taken in a traditional classroom setting, virtual learning can provide you with a number of career advancement opportunities got 3.17, and online students have better opportunities to collaborate with classmates through virtual group work and meetings. One of the benefits of online courses is the message boards and grouping tools that allow students to post their feedback on readings and other assignments and respond to their classmates got 2.86. With a weighted mean of both 3.04, it was indicated that participants agree that students who find their focus suffers from classroom activity may benefit from online classes. Students who aren't as assertive may have better opportunities to participate in class discussions when communicating online, and students receive feedback right away in an online modality. In a traditional classroom setting, students may need to wait a week or two to receive feedback on their assignments. By receiving feedback sooner, students can learn faster and make adjustments for future assignments. Finally, with a weighted mean of 3.09, participants agree that online courses teach students how to manage their time better since the student bears the responsibility of engaging with the course instead of simply showing up to class on an assigned day and time. As a result, students not only gain knowledge from the coursework but also sharpen their time management skills. The adoption of technology for teaching to keep students and faculty safe and to comply with safety regulations under this first wave of COVID-19 was an immediate response of almost all HEIs worldwide (Mossenlechner, et al, 2021). Recommendations that can be proposed to improve the digitalization of teaching and learning

Table 9
RECOMMENDATIONS THAT CAN BE PROPOSED TO IMPROVE THE DIGITALIZATION OF TEACHING AND LEARNING

Recommendations	Frequency	Percentage

	(f)	%
Improved communication between students and teachers	14	10.77
Have better internet connections and devices	53	40.77
Provide clear instructional materials	20	15.38
Provide more activities for the skills development of the students	7	5.39
Having better teaching-learning platforms	26	20.00
None	10	7.69
Total	130	100.00

Table 9 shows the result of the recommendations that can be proposed to improve the digitalization of teaching-learning. Most of the participants answered that there must be a better internet connection and devices that can be used by the teachers and students. This indicator got a 40.77% of the sample. Followed by having a better teaching-learning platform with a percentage of 20.00% of the sample. The indicator of providing clear instructional materials got 15.38% of the sample. The indicator of improved communication between students and teachers garnered 10.77% of the sample. While 7.69% of the sample don't have any idea or recommendation. Lastly, 5.39% of the sample recommended providing more activities for the skills development of the students particularly in using gadgets and teaching-learning platforms.

Enhanced digitalization program in the teaching and learning could be proposed based from the findings

Table 10

ENHANCED DIGITALIZATION PROGRAM IN TEACHING AND LEARNING

Recommendations	Frequency (f)	Percentage %
Have better internet connections and devices	47	36.15
Provide seminars, activities, and alike for students and teachers in the digitalization of teaching and learning	28	21.54
Having better learning system management	38	29.23
None	17	13.08
Total	130	100.00

Table 10 shows the result of the programs that can be proposed for enhanced digitalization. A large part of the participant or about 36.15% of the sample answered that there must have better internet connections and devices for the digitalization program. Followed by the indicator of having a better learning system which garnered 29.23% of the sample. While 21.54 of the sample answered that provides seminars, activities, and alike for students and teaching in the digitalization of teaching and learning. Lastly, 13.08% of the sample have no proposed enhanced digitalization program.

IV. SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary, the conclusions drawn from the findings, and the recommendations made through careful analysis and interpretation of the gathered data.

- Summary of Findings

The analysis and interpretation of data using participant data resulted in the following findings. The

answers to the questions were organized systematically.

1. Demographic profile of the respondents in terms of:

The age range of the participants is mostly 18-21 years old (68.77%) followed by age 22-25 (32.31%), age 26-29 (5.38%), and age 30-34 (1.54%). For the sex, there are 96 (73.85%) male and 34 (26.15%) female respondents. On civil status, all the 130 respondents are single. As to their year level, 40 (30.80%) are third year, 32 (24.60%) are fourth year, and 29 (22.30%) are both first and second year. In terms of the monthly allowance, 46 (35.38%) respondents have P1,500 and below allowance followed by 23 (17.69%) with P5,501 and above allowance while 3 (2.31%) respondents with P5,501-5,500 allowance. For their employment status, 115 (88.46%) are unemployed, 11 (8.46%) are working part-time, while 4 (3.08%) are working full-time.

- Challenges, issues, and opportunities being encountered by the participants in the digitalization of teaching and learning

The mean score of the participants, the leading indicator for the challenges and issues in teaching and learning strategies, technology, and other resources faced by the participants is some students have internet problems, poor quality video and audio, downtime, and connection losses with the weighted mean of 3.55 and is under the learning aspect of the students. The indicator which has the lowest weighted mean of 2.79 is that most teachers got caught unaware and did not know about the new online modality. With the data and setups required, the whole process is becoming overwhelming to them. This indicator is under the teaching aspect.

The mean score of the participants, the leading indicator with a weighted mean of 3.37 is that if a student didn't quite understand some of the content covered in a video lecture, they can go back and listen to it again. Students can use lecture videos as a supplemental tool to help with completing assignments. While the lowest weighted mean of 2.86 was garnered by the indicator that online students have better opportunities to collaborate with classmates through virtual group work and meetings. One of the benefits of online courses is the message boards and

grouping tools that allow students to post their feedback on readings and other assignments and respond to their classmates. Both the leading and lowest indicators are under the opportunities for learning strategies, technology, and other resources.

- Recommendations that could be proposed to improve the Digitalization of Teaching and Learning

Based on the results, the researcher found that most of the participants answered that there must be a better internet connection and devices that can be used by the teachers and students. This indicator got a 40.77% of the sample. Followed by having a better teaching-learning platform with a percentage of 20.00% of the sample. The indicator of providing clear instructional materials got 15.38% of the sample. The indicator of improved communication between students and teachers garnered 10.77% of the sample. While 7.69% of the sample don't have any idea or recommendation. Lastly, 5.39% of the sample recommended providing more activities for the skills development of the students particularly in using gadgets and teaching-learning platforms. The institution's learning management system needs to be enhanced as well so that students can keep up with the pace of technological advancement.

- Enhanced Digitalization Program in Teaching and Learning that could be Proposed

The researcher found that a large part of the participant or about 36.15% of the sample answered that there must have better internet connections and devices for the digitalization program. Followed by the indicator of having a better learning system which garnered 29.23% of the sample. While 21.54 of the sample answered that provides seminars, activities, and alike for students and teaching in the digitalization of teaching and learning. Lastly, 13.08% of the sample have no proposed enhanced digitalization program.

CONCLUSION

Based on the garnered results, the following conclusions are drawn:

Most of the participants were in the age group of 18 to 21 years old and most of them are males. Clearly, all of the participants are single. A large portion of them was from the third-year level and have a monthly

allowance of 1500 pesos and below. This is because most of them were unemployed.

The participants agreed that there are more challenges, issues, and opportunities in the digitalization of teaching and learning. Most of the challenges, issues and opportunities are rampant and must be taken into consideration for the future of the digitalization of teaching and learning like the improvement of internet connection and teaching and learning devices, as well as with having an efficient learning management system.

That the students need to have skills and training in using their digital technology equipment. Most of the participants have agreed that there is a need for a training on the use of Learning Management System, improvement of Internet Connectivity, and other training on digital technology.

That an improved connectivity on the Internet is necessary to make the teaching and learning process more effective and efficient.

RECOMMENDATION

Based on the garnered results and conclusions, the following recommendations are drawn:
The school or institution administration must give priority to improving their learning management system together with providing seminars and other activities that will enhance the capabilities of the teachers as well as the students in coping with the digitalization of teaching and learning.

The government must put into consideration that not all teachers and students have the capability to have an access to digitalization. They must help schools and institutions by putting-up electronic classrooms that will help the students and teachers to have devices and better internet connections that could be used in teaching and learning activities.

The teachers and students must have better communication and relationship to easily understand the situation of each other. The teacher must be considerate most especially in giving homework and activities to the students. The students must exert efforts in coping with the demand of the digitalization

of teaching and learning even in their own simplest way.

A training and workshop is needed for both students and faculty members in the use of digital technology, the Learning Management System, and other digital advancements to improve the teaching and learning process.

A conclusion section is not required. Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions.

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