



UTILIZATION OF DIGITAL TECHNOLOGY AND ACADEMIC PERFORMANCE OF GRADE 9 STUDENTS AT OPOL NATIONAL SECONDARY TECHNICAL SCHOOL

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KeyWords

Digital Technology, smart phones, computer, laptop, Internet, Academic Performance

ABSTRACT

This study was undertaken to look into the utilization of digital technology and the Academic Performance of Grade 9 students of Opol National Secondary Technical School. Specifically, this sought to identify the profile of the respondents' used of digital technology in terms of log-in smart phone/tablet, use of computer/laptop, and log-in in the internet; to determine the Academic Performance of the students in terms of final general average grade, school year 2019-2020; and find the significant relationship between the utilization of digital technology and the Academic Performance of the students. The study employed a descriptive survey research method which included quantitative approach in collecting numerical data through questionnaire. It also used frequency and percentage distribution, mean and standard deviation. Pearson Product-Moment Correlation Coefficient inferential was also used to find the relationships among the variables. The respondents of the study were the 843 Grade 9 students of Opol National Secondary Technical School. Results showed that Most of the Time students utilize digital technology in terms of smart phones or tablets and use Internet 1-2 times a day for learning activities. They seldom use computer and laptop. However, utilizing smart phones or tablets has No Significant Relationship to their Academic Performance, only on utilizing Computer or laptops and Internet. Most of the students are in Very Satisfactory level in their Academic Performance. It can be concluded that utilizing smartphones or tablets can already help enhance teaching and learning. It can be recommended that the school and even the teachers will have a laptop of his own.

Introduction

Digital technology has grown considerably over the past decade. As education sails through the 21st century, technology in the classroom is becoming more and more predominant. Tablets are replacing textbooks, and one can research just about anything that one wants to on smartphones. Technology is everywhere in education (Herold, 2016).

Digital technology has made teachers and students lives more proficient and at ease. In today's generation, education has been greatly developed from new technological advancements. Indeed, the Philippines have been adopting the different changes in the educational system and fitting it to the needs that are required today, and one of these is the implementation of the DepEd Computerization Program (DCP). Through this, it gives the teachers and learners access to technology in their lessons even if the schools are located in far flung area (DepEd Order No. 78, s. 2010).

The massive growth of technology and computer applications affected almost every aspect of teachers and students' lives, worldwide. In fact, some private and public schools in the country today is currently working to transition in the modality of teaching from the traditional classroom setting like paper and pencil discussion to paperless classroom setting in which the teacher and the students are using laptops, computers and other digital technology in the classroom. Using Information Communication Technology (ICT) in classroom, helps motivate students to be attentive and participative (Moreno ,2015). Teachers facilitate instruction without losing time and energy in achieving the learning outcomes.

Wright (2015) specified that "Importance of Computer Education to Students" improving the way pupils are taught; it is vitally significant that students learn to use computers to improve their work and prepare for careers in a world where computers have become as common as the pencil and paper. In the Philippines, DepEd Order No. 78, s. 2010 which was released on June 10, 2010 emphasized the Guidelines on the Implementation of the DepEd Computerization Program (DCP) which aims to provide public schools with appropriate technologies that would enhance the teaching-learning process and meet the challenges of the 21st century.

Technology in school is indeed of great help when used properly, it will be a boundless advantage to sharpen students' skills and knowledge. It can help facilitate the knowledge-constructed classroom. Many researchers view computers as having a positive influence on the teaching and learning processes. Technological tools, especially personal computers, are often cited by educators and policymakers as magic workers in literacy programs, providing great access to all students (Motteram, 2013).

Integrating digital technology into the classroom is essential for the students to learn faster. Undoubtedly, the rise of the internet has made information much more widely available than before and possibly influenced what it means to be educated. Presenting multi-media lessons to learners will increase their achievement over traditional instruction (Courts and Tucker, 2012).

Technology integration in education inspires positive changes in teaching methods on an international level (Norman, 2016). Integration of this technology is nothing without teachers' knowledge about computer. Thus, teachers should be more knowledgeable to be able to teach learners of today's advancements.

Costley (2014) asserts that students today live in a very technological world. Most students use some form of technology daily including; texting, social networking, and web surfing. Students see these types of technologies as useful and extremely enjoyable. These very same students that are accustomed to these types of technologies will relate to using technology at school. Digital technology can transform the classroom into an interactive learning environment. It is a powerful contributor to learning if it is used to deepen students' engagement in meaningful and intellectually authentic curriculum. Technology is a tool and it should be selected when it is the best tool for students to learn. It can be used as a tool for any subjects and can enhance the participation of children with disabilities. Learners in lower grade level should begin to use familiar technology tools as part of their academic program. With the right tools and trainings, technology can be a very powerful tool when used in moderation in the classroom (Kaysen, 2015).

The integration of digital technology as part of the learning materials in the lesson have changed how students interact and learn raises a new set of issues that educators, stake holders and policy makers should consider. An important question which this paper tries to address is how digital technologies affect academic performance of the students. Today's generation are living in the world of highly advance technology; hence it is important to know the impact it has on Academic Performance.

Thus, this study aimed to determine how the utilization of digital technology affect the Academic Performance of Grade 9 students in Opol National Secondary Technical School year 2019 -2020.

This study is closely related to the study of General (2018) which showed that technologies help to improve the academic performance of the students. However, it also presented that excessive use of gadgets can hamper the learners' Academic Performance. The study was pattern by the theory of Bandura (2019) on Social Learning Theory. The theory studied of "symbolic" models, where characters in movies, television programs, online media, and books could lead to learning. Bandura asserted that students could learn faster from watching television and listening from online sources. Students envisioned how the characters reacted and how they felt in turn taught them how to react in similar situations.

Gadgets make our life in better ways (Padilla, 2012). Latest platform on digital tools like Google Meet, Google Classroom and other technology provider enabled teachers and students to organize meetings, assignments and foster better communication. These innovation of technology helps the teacher to successfully ensured that the students continue to receive an engaging and effective education.

Digital technology is an ever changing, always evolving thing. There are new technologies coming out every year and there is always something on the brink of becoming mainstream. Soon, more technological innovation that will impact in every industry and

every human being. People are now engaging in technologies like it is a part of life. A world without Information Communication and Technology (ICT) means one does not have any information and one does not know about the events that are occurring (Kyle, 2020).

Methodology

The study used the descriptive-correlational research design where descriptive research summarizes the data using descriptive statistics; while the correlational research designs measure two or more relevant variables and assess the relationship between them. Descriptive research according to Siedlecki (2020) are methods that aim to create descriptions, meaning images, paintings of systematically, factually and accurately about the data, properties and relationships of the phenomena studied. In addition, descriptive design is the simplest and it allows the researcher to study and describe the distribution of one or more variables, without regard to any causal or other hypothesis. Moreover, descriptive design as an inquiry used an in – depth analysis of the problem which data collection methods include, but not limited to the survey questionnaire and was utilized to quantify the problem by way of generating numerical data.

This study was conducted at Opol National Secondary Technical School (ONSTS), Taboc, Opol Misamis Oriental. It is one of the popular secondary schools located in Misamis Oriental and has one (1) Secondary School Principal, 119 teachers, 28 non – teaching personnel and with 3816 students from Grade 7 to Grade 12. Opol National Secondary Technical School is a Technical Vocational school accredited by TESDA that offers Technical and Vocational Education and Training Courses (TVET) under the Technical Education Skills Development Authority (TESDA). This school is one of the two Tech-Voc schools in the Division of Misamis Oriental and known of significant accomplishment with national & international awards received.

The respondents of the study were the 843 Grade 9 students chosen purposively from the total population of 3816 students of Opol National Secondary Technical School from Grade 7 to Grade 12. The study used the convenience sampling procedure. According to Crossman (2019), convenience sampling is a non – probability sample in which the researcher uses the subjects that are nearest and available to participate in the research study.

Instruments were adapted from the study of General (2018) “A synergy of Digital Media and the Students’ Academic Achievement: An Assessment” which used to determine the effect of modern technology frequently used by the students to Academic Performance. It has three items which are categorized as cellular phone/computer, laptop/tablet and Internet. The Academic Performance of the students was based on the Final General Average grade for the school year 2019-2020.

Descriptive statistics such as frequency and percentage were used to describe the variables of the study for problem 1 and 2. These indicated in the findings of the problems, where these statistical treatments were used. Pearson Product – Moment Correlation Coefficient was used to determine the relationship of the independent and the dependent variables in problem 3.

Results and Discussions

Problem 1. What is the Profile of the students’ in the utilization of Digital Technology in terms of:

- 1.1. Smart Phone/Tablet;
- 1.2. Use of Computer/Laptop and
- 1.3. Internet?

Digital technology in teaching and learning can be assessed from the learners’ ability to utilize information and communication technology. The students’ abilities can be transformed into their academic performance with the help of their teachers. Tables 1-3 present the frequency and percentage distribution of the respondents’ profile in terms of smart phone/tablet, use of computer/laptop, and Internet.

Table 1

Respondents’ Utilization of Digital Technology in Terms of Smart Phone/Tablet

Smart Phone/Tablet	Frequency	Percentage
Always	380	45%
Most of the Time	438	52%
Sometimes	25	3%
Never	0	0
Total	843	100%

Table 1 shows the frequency and percentage distribution of the respondents’ utilization of digital technology in terms of smartphone/tablet. Result shows that 438 or 52% of the respondents rated Most of the Time in the used of smart phone or tablet. This implies that majority of the students have consistently used their smart mobile phone or tablet as part of their studies. The result further indicates that majority of the students nowadays have access to modern technology for their learning. Hence, it is suggested that teachers and parents should closely monitor the habits of their students in using digital technology since it greatly affects the

students' academic or non-academic performance particularly in times when distance learning is employed in the teaching - learning process.

Darko-Adjei (2019) revealed that students who are engage in distance learning find it easier to use smartphone in their learning activities. The findings further revealed that the use of smartphones performed remarkable roles among the students. Furthermore, Masiu and Chukwuere (2018) opined that in the 21st century, smartphones have vastly increased due to its exciting features such as emails, social media platforms and many more.

On the contrary, the lowest frequency of 25 or 3% of the respondents rated sometimes in using smartphone or tablet. This implies that though technology is widely known for this generation to learners, still there are a few of them who seldom use those gadgets. In Shraim's (2015) study, the results identified various challenges in using smartphones including the lack of experience and knowledge. Participants also expressed concerns with the limited connectivity and unreliability of Wi-Fi and 3G/4G networks. Therefore, it is advised for the teachers to innovate instructional materials for their teaching-learning activities.

Table 2
Respondents' Utilization of Digital Technology in Terms of Computer/Laptop

Computer/Laptop	Frequency	Percentage
More than 5 times day	0	0
3-4 times a day	25	3%
1-2 times a day	202	24%
Seldom a day	616	73%
Total	843	100%

Table 2 shows the frequency and percentage distribution of the respondents' usage of digital technology in terms of computer/laptop. Result shows that 616 or 73% of the respondents rated seldom a day in using computer or laptop. This implies that majority of the students have limited access to computer or laptop. Result further indicates that majority of the students have difficulty in accessing those ICT materials due to some reasons and perhaps it has something to do with the financial implications for that matter.

Accordingly, difficulties were more common for students from low-income families (Gonzales et al., 2018). They added that students from affluent families faced problems too, but they were more likely to experience them as a minor bump in the road because they could easily replace it unlike low-income students who did not have the option.

On the contrary, the lowest frequency of 25 or 3% denotes respondents who used computer/laptop 3-4 times a day. This implies that though the emergence of ICT is widely known for the 21st century, still there are a few of the students who have minimal access in computer/laptop. It is therefore important for the school to invest ICT learning resources for the students to experience the use of digital technology.

Goldin and Katz (2018) researched on three factors that increase students' motivation in the technologically enhanced setting. The factors included communication, learning, and empowerment as students appreciated how they interact with others in real time by using technologies such as computers. Connecting with others is made possible by the internet enabling real-time communication. The learners were empowered in a technology surrounding, as they were secluded from teachers and were less scared of relating to others. Indeed, Students engaged in the learning process, produced higher quality work, and had improved communication with their teachers when they had access to laptop computers. Thus, the school should devote to ICT learning resources for their students to enhance their level of competence or academic achievement.

Table 3
Respondents' Utilization of Digital Technology in Terms of Internet

Internet	Frequency	Percentage
More than 5 times day	152	18%
3-4 times a day	211	25%
1-2 times a day	380	45%
Seldom a day	100	12%
Total	843	100%

Table 3 shows the frequency percentage and distribution of the respondents' usage of digital technology in terms of the internet. Result reveals that 380 or 45% of the respondents used digital technology in terms of internet at 1-2 times a day. This implies that majority of the students have minimal access of the internet. A number of students have experienced intermittent connectivity due to some valid reasons such as geographical location, network accessibility and logistics support. Consequently, it is recommended

for the teachers to innovate their teaching-learning activities in order to motivate their students. Kumar (2015) revealed that using the internet technology enhances the teaching-learning process in the formal education landscape. Aeni et al., (2019), stated that information technology cannot be separated from the internet technology since the internet technology can be used for educational purposes.

On the other hand, the lowest frequency of 100 or 12% signifies that the students seldom used the internet. This implies that only a few of the students do not have access to internet. This further indicates the importance of connectivity in the modern era of education where everyone is being connected. It is therefore suggested for the parents and teachers to engage their children for responsible use of the internet. The internet has become a unique platform for learning as it offers for the creation of brand-new learning methods not only for acquiring domain-specific and general knowledge but also for developing new learning skills (Gutenberg, 2019).

Problem 2. What is the Learning Performance of the Respondents in Terms of Final General Average Grade, School Year 2019-2020 when categorized as:

- 2.1. Outstanding;
- 2.2. Very Satisfactory;
- 2.3. Satisfactory;
- 2.4. Fairly Satisfactory and
- 2.5. Did not Meet Expectation?

The learning performance of the students can be evaluated through the results of their rating specifically on the final grade where the teachers should compute their average grade. Table 4 reveals the frequency and percentage distribution of the learning performance of the respondents in terms of final average grade for the School Year 2019-2020.

Table 4
Respondents' Academic Performance in the School Year 2019-2020

Final General Average Grade	Frequency	Percentage
Outstanding	152	18%
Very Satisfactory	320	38%
Satisfactory	295	35%
Fairly Satisfactory	76	9%
Did Not Meet Expectation	0	0
Total	843	100%

Table 4 shows the frequency and percentage distribution of the learner respondents' Academic Performance in the School Year 2019-2020. It can be viewed that 320 or 38% of the respondents rated Very Satisfactory based on their final general average grade. This implies that majority of the students are very gratifying about their Academic Performance. So, the teachers should continue what they have started to motivate their learners to gain best result of their Academic Performance. Almalki (2019) concluded that motivation for learning can influence the Academic Performance of students. In addition, Dhaqane (2016) found out that there is strong relationship between the satisfaction of students and Academic Performance and that satisfaction promotes both academic achievement and student retention.

On the other hand, the lowest frequency of 76 or 9% denotes respondents who had been rated as Fairly Satisfactory. This implies that only a few of the respondents were rated quite Satisfactory in their academic achievement. Thus, effective teaching-learning activities should be enhanced to cater the needs of the students. Mphale and Mhlauli (2014) showed that there were several factors that could contribute toward students' low academic performance ranging from low staff morale to students' unpreparedness for the examinations. This study therefore, recommends that high teacher's morale, availability of resources and parental involvement are critical for the attainment of high-quality education.

Problem 3. Is there a significant relationship between the Utilization of Digital Technology and the Academic Performance of the students?

The utilization of digital technology for learning has played a significant role for students' Academic Performance. It has a crucial role in promoting the students' abilities towards digital technology. Table 5 displays the relationship between the utilization of digital technology and the Academic Performance.

Table 5
Test of Relationship Between the Academic Performance and the Utilization of Digital Technology

DIGITAL TECHNOLOGY	COMPUTED R			
SMART PHONE/TABLET	.322	Sig. (2 tailed)	Interpretation	Decision on Ho1
Computer/Laptop	.365	.012	No Relationship	Accepted
Internet	.367	.004	Indicates Low or Slight Relationship	Rejected

Note: significant at $p < 0.05$ alpha level

Table 5 shows the relationship between the utilization of digital technology and Academic Performance. Based on the results, the utilization of digital technology in terms of smart phone/tablet and the academic achievement indicates No Relationship ($r = .322$) with probability value in 2 tailed ($p = .012$) which means that there is No Significant. This result implies that the students' Academic Performance has not significantly influenced by the used of smart phone or tablet. However, the school should encourage the teachers to innovate learning with the use of digital technology which is essential for greater opportunities in learning. Lieberman (2019) admitted that the new paradigm of teaching and learning also raises enough challenges, both new and old, from developing robust technology infrastructure to supporting teachers, ensuring accessibility for all students and keeping up with the increasingly rapid pace of technological advancement.

Furthermore, the results on the utilization of computer/laptop indicates low or Slight Relationship to the Academic Performance ($r = .365$) which can be shown Significant since the probability value in 2 tailed ($p = .004$) is less than 0.05 alpha level. This implies that information and communication technology (ICT) materials like computer, laptop, and among others definitely correlated to the students' performance. Therefore, it is suitable that the school should invest computer or laptop for the sake of student-learning experiences. Soffar (2015) revealed that learning computer skills has become the main part of education, the students can learn to type efficiently, use the basic computer functions such as word processing, email, and web browsing.

On the other hand, utilization of digital technology in terms of internet indicates low or Slight Relationship to the Academic Performance ($r = .367$) which can be shown Significant since the probability value in 2 tailed ($p = .003$) is less than 0.05 alpha level. This indicates that the Academic Performance has correlated to the utilization of the internet as part of student-learning activities. Thus, it is of great importance for the school to enhance its internet network capabilities for better learning opportunities.

Welsh (2018) believed that modern education process has changed due to the use of the internet. Teachers today use it to supplement lessons, communicate with the students and even hold online classes.

Hence, the foregoing results implied that the null hypothesis was Accepted in terms of utilization of smart phone/tablet and Rejected for computer/laptop, and the internet to the students' Academic Performance since the results confirmed correlation among the variables.

Conclusion

Most of the respondents in this study consistently used their smart phone/tablet for learning or studying. This study concluded that most of the students do not have enough access to computer or laptop, that students have difficulty in accessing those ICT materials. The respondents of the study were all very good in their Academic Performance. However, there were some of them who got reasonable rating due to the great impact of digital utilization to their learning abilities. Hence, the students who are motivated to learn amidst the difficulties of digital utilization are the most likely to have good Academic Performance.

Furthermore, this study concluded that the Academic Performance of the Grade 9 students in Opol National Secondary Technical School is significantly influenced by the use of computer or laptop and log-in in the Internet because they are slightly correlated. Therefore, computer or laptop played crucial role in the teaching and learning activities of both students and teachers. Finally, this study opined that the utilization of digital technology is very useful and indeed played an important role in attaining best students' academic results.

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