Accessibility Of Technology-Based Instruction For Learners

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ABSTRACT

This study focused on conducting a diagnostic test for the learners in grade 5 using technology-based instruction to characterize the effect on the academic performances of learners. This work was carried out among 135 Grade 5 learners and 15 Grade 5 teachers in the Department of Education, particularly in West Toledo District, Toledo City Division, Toledo City, Cebu, during Academic Year 2020-2021. This study used the Qualitative research method to gather facts relevant in attaining to implement and determine the effectiveness of using technology-based instruction as a tool in the academic performance of the learners in identified subjects. The normative survey was the mode of acquiring data and the questionnaire served as the main instrument. Gathered data were treated using total simple percentage, arithmetic mean, and weighted mean. The result from the questionnaires answered by the respondent groups in this research study was very precise and accurate. Based on the findings it was concluded that the academic performance of the learners using technology-based instruction in Araling Panlipunan was very satisfactory. It is recommended that the learning scheme for Araling Panlipunan contents using technology-based instruction be adopted and be implemented for the learners and teachers for West Toledo District, Toledo City Division teachers, and the entire Department of Education.

Keywords: Development Education Technology-based Instruction Academic Performance

1. INTRODUCTION

A world nowadays is growing faster where technology is in the grasp of our hands. With an internet connection, we can have almost all the information we need. For learners, this certainly means that they can research materials and or her resource, of course finding credible ones is a must. Technology-based education is the

integration of instructional technology into the learning environment of schools. It refers to educational settings that apply advanced technologies such as computers and the internet in the process of teaching and learning. (Himmelsbach, 2019)

The most technologically advanced country in 2020 is Norway with a composite score of 3.682965. To determine where a country stands in the global tech race, it used four integrated metrics, three of which serve as standard measures of the availability and prevalence of technology: internet users as a proportion of the population; smartphone users as a percentage of the population; and LTE users as a percentage of the population. The fourth metric we used is a Digital Competitiveness score developed by the IMD World Competitiveness Center. Their competitiveness score focuses on technological knowledge, readiness for developing new technologies, and the ability to exploit and build on innovations. (Global Finance Magazine, 2020)

Though the old normal is not coming back, we are being born into a new normal: a new kind of society, a new relationship to the earth, a new experience of being human".(Eisenstein,2020)

Learning in the new normal, blended learning is not wholly new. Philippine universities, such as the University of the Philippines Open University, have used blended learning. In the new normal, all schools will have blended or purely online courses. Training in using teaching and learning platforms will be available for both teachers and students. (Tumapon, 2020).

The presence of infrastructure has been regarded as an important ingredient to make technology integration in schools successful. However, despite the great efforts exerted by the schools in providing the necessary technological resources, gaps still exist in how teachers utilize technology as a teaching and learning tool. According to Aldunate & Nussbaum (2015), their capacity to apply innovations in their respective classes depends on the complexity of technology and their willingness to learn technology. They added that teachers who are early technology adopters and commit a significant portion of their time incorporating educational technology into their teaching are more likely to adopt new technology, regardless of its complexities. Even for those who are using technology, most of them used it, such as the internet, for searching information and materials for distribution to their students (Rolando, Salvador, & Luz, 2013).

Social media networking had been utilized as well for instructional purposes in the classroom. It has been used by teachers to promote teacher-students and students-students interaction (Aydin, 2014). However, the results of the study done by Aydin reveal that students prefer passive behaviors in terms of their interaction with their teachers. Aydin recommended additional related studies that intend to explore the possible factors affecting the level of interaction between teachers-students and students-students in social media networking. Beyond understanding the role of technology in deepening the interaction between the teachers and the

students, collaboration in social media platforms thru knowledge sharing has been examined in the existing literature.

Behaviorism Theory is a systematic approach to understanding the behavior of humans and other animals.[1] It assumes that behavior is either a reflex evoked by the pairing of certain antecedent stimuli in the environment, or a consequence of that individual's history including especially reinforcement and punishment contingencies, together with the individual's current motivational state and controlling stimuli. Although behaviorists generally accept the important role of heredity in determining behavior, they focus primarily on environmental events.

Theorists view the learner as a tabula rasa, generally without any mental internalization or introspection (with exceptions). From that point, the learner can be influenced by his environment (referred to as a "stimulus") on which he reacts (referred to as the "response") and which in turn instigates another reaction (in Skinners, referred to as "reinforcement").

Republic Act No. 10533 Otherwise Known as K-12 Law is an act enhancing the Philippine Basic Education System by strengthening its curriculum and increasing the number of years for Basic Education, appropriating funds for other purposes. A law that implements the K to 12 Program that covers kindergarten and 12 years of basic education. It aims to produce Filipino graduates who are holistically developed with 21st-century skills. This curriculum also gives great chance to all graduates to acquire middle-level skills for better work opportunities.

Integrating technology into teaching and learning is not a new challenge for universities. Since the 1900s, administrators and faculty have grappled with how to effectively use technical innovations such as video and audio recordings, email, and teleconferencing to augment or replace traditional instructional delivery methods (Kaware & Sain, 2015; Westera, 2015). Appropriate use of technology can serve the regular education classroom by motivating students in all disciplines, such as math, social studies, and literacy (Heafner, 2004; Liu, 2016; Housand & Housand, 2012).

Studies on web-conferencing and behavioral engagement reveal mixed findings. For example, voluntary attendance in web-conferencing sessions ranged from 54 to 57% (Andrew et al., 2015; Armstrong & Thornton, 2012) and, in a comparison between a blended course with regular web-conferencing sessions and a traditional, face-to-face course, researchers found no significant difference in student attendance in courses. However, students in the blended course reported higher levels of class participation compared to students in the face-to-face course (Francescucci & Foster, 2013). These findings suggest while web-conferencing may not boost attendance, especially if voluntary, it may offer more opportunities for class participation, perhaps through the use of communication channels typically not available in a traditional, face-to-face course (e.g., instant messaging, anonymous polling). Studies on web-conferencing and interaction, another behavioral indicator,

support this assertion. For example, researchers found that students use various features of web-conferencing software (e.g., polling, instant message, break-out rooms) to interact with peers and the instructor by asking questions, expressing opinions and ideas, sharing resources, and discussing academic content (Andrew et al., 2015; Armstrong & Thornton, 2012; Hudson et al., 2012; Martin et al., 2012; Wdowik, 2014).

The use of information and communication technology (ICT) in schools has increased dramatically in recent years (Orlando, 2014). This has been driven by the recognition that students need to be skilled in the use of these technologies to participate effectively in an increasingly digital world (Buabeng-Andoh, 2012; De Bortoli, Buckley, Underwood, O'Grady & Gebhardt, 2013); as well as a growing awareness of the benefits of digital technology for learning (Dwyer, 2007); and policies and programs aimed at increasing students' access to and use of ICT (Dandolo Partners, 2013; Moyle, 2010).

One of the defining features of development today is the relationship between **education and technology**, stimulated by the spectacular growth in internet connectivity and mobile penetration. We live in a connected world. An estimated 40% of the world's population now uses the internet and this number is growing at a remarkable rate.[2] While there are significant variations in internet connectivity among countries and regions, the number of households with such links in the global South has now overtaken those in the global North. Moreover, over 70% of mobile telephone subscriptions worldwide are now in the global South.[3] Five billion people are expected to go from no to full connectivity within the next twenty years.[4] However, there are still significant gaps among countries and regions, for example between urban and rural areas. Limited broadband speed and lack of connectivity hamper access to knowledge, participation in society, and economic development.[5] https://en.wikipedia.org/wiki/Education_and_technology

Teachers and administrators are constantly searching for new ideas to make classrooms more technology-friendly. Mastering technology can transform a classroom (Davis, 1997, 49). Can we make better students through the use of technology? "Skills cannot be acquired through simply teaching facts but, instead, can be acquired by providing the learner with an opportunity to interact with the content, define learning goals, and explore new understandings through authentic, challenging tasks" (Isernhagen, 1999, 30). For this reason, technology integration is becoming more important in public schools. Students are now having to become more confident using computers (i.e. to take standardized tests presently and in the future).

In addition, the Common Core Standards include many standards that require technology use by students, beginning at the Kindergarten level, for standards to be met. Essentially, this means that all classrooms and students will be required to integrate technology to meet the standards. Another reason technology is a factor to

improve learning is the fact that technology is becoming such an integral part of our everyday world. Most jobs today require some type of technology use. Also, students and adults are using technology to communicate, get information in multiple ways. The prevalent daily use of www technology in people's lives overall makes the use of technology very relevant to the students and provides a connection that will greatly benefit student learning.

2. METHODS

Research Design
This study used the quantitative method to gather facts relevant to the effectiveness of using technology-based instructions and the impact on the academic performance of the learners in Araling Panlipunan subject. The normative survey was the mode of acquiring data and the questionnaire served as the main instrument.

Questionnaires were administered to the 30 classroom teachers and learners for evaluation. Gathered data were treated using the following statistical tools; simple percentage, weighted mean, and Pearson r.
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Research Respondents
The respondents of the study were the 15 classroom teachers and the 135 Grades 5 learners of Samang Elementary School, Poog Elementary School, and South City Central School of Toledo city division. They were chosen to validate the effectiveness of using technology-based instruction in a classroom setting.

Data Collection Tools
The instruments used in this study were adopted from National Assessment and Educational Progress (2019). Survey Questionnaires were administered as part of the NAEP Assessment and collected contextual information about learners, opportunities to learn in and out of the classroom. There were two – sets of questionnaires- one for Classroom Teachers and the learners. The questioners for the Grades 5 learners were adopted from the Department of Education (Central Office) Alternative Delivery Modules (ADM) which was used by all the elementary schools in the Philippines. The questionnaires for the pupils and teachers had proximity of content. It asked responses only on the adequacy and determined the effectiveness of using technology-based instruction in a classroom setting and how it affects the academic performance of the learners in Araling Panlipunan subject.

3. RESULTS

Table 1 The Age And Gender Of The Learners

Age/Sex	Male	Female	x	%
13 years old and Above	2	3	5	3.70
12 Years Old	10	13	23	17.03
11 years Old	10	12	22	16.29
10 years old and below	40	45	85	62.96
Total:	62	73	135	100

The table above indicates the age and gender of learners. There were 62 male and 73 female learners with ages from 10 years old and below to 13 years old and above with a total of 135 learners who responded in terms of Age and Sex of this study.

As presented in the table, it implied that there are more learners whose age is 10 years old and below than any other age bracket and that the sexes are more likely equally proportional to each other.

Table 2 Exposure To Social Media Sites

Indicators	Grade 5 Learners	x	%
Facebook	30	30	22.22
Messenger	30	30	22.22
Instagram	5	5	3.70
Twitter	15	15	11.11
Tiktok	20	20	14.81
Whatsapp	3	3	2.22
p	27	27	20
Youtube	5	5	3.70
others			
Total:	135	135	100

The table above shows the exposure of the Grade 5 learners to social media sites. There were 135 learners rated in terms of exposure to social media sites. Based on the result, Facebook and messenger had the same number of learners with 30 (22.22%) respectively; The second was youtube with 27 (20%) learners. The third is tiktok with 20 (14.81%) learners; the fourth was Twitter with 15 (11.11%) learners,

while Instagram and others were tied at 5 (3.70%) learners each and lastly is Whatsapp with only 3 (2.22%) of the learners.

Table 3 **Technology-Based Instruction Used In Araling Panlipunan (Social Media Websites Used)**

Indicators	Grade 5 Teachers	x	%
Facebook	3	3	20
Messenger	5	5	33.33
Zoom	3	3	20
Google class	2	2	13.33
Youtube	2	2	13.33
Total:	**15**	**15**	**100**

The table above indicates the Technology-based Instruction used in Araling Panlipunan by the 15 teachers. It is shown that Messenger had the highest number of teacher users with 5 (33.33%). A Facebook and zoom ranked second with 3 (20.00%) teachers each and the last were the Google classroom and Youtube with 2 (13.33%) teacher users.

Table 4 **Academic Performance Of Grade 5 Learners In Araling Panlipunan Contents**

Competencies	O 5	VS 4	S 3	FS 2	F 1	x	%
Competency 1	5	31	17	3	0	56	41.48
Competency 2	8	27	10	5	0	50	37.03
Competency 3	4	15	10	0	0	29	21.48
Total:	**17**	**73**	**37**	**8**	**0**	**135**	**100**
Interpretation:			**Very Satisfactory**				

Legend:			75-79	FS	Fairly Satisfactory
90-above	O	Outstanding	70-74	F	Failed
85-89	VS	Very Satisfactory		X	Sum
80-84	S	Satisfactory		%	Percentage

The table above presents the 135 learner respondents with the Academic Performance in the given competencies of the Araling Panlipunan contents. For competency 1, 5 learners got a rating of outstanding; 31 got a Very Satisfactory rating; 17 got a Satisfactory rating, and 3 got a Fairly Satisfactory rating. For Competency number 2, 8 learners got the rating of outstanding, 27 got a Very Satisfactory rating, 10 got a Satisfactory rating, and 5 got a Fairly Satisfactory rating. In Competency 3, 4 learners got the rating of outstanding, 15 got a Very Satisfactory rating, and 10 got a Satisfactory rating.

4. DISCUSSION AND CONCLUSION

4.1 DISCUSSION

The majority of the learners belonged to the age bracket of 10 years old and below. There were more female learners than male learners. Learners were engaged more on Facebook and messenger as the social media sites. Whatsapp had the very least number of learner users.

On the other hand, the messenger had the highest number of teacher users with 5 (33.33%). A Facebook and zoom ranked second with 3 (20.00%) teachers each and the last were the Google classroom and Youtube with 2 (13.33%) teacher users.

The grade 5 learners using technology-based instruction in the Araling Panlipunan competencies got a Very Satisfactory rating.

4.2 CONCLUSION

The academic performance of the grade 5 learners of the selected Elementary schools in the Toledo City division in Araling Panlipunan competencies was rated as Very satisfactory with the use of the technology-based instructions.

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