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Effects of Information and Communications Technology (ICT) Integration to Literacy Skills

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Abstract:-

Background/Objectives: ICT integration was one of the major innovations introduced in teaching and learning brought by Covid-19. This study offers a discussion on the effects of ICT on literacy skills.

Methods/Statistical analysis: The research design is descriptive and quantitative. In this study, 310 intermediate students during the 1st Grading Period SY 2020-2021 from the 4 central elementary schools in Zone I Schools Division of Zambales described the effects of ICT on their literacy skills.

Findings: The result showed that the integration was perceived as effective and efficient. The intermediate pupil-respondents performed "Very Satisfactory" on English subjects. There was noted a difference in the effects of ICT on literacy skills as to Reading Comprehension; Mastery, Retention, and Remembering; Ease of Use and Accessibility; and Graphical Users Interface Motivation when respondents are grouped according to Profile. There was a significant difference on the level of ICT integration to students' literacy skills as to Effectiveness and Efficiency when grouped according to Profile. There was no significant relationship between the effects of ICT on students' literacy skills and academic performance and between the level of ICT integration and academic performance.

Improvements/Applications: These findings imply the need for programs and projects on ICT availability to positively associate literacy skills, such as providing a fast and reliable internet connection simplified graphical language.

Keywords: Effects of ICT, ICT Integration, Literacy Skills, Learning Platform, Computer-aided learning

1. Introduction

The Covid-19 pandemic caught many sectors of society, including the educational setting, unprepared to deal with the virus's deadly effects. The temporary shutdown of educational institutions led to an unprecedented educational crisis. The Department of Education (DepEd) adapted the distance and blended learning approaches as the alternative modes for delivering education.

While technology and other learning interventions play an important part during this time of pandemic in order to address the learners' unique needs in terms of pace, place, process, and products of learning [1], and socio-economic conditions of the family, the implementation proved to be more challenging given issues like disparity in teacher qualifications and education quality, and information and

communications technology (ICT) skills [2]. Technology is considered an important issue in many fields, including its effect on learning. Technology has become the knowledge transfer highway in most countries; its integration has gone through innovations and transformed societies that have changed the way people think, work, and live [3].

Integration of ICT in education refers to using computer-based communication that incorporates into the daily classroom instructional process. In conjunction with preparing students for the current digital era, teachers are the key players in using ICT in their daily classrooms. This is due to the capability of ICT in providing dynamic and proactive teaching-learning environment [4]. Further, the integration means technology-based teaching and learning process that closely relates to utilizing learning technologies in schools. Since students are familiar with technology and would learn better within the technology-based environment, the issue of ICT integration in schools, specifically in the classroom, is vital.

Lack of adequate ICT equipment and internet access is one of the key problems schools, specifically in rural areas, face now. For example, research results show that some schools have a computer in Kenya, but this could be limited to one computer in the office only. The student-computer ratio is high even in schools with computers [5].

In order to enhance the teaching-learning process and meet the challenges of the 21st century, DepEd implemented the DepEd Computerization Program (DCP) through DepEd Order No. 78, s. 2010, otherwise known as the "Guidelines on the Implementation of the DepEd Computerization Program," geared towards transforming the education system. This policy supports the importance of enhanced basic education services through improved quality teaching and learning using ICT integration in classroom instruction.

At present, most schools in the country use the Modular Distance Learning modality as the learning delivery modality during these present times of pandemic. Aside from the Modular Distance Learning modality, schools also employ Online Distance Learning, Radio-Based Instruction (RBI), TV-Based Instruction (TVBI), and Blended Distance Learning Modalities. In this current situation, the ICT skills of both the learners and the teachers are essential.

The Schools Divisions of Zambales has 4 total numbers zones, yet the focus of this study is the central schools in Zone 1 composed of the following: Masinloc, Candelaria, and Sta. Cruz. Despite of the fact that modular learning modalities are the most common modality chosen by the learners and parents/guardians in Zone 1, the ICT use and integration is still practiced by the teachers and other education stakeholders such as the following: no face-to-face classroom instruction but learners are given websites or links on where to access the learning modules, the same are advised to use references from the internet. Radio broadcast is also widely practiced in Zone 1, especially in the District of Masinloc. Under the new normal situation, teachers are tasked to deliver instruction that demands more than the traditional requirements with the challenge of integrating technology to deliver instruction to students effectively. Therefore, this study was undertaken to assess and model the effect of the integration of ICT to students' literacy skills. Current research focuses on differentiating learning modes applicable to the current situation, but limited studies investigate the effect of technology on academic success, hence this study.

2. Objectives of the Study

The specific objectives of this study were to investigate the effect of ICT on literacy skills of intermediate students; determine the level of ICT integration to students' literacy skills; determine the level of academic performance of intermediate pupil-respondents; test difference on the effects of ICT to literacy skills when grouped according to Profile; test difference on the level of ICT integration to students' literacy skills when grouped according to Profile; test relationship between the effects of ICT to literacy skills and the academic performance; and test relationship between the level of ICT integration and the level of literacy.

3. Hypothesis

In this study, the following hypotheses were tested: (1) There is no significant difference on the effects of ICT on literacy skills when grouped according to Profile. (2) There is no significant difference on the level of ICT integration to students' literacy skills when grouped according to Profile. (3) There is no significant relationship between the effects of ICT on literacy skills and the academic performance. (4) There is no significant relationship between the level of ICT integration and literacy level.

4. Methodology

This study utilized descriptive research design and quantitative in its analysis. Descriptive research seeks to describe the characteristics or behavior of an audience. Its purpose is to describe and explain or validate some sort of hypothesis or objective when it comes to a specific group of people. Specifically, this research employed surveys involving interviews or discussions with larger audiences and often conducted on more specific topics [6].

The participants were 310 intermediate learners from Grade IV to Grade VI who experienced using android phone, laptop, or desktop computer in browsing the internet for reading enhancement. The study was conducted in Central Elementary Schools in Zone 1, located north of Zambales. There are 4 central schools, 2 from the District of Sta. Cruz, 1 from Candelaria District, and 1 from Masinloc District.

For this research, a three-part questionnaire was prepared. Part 1 dealt with the Profile of the intermediate pupil-respondents regarding grade, gadgets used for internet, mode of internet connection and family monthly income. Part 2 dealt with the assessment towards dimensions on effects of ICT on literacy of intermediate students with regards to (1) Reading Comprehension, (2) Mastery, Retention and Remembering, (3) Ease of Use and Accessibility; and (4) Graphical Users Interface Motivation. Part 3 dealt with the academic performance obtained by the intermediate students in English for 1st grading period. Part 4 dealt with the assessment of ICT integration to the intermediate-pupil literacy concerning (1) Effectiveness; and (2) Efficiency.

The drafted questionnaire was reviewed and edited. After the pre-approval, a dry run was conducted among 20 students from Candelaria District who are not direct respondents of the study to test the reliability and validity of the questionnaire. The result of the validity test using Cronbach Alpha became the basis of administering the questionnaire to intended respondents. The Cronbach's alpha, established at 0.95 describes an excellent internal consistency and reliability of the scaled items in the questionnaire. The questionnaire was distributed to the school teachers onsite and online via the Messenger application who assisted distribution to student-respondents. All respondents gave their informed consent for inclusion before participating in the study. Descriptive statistics such as frequency counts, percentage and weighted mean were used to analyze the data. Significant differences when grouped according to Profile and relationship between variables were tested using Analysis of Variance (ANOVA) and Pearson r, respectively.

The study utilized the Independent Variable-Dependent Variable (IV-DV) Model.

Gleaned in Figure 1, for the Independent Variable frame other known as the "cause variable", it dealt with the socio-demographic characteristics of the pupil-respondents as to grade level, number of gadgets use, mode of internet connection, and family monthly income. Part 2 dealt with the perception towards the effects of ICT towards Reading Comprehension, Mastery, Retention and Remembering, Ease of Use and Accessibility, and in Graphical Users Interface Motivation. Part 3 dealt with the perception of ICT integration effectiveness and efficiency. For the Dependent Variable known as "Effect variable", it dealt on the academic performance of the student-respondents.

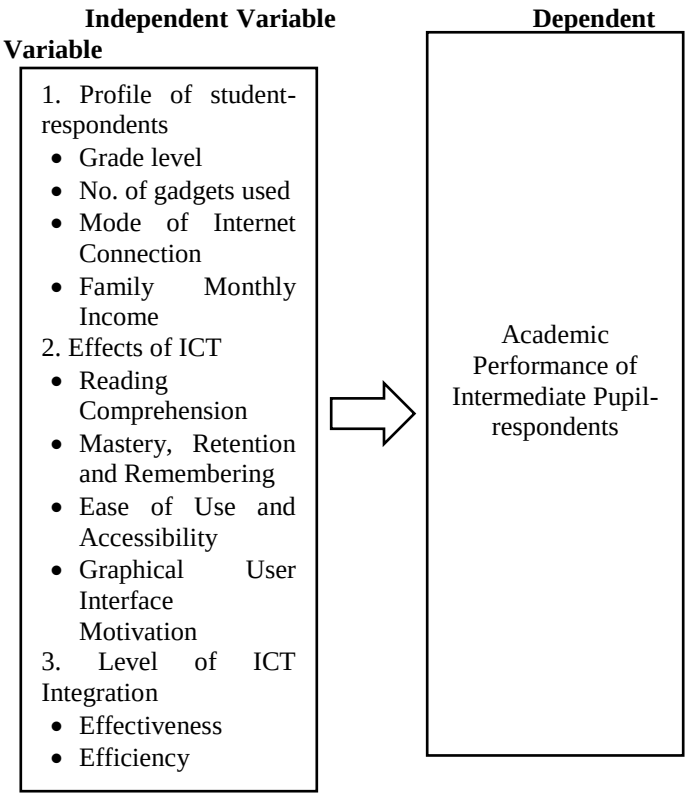

Figure 1. The Paradigm of the Study

5. Results and Discussion

Socio-Demographic Characteristics

A total of 310 Grade IV to Grade VI students participated in the study. Among them, 79.70% are using cellphone for internet, 13.50% are using cellphone & laptop; 2.90% are using cellphone, laptop and desktop; 2.30% are using cellphone & desktop; 1.00% are using laptop; while 0.60% are using desktop. There were 69.70% student-respondents who are using mobile data as their mode of internet connectivity; 19.40% using broadband; 7.70% using fiber optic; while 3.20% are connected online using cable. The family monthly income of most respondents ranged from 10,000 Php & below with 59.70%; 20.60%, 10,001 Php - 20,000 Php; 12.60%, 20,001 Php - 30,000 Php; 5.80%, 30,001 Php - 40,000 Php; while 1.30%, 40,001 Php - 50,000 Php, with computed mean of 11,839.21 Php. The data manifest that the respondents' family income is classified below poverty level.

Descriptive Statistics: Effects of ICT

Table 1. Effects of ICT to Literacy Skills

Literacy Skills	Weighted Mean	Descriptive Equivalent	Rank
Reading Comprehension	3.13	Agree	1
Mastery, Retention and Remembering	2.94	Agree	4
Ease of Use and Accessibility	3.05	Agree	2
Graphical Users Interface Motivation	3.00	Agree	3
Grand Mean	3.03	Agree	

Descriptive statistics for items related to the effects of ICT on literacy are shown in Table 1. Among the different effects of ICT integration, the students agreed on the reading comprehension effects of ICT which was reported to have the highest mean value (WM=3.13). The students reported the lowest mean value (WM=2.94) in terms of Mastery, Retention and Remembering. On average, the students agreed on the effects of ICT on literacy skills (WM=3.03).

The results revealed an effect of ICT to literacy skills of students. The use of computer assisted educational techniques can improve student's reading comprehension [7]. The theory of mnemonics (Oxford, 1990) states that how well information is remembered is not a function of how long a person is exposed to that information, but instead depends on the nature of the cognitive processes employed to process that information. Thus, through the use of ICT, cognitive processes help in processing information, thereby gaining a more mastered reading content. ICT provides a great flexibility in education to ensure that learners can access knowledge regardless of space and time. As a result, it can foster the educational needs of special needs students since it can be utilized at their own pace [8]. ICTs aid learners in becoming more concentrated, focus driven, and amused, thus, learning becomes more interesting [9].

Level of ICT Integration

Table 2 presents the descriptive statistics for items related to ICT integration to students' literacy skills. From the domain, the students reported ICT integration to be both efficient (WM=3.11) and effective (WM=3.01) for their literacy skills.

Table 2. Level of ICT Integration to Students' Literacy Skills

Level of Integration	Weighted Mean	Descriptive Equivalent	Rank
Effectiveness	3.01	Effective	2
Efficiency	3.11	Efficient	1
Grand Mean	3.06	Effective/Efficient	

ICT integration has a great effectiveness for students learning. The well-equipped instruction preparation of teachers with ICT tools and facilities is one the main factors in the success of technology-based teaching and learning. Professional development training programs for teachers also played a key role in enhancing students' quality learning [10]. Learners' attitudes as users of the technology and active participants are important in the success or failure of any ICT integration/innovation in the learning process. Thus, the learners' efficiency in the integration of ICT to their literacy skills should be high [11]. The current body of research underlines that technology must be integrated into an effective and efficient learning program in order for it to have an impact on students.

Student Academic Performance in English

The level of academic performance in English subject of 120 (or 38.70%) intermediate students ranged from 90-100 indicating "Outstanding" performance; 92 (or 29.70%) intermediate students whose level of academic performance in English subject ranged from 85-89 described as "Very Satisfactory"; 84 (or 27.10%) intermediate students whose level of academic performance in English subject ranged from 80-84 indicating "Satisfactory" performance; and 14 (or 4.50%) intermediate students whose level of academic performance in English subject ranged from 75-79 described as "Fairly Satisfactory". The mean academic performance of intermediate student-respondents as reflected on their English subject grade during the 1st grading period S.Y. 2020-2021 was 88.29 indicating "Very Satisfactory" academic performances.

ICT can enhance teaching opportunities and outcomes for students. Students who integrate ICT in learning may easily understand complex topics and concepts. They are more likely to recall information and use it to solve problems in the classroom [12]. Integration of ICT in teaching enhances students' knowledge, investigation and inquiry skills and creates curiosity and interest as information is available at multiple levels [13]. Integration has a sense of completeness or wholeness by which all essential elements of a system are seamlessly combined to make a whole [14]. In teaching, simply handing out a collection of websites or CD-ROM programs is certainly not integration of ICT. In a

properly crafted ICT integrated teaching lesson, ICT and other crucial curriculum contents such as content and pedagogy are molded into one entity. As a result, the quality of the lesson would somehow be diminished if the ICT ingredient were taken away from the ICT-integrated lesson [15].

Inferential Statistics

Test of Difference on the Effects of ICT to literacy skills when respondents are grouped according to profile variables Reading Comprehension

Table 3. Test of Difference on the Effect of ICT in Reading Comprehension when grouped according to Profile

Sources of Variations	F	Sig	Decision
Grade Level	4.834	0.009	**Reject Ho**
Gadgets used for Internet	3.271	0.007	**Reject Ho**
Mode of Internet Connectivity	3.397	0.018	**Reject Ho**
Family Monthly Income	13.032	0.000	**Reject Ho**

Table 3 shows that there was a significant difference on the effects of ICT to literacy skills of students as to Reading Comprehension when respondents are grouped according to grade level (Sig. = 0.009), gadgets used for internet (Sig. = 0.007), mode of internet connectivity (Sig. = 0.018), and family monthly income (Sig. = 0.000). The computed significance values (Sig.) were less than (<) 0.05 alpha level of significance, therefore null hypothesis was rejected.

The result signifies that the effects of ICT on reading comprehension varies in terms of grade level, gadgets used for internet connectivity, mode of internet connectivity and family monthly income. Individual-level ICT use is a significant predictor, even if students' gender and socioeconomic status are controlled; however, its influence is mixed across different student groups and subjects depending on the ICT usage type [16].

Mastery, Retention and Remembering

Table 4. Test of Difference on the Effect of ICT in Mastery, Retention and Remembering when grouped according to Profile

Sources of Variations	F	Sig	Decision
Grade Level	3.394	0.035	**Reject Ho**
Gadgets used for Internet	2.753	0.019	**Reject Ho**
Mode of Internet Connectivity	2.214	0.086	Accept Ho
Family Monthly Income	7.307	0.000	**Reject Ho**

It can be noted in Table 4 that there was a significant difference on the effects of ICT to literacy skills of students as to Mastery, Retention and Remembering when respondents are grouped according to grade level (Sig. = 0.035), gadgets used for internet (Sig. = 0.019) and family monthly income (Sig. = 0.000). The computed significance values (Sig.) were less than (<) 0.05 alpha level of significance, therefore null hypothesis was rejected. On the other hand, the computed significance value (Sig.) for mode of internet connectivity (Sig. = 0.086) was greater than (>) 0.05 alpha level of significance. The results indicate no significant difference in the effects of ICT on students' literacy skills as to Mastery, Retention and Remembering when respondents are grouped according to their mode of internet connectivity. Therefore, the null hypothesis was accepted.

The result signifies that the effect of ICT to mastery, retention and remembering varies in terms of grade level, gadgets used for internet connectivity and family monthly income. Furthermore, there is no statistically detected difference in terms of their mode of internet connectivity. Unnecessary repetition of low-level tasks is inefficient, non-motivational and may obscure the real purpose of the learning activity. Many computer applications provide the tools to support students in quickly completing these lower-level tasks to focus on the main purpose of the activity. Word processors, graphics packages, database packages, spreadsheets and other software support students' performance. ICT has transformed teaching and learning processes from being highly teacher-dominated to student-centered, and that this transformation would result in increased learning gains for students, creating and allowing for opportunities for learners to develop their creativity, problem-solving abilities, informational reasoning skills, communication skills, and other higher-order thinking skills [17].

Ease of Use and Accessibility

Table 5. Test of Difference on the Effect of ICT in Ease of Use and Accessibility when grouped according to Profile

Sources of Variations	F	Sig	Decision
Grade Level	3.952	0.020	**Reject Ho**
Gadgets used for Internet	2.993	0.012	**Reject Ho**
Mode of Internet Connectivity	2.541	0.057	Accept Ho
Family Monthly Income	5.171	0.000	**Reject Ho**

Table 5 presents that there was a significant difference on the effects of ICT to literacy skills of students as to Ease of Use and Accessibility when respondents are grouped

according to grade level (Sig. = 0.020), gadgets used for internet (Sig. = 0.012) and family monthly income (Sig. = 0.000). The computed significance values (Sig.) were less than (<) 0.05 alpha level of significance, therefore null hypothesis was rejected. Meanwhile, the computed significance value (Sig.) for mode of internet connectivity (Sig. = 0.057) was greater than (>) 0.05 alpha level of significance. The results indicate no significant difference in the effects of ICT on students' literacy skills as to Ease of Use and Accessibility when respondents are grouped according to their mode of internet connectivity. Therefore, the null hypothesis was accepted.

The result signifies that the effects of ICT to ease of use and accessibility vary in terms of grade level, gadgets used for internet connectivity and family monthly income. Furthermore, there is no statistically detected difference in terms of their mode of internet connectivity. Since learners are actively involved in the learning processes in ICT classrooms, they are authorized by the teacher to make decisions, plans, and so forth [18]. ICT therefore provides learners with more educational affordances and possibilities.

Graphical User Interface Motivation

Table 6. Test of Difference on the Effect of ICT in Graphical User Interface Motivation when grouped according to Profile

Sources of Variations	F	Sig	Decision
Grade Level	4.982	0.007	**Reject Ho**
Gadgets used for Internet	0.863	0.506	Accept Ho
Mode of Internet Connectivity	1.098	0.350	Accept Ho
Family Monthly Income	4.906	0.001	**Reject Ho**

It can be noted in Table 6 that there was a significant difference on the effects of ICT to literacy skills of students as to Graphical Users Interface Motivation when respondents are grouped according to gadgets used for internet (Sig. = 0.506) and mode of internet connectivity (Sig. = 0.350). The computed significance values (Sig.) were less than (<) 0.05 alpha level of significance, therefore null hypothesis was rejected. Moreover, the computed significance value (Sig.) for gadgets used for internet (Sig. = 0.506) and mode of internet connectivity (Sig. = 0.350) were greater than (>) 0.05 alpha level of significance. The results indicate no significant difference in the effects of ICT on students' literacy skills as to Graphical Users Interface Motivation when respondents are grouped according to the gadgets they used for internet and their mode of internet connectivity. Therefore, the null hypothesis was accepted.

The result signifies that the effects of ICT on graphical user interface motivation varies in terms of grade level and family monthly income. Furthermore, there is no statistically detected difference in terms of their gadgets used and mode of internet connectivity. Student learning in any e-learning environments may not be achieved if there is a mismatch between the user interface design and user characteristics however, much learning content is well organized and learners motivated to learn. To that end, the ease of use of an E-learning software, the nature content and learner interactions with it are presented and enabled by the user interface [19].

Test of Difference on the Level of ICT Integration to Literacy Skills when respondents are grouped according to profile variables Effectiveness

Table 7. Test of Difference on the Effectiveness of ICT Integration to Literacy Skills when grouped according to Profile

Sources of Variations	F	Sig	Decision
Grade Level	4.241	0.015	**Reject Ho**
Gadgets used for Internet	2.038	0.073	Accept Ho
Mode of Internet Connectivity	2.161	0.093	Accept Ho
Family Monthly Income	4.902	0.001	**Reject Ho**

There was a significant difference on the level of ICT integration to students' literacy skills as to Effectiveness when respondents are grouped according to grade level (Sig. = 0.015) and family monthly income (Sig. = 0.001). The computed significance values (Sig.) were less than (<) 0.05 alpha level of significance, therefore null hypothesis was rejected. Furthermore, the computed significance value (Sig.) for gadgets used for internet (Sig. = 0.073) and mode of internet connectivity (Sig. = 0.093) were greater than (>) 0.05 alpha level of significance. The results indicate no significant difference in the level of ICT integration to students' literacy skills as to Effectiveness when respondents are grouped according to gadgets they used for internet and their mode of internet connectivity. Therefore, the null hypothesis was accepted.

The result signifies that the effectiveness of ICT integration to literacy skills varies in terms of grade level and family monthly income. Furthermore, there is no statistically detected difference in the effectiveness of ICT integration to literacy skills in terms of their gadgets used and mode of internet connectivity. Without adequate information and communication technology (ICT) devices, internet/mobile network access, educational resources and teachers' training, students simply cannot partake in distance education to continue on their learning trajectories. Students from resource-poor areas, remote rural areas, and low-income households are at most risk of being left behind. In addition, learners with disabilities or those who use a different

language in the home than in school will require more individualized support [20].

Efficiency

Table 8. Test of Difference on the Efficiency of ICT Integration to Literacy Skills when grouped according to Profile

Sources of Variations	F	Sig	Decision
Grade Level	4.139	0.017	**Reject Ho**
Gadgets used for Internet	2.445	0.034	**Reject Ho**
Mode of Internet Connectivity	1.426	0.235	Accept Ho
Family Monthly Income	3.403	0.010	**Reject Ho**

It can be noted in Table 8 that there was a significant difference on the level of ICT integration to students' literacy skills as to Efficiency when respondents are grouped according to grade level (Sig. = 0.017), gadgets used for internet (Sig. = 0.034) and family monthly income (Sig. = 0.010). The computed significance values (Sig.) were less than (<) 0.05 alpha level of significance, therefore null hypothesis was rejected. On the other hand, the computed significance value (Sig.) for mode of internet connectivity (Sig. = 0.235) was greater than (>) 0.05 alpha level of significance. The results indicate no significant difference in the level of ICT integration to students' literacy skills as to Efficiency when respondents are grouped according to their mode of internet connectivity. Therefore, the null hypothesis was accepted.

The result signifies that the efficiency of ICT integration to literacy skills varies in terms of grade level, gadgets used for internet and family monthly income. Furthermore, there is no statistically detected difference on the efficiency of ICT integration to literacy skills in terms of mode of internet connectivity. While ICT integration aims to improve and increase the quality, accessibility, and cost-efficiency of the delivery of instruction to students, it also benefits from networking the learning communities to face the challenges of current globalization [21].

Test of Relationship between the Effects of ICT to literacy skills of students and the Academic Performance in English

The computed Significance (Sig.) value 0.208 is greater than (>) 0.05 level of significance; therefore the null hypothesis is accepted. The result signifies no significant relationship between the effects of ICT on literacy skills of students and their academic performance in English.

The study findings are similar to Mbaeze, Ukwandu & Anudu (2010) who reported that there was no significant relationship between ICT and students' academic performance. Investigating the effects of ICT on students' retention, the findings reveal that ICT was found more effective on students' retention than traditional teaching methods [22].

Test of Relationship between the Level of ICT Integration and Academic Performance in English

The computed Significance (Sig.) value 0.399 is greater than (>) 0.05 level of significance, therefore the null hypothesis is accepted. The result signifies no significant relationship between the level of ICT integration and academic performance in English of students.

Students' IT major was found to have no impact on students' academic achievement. The relationship between ICT adoption and academic performance is based on conservative environment and factors [23].

6. Conclusion and Future Scope

In this study, most of the student-respondents are in Grade VI, using cellphone for the internet. Mobile data is their mode of internet connectivity whose family monthly income belongs to the minimum wage category.

The respondents reported notable effects of ICT on their literacy skills. The integration of ICT was perceived to be both effective and efficient. As a result, students performed "Very Satisfactory" on their English subject grade during the 1st grading period S.Y. 2020-2021 given the challenge of remote learning.

The result showed a significant difference on the effects of ICT to literacy skills of students as to Reading Comprehension when respondents are grouped according to grade level, gadgets used for internet, mode of internet connectivity, and family monthly income; significant as to Mastery, Retention and Remembering when respondents are grouped according to grade level, gadgets used for internet and family monthly income; significant as to Ease of Use and Accessibility when respondents are grouped according to grade level, gadgets used for internet and family monthly income; and significant as to Graphical Users Interface Motivation when respondents are grouped according to gadgets used for internet and mode of internet connectivity. There was a significant difference on the level of ICT integration to students' literacy skills as to Effectiveness when respondents are grouped according to grade level and family monthly income; and significant as to Efficiency when respondents are grouped according to grade level, gadgets used for internet and family monthly income.

There was no significant relationship between the effects of ICT on literacy skills of students and their academic performance in English; and no significant relationship between the level of ICT integration and academic performance.

In partnership with the Department of Education, improvement on students' academic performance through the

adoption and integration of ICT may be achieved by providing programs and projects on ICT availability at home and school and providing free access for fast and reliable internet connection. Graphical language may be simplified for easy recognition of students and further improve the use of ICT for their literacy skills. Creation of a learning platform for easy operation that does not require a high level of mental ability to access it. The use of graphical language should not require end-users to type the command to operate the computer operating system. Enhancement of other buttons for the students to understand the lesson better than face-to-face learning modality. A similar study with a larger group of respondents from different localities may be conducted to validate and improve the generalizability of the findings.

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