
**IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)
INTEGRATION TO TEACHERS AND ACADEMIC PERFORMANCE OF STUDENTS**

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ABSTRACT

The study covers the impact of ICT to students' academic performance in English, Math, and Science subjects. Qualitative method was used in which phenomenological data analysis was applied to the direct responses of respondents. On the other hand a test was conducted to the students of four Secondary Schools of Lanuza District, Surigao del Sur, School Year 2015-2016 to determine its impact to the academic performance. Data from the students' questionnaire were treated through the One Way ANOVA to measure its significant to students' academic performance. Therefore, there is a significant difference on the students' academic performance when integrated to the competency level of teachers in ICT integration. This implies that the competency of teachers in ICT integration to teaching academic subjects had greatly influence the performance of the students. It conforms that teachers used ICT as a major strategy in teachings subjects influence the academic performance of the students in arts and sciences. A positive association between students and teachers significantly help improve the overall performance of students.

Key Words: Teachers' Competency, ICT integration, Academic performance

1. INTRODUCTION

Information and Communication Technology (ICT) is relatively a new born era in human development that combines the technology of various electronics devices. The use and the distribution of these functions with reference to the geographical location are made known (Raji and Olayiwola, 2013). It gave impact in teaching and learning context. This study manifests the impact of ICT to the academic performance of secondary students.

For more than a decade different authors cited implication of technology to educational system; Rapatan (2002), Bates (2000), and Ellis (2001). Rapatan (2002) highlighted that school administrators lead to review and articulate new performance standards; Bates (2000) advised that institutions comprehend the costs of using new technologies; and Ellis (2001), educators create pedagogy and ICT from within a systems. These cited studies imply that ICT contributes to educational systems yet need to deepen its implication.

The cited studies manifest how ICT change the educational system especially in the context of the curriculum. In Lanuza District, School Year 2014-2015 National Achievement Test result for Year IV showed students' poor level of proficiency in all areas, as it only gave 56.15 % MPS (NETRC-DepEd,2015). As interventions, the Department of Education (DepEd) required trainings and seminars to teachers to enhance teaching strategies through integrating ICT in their

lessons. These interventions have paved the way for the teachers and learners to become aware, equipped and appreciative of the use of technology.

Thus, the study on the impact of ICT to the academic performance of secondary students was employed to examine the significance of teachers' competency on ICT to the academic performance of the students. It focused also to the direct responses of teachers in which insights were analyzed. The results of this study would help the educational system to enhance ICT integration in the context of curriculum.

2. CONCEPTUAL AND THEORETICAL FRAMEWORK

The ICT-based technological and pedagogical framework helps engage students' curiosity and initiate learning, leading to critical and analytical thinking. Thakkar's study deals with that pedagogical strategies employed in the current ICT-based learning linked to constructivism paradigm today. Constructivism is known as Progressive Education.. The cognitive constructivist's point of view stressed that learners construct new ideas based upon their previously learned knowledge. Gradual mastery of the desired competencies is achieved through revisiting core ideas in several passes and relating knowledge or skills with the previous. Students continuously build upon what they already know because it is a decongested, seamless, relevant responsive, enriched, and learned (EdComparative, 2014).

Teachers' pedagogy as to competency in teaching services with ICT integration and level of implementation of ICT integration in academic subjects. The adoption of ICT integration contributes impacts to subject matter, and values (Lawless & Pellegrino, 2007) that can lead to changes in social, cultural and economic contexts (Sharples, et. al., 2013).

The academic performance of the students in English, Science, and mathematics where ICT Integration is applied. In this process of pedagogical change, the variation of technological-content knowledge that is part of a changing environment is learned, and the educational value of how students encourage to adapt 21st century skills (Fullan, 2013).

Hence, the study proves that if teachers' factors will be considered towards a positive impact on students' academic performance with ICT integration is the basis for enhancing the curriculum. It is a claim in the theory of Progressivism that when the curriculum is decongested and seamless, spiral progression of learning takes place. On the other hand, the self actualization and exploration of both teachers and students in using and integrating ICT to curriculum claim that there is a constant progress of individuals' performance.

3. METHODOLOGY

The study used qualitative design in which phenomenological data analysis to teachers' responses was applied. The study of Daling (2016) was examined and treated with One Way ANOVA (Analysis of Variance) to test its impact to students' academic performance.

4. RESULTS AND DISCUSSIONS

Table 1 Phenomenological Data Analysis on the Impact of Teachers’ Attitude to Teachers’ Knowledge Competency Towards ICT

Responses	Concepts	Themes
Computer is a big help for me especially when there is internet. It helps me in preparing Instructional materials, and preparing and restoring Lesson Plans.	Importance of ICT	Teachers adapt technology to make his/her daily tasks easier to accomplish.
I know how to use “Microsoft Word” because it is applicable for me.	Confidence in software	Teachers prioritize the knowledge and skills in ICT competence according to the most need in his/her daily tasks.
Excel is useful for me in formatting tables and computing grades.	Confidence in software	Teachers find/appreciate the extent use and function of ICT.
Computer is a great help in making backdrop for school activities. Unlike before, we need to cut letters.	Extent importance of ICT	Teachers’ appreciate how ICT change the traditional techniques into a comfortable method.

Table 1 shows the Phenomenological Data Analysis on how Teachers’ Attitude Affects Competency Towards ICT as to Knowledge. It results the importance of ICT, confidence of software, and its extent importance to teachers’ tasks. *“Computer is a big help for me especially when there is internet. It helps me in preparing Instructional materials, and preparing and restoring Lesson Plans”*. Making daily task easier to accomplish is the main reason why teachers encourage adapting ICT. This is similar to the statement of Britland (2013) that *“Allowing yourself the opportunity to do something new and using technology as the tool can open up a cave”*. It implies that adapting ICT have important role not only for the sake of students but as a basic tool in exploring the modern trends (O’Halloran, 2015).

The confidence of teachers in software is the results of prioritizing knowledge and skills in ICT according to the most need function of software to his/her daily task (infoDev, no date), and finding and appreciating the extent uses and functions of ICT softwares that could lead him/her experienced in computer (Peralta and Costa, 2007). According to infoDev (no date) that teachers’ subject knowledge influences how ICTs are used.. Peralta and Costa (2007) supports that teachers with more experience in computers have greater confidence in their ability to use them effectively.

Thus, teachers discover the extent importance of ICT when he/she appreciate how ICT change the traditional trends in his/her profession into a comfortable method. This is supports to the finding of Grov Almas and Krumsvik (2008) that if teachers do not feel comfortable with

changes, teaching practices stay the same. At the same time these teacher have developed, and have continued to develop, a digital pedagogical technology (Plair, 2008).

Table 2 Phenomenological Data Analysis on Teachers’ Attitude Competency Towards ICT

Responses	Concepts	Themes
My students are more expert than me, especially in creating, updating, and downloading softwares.	Nature of learners today	Learners today are technology oriented that teachers need to consider the need to be ICT equip.
Who says when we born we had bring already the computer?	Nature of a person	Naturally, individual has an ability to adapt what is on the environment. Hence, teachers must need to equip what is the demand of time.
During in my college days, computer was not introduce and type writer was commonly use. So, I don’t have idea on computer encoding.	Educational background cause to negligence to adapt ICT	The use of computer is a fact today that individual need to be literate.
I only learnt computer when I graduated from my baccaulaureate through internet surfing. There was computer in our college days and it was one of the pre-requite subjects but I never learnt on it because computer units were limited.	Self-motivation to equip ICT and availability of materials to learn	The accessibility of internet helps individual to learn. Hence, self-motivation is worthless if the availability or accessibility of ICT is absence.

Table 2 indicates the nature of learners, nature of a person, Educational background cause to negligence to adapt ICT, and Self-motivation to equip ICT and availability of materials to learn. *“My students are more expert than me, especially in creating, updating, and downloading softwares”*. It explains that learners today are technology oriented that teachers need to consider the need to be ICT equip. This implies that ICT integration has a great role in the effectiveness for both teachers and the students (Ghavifekr & Rosdy,2015).?” supports that person is naturally have an ability to adapt what is the changes on his/her environment (Lourenco and Casey, 2013). So, teacher must equip what is the demand of time and learners today are one of the highlights of recent educational system.

On the other hand the statement *“During in my college days, computer was not introduce and type writer was commonly use. So, I don’t have idea on computer encoding”* explains that educational background of an individual cause to negligence to adapt ICT. This fact address that the use of computer in educational system for learners is a need to consider in basic literacy. This is similar to Setzer (no date) statement that *Computers should be learned and used as soon as possible because they will be essential for the individual in the professional working place.*

There was computer in our college days and it was one of the pre-requisite subjects but I never learnt on it because computer units were limited” highlights the Self-motivation of individual to equip ICT and availability of materials to learn. The accessibility of internet helps individual to learn. Hence, self-motivation is worthless if the availability or accessibility of ICT is absence (Odunlade, 2017). Thus, it support to the findings of Lourenco and Casey (2013) that teachers’ well-equipped preparation with ICT tools and facilities is one the main factors in success of technology-based teaching and learning.

The Influence of ICT to Students’ Academic Performance

The finding of Ajos (2011) emphasizes that there is a significant relationship of the extent of ICT integration on the level of achievement of the pupils. Yet, the variation that exist were associated with the availability and readiness in terms of budget, competence and initiative of teachers and school heads to advance with a paradigm shift of learning instruction. Thus, teachers’ competency as to knowledge, skills, and attitude of Daling (2016) was examined to determine its impact to students’ academic performance.

Table 3 Summary for One Way ANOVA

Sources Variation	SS'	df	MS'	Computed (F)	P-Value	Decision	Interpretation
Between Column	4.04	2	2.02	1.90	0.205	Reject H_0	Significant
Within Column	9.58	9	1.06				

As to significant difference on the students’ academic performance when integrated to teachers’ competency, result shown in Table 4 revealed that the computed F value of 1.90 is greater than the P-value of 0.205 set at 5% level of significance. Hence, the null hypothesis is rejected. Therefore, there is a significant difference on the students’ academic performance when integrated to the competency level of teachers in ICT integration. This implies that the competency of teachers in ICT integration to teaching academic subjects had greatly influence the performance of the students. This finding conforms to the study of Bennett (2012) which indicated how teachers used Computer Assisted instruction as a major strategy in teachings subjects influence the academic performance of the students in arts and sciences. A positive association between students and teachers significantly help improve the overall performance of students.

5.CONCLUSION

There is a significant difference on the students’ academic performance when integrated to the competency level of teachers in ICT integration. This implies that the competency of teachers in ICT integration to teaching academic subjects had greatly influence the performance of the

students. It conforms that teachers used ICT as a major strategy in teachings subjects influence the academic performance of the students in arts and sciences.

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