Extent of Technology Utilization of Secondary Teachers: Basis for Open Educational Resources Training Workshop

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Introduction

The Department of Education is very dedicated to the pursuit of knowledge, to the study and clarification of values and to the advancement of the society they serve. The advancement of knowledge can generate an almost palpable excitement in the life of an educational institution. It is tied inextricably to the freedom to think freshly, to see propositions of every kind in ever changing light.

In the Philippine setting, every individual has the right to receive education which enable them to become a productive citizen. The Philippine constitution mandates that every individual regardless of age , sex, race, political or socio-economic status must enjoy education. Moreover, DepEd ICT service shared how ICT became prevalent over the years.

Despite increases in resources and training opportunities, according to Rowand (2014), several factors still affect teachers' use of computers and the Internet in classrooms. The first factor is years of teaching experience. Newer teachers are more likely to utilize computers or the Internet to facilitate various teaching activities than those with 20 or more years of teaching experience. The second factor is poverty level. Teachers in a wealthy school district are more likely to utilize

computers or the Internet in teaching than those in a poor school district. In addition, only about one third of teachers surveyed reported feeling well prepared or very well prepared for utilizing computers or technology in teaching.

The main concern of the study is to determine the extent of technology utilization of secondary teachers: basis for open educational resources training workshop. Updated with the latest advancements in the use of technology, teachers in public secondary schools address technical problems of laboratories and equipment, not enabling them to pass the same skills to students. During this research, the researchers collected data from public secondary teachers in Bulakan, Bulacan were informally interviewed.

Theoretical/Conceptual Framework

After decades of studying the impact of technology on schools, the education technology field is calling for "research that makes a difference" (Roblyer, 2015). Leading scholars in the field have recently started a discussion to examine the complexity of educational technology scholarship through the lens of evidence-based research.

In education, the impact of technology is so compelling and pervasive that the use of information learning and knowledge systems, particularly in terms of how education is delivered, to whom, and how. The wonders of information and communication technology allow the use of more varied instructional approaches to produce a more interactive learning environment for students.

Figure 1 presents the conceptual model utilized in the study. The study posits that the extent of technology utilization of secondary teachers: basis for open educational resources training workshop.

The independent variables of the study consist of the utilization of software and hardware resources in teaching. Specifically, software resources would include word processor, spreadsheet, presentation software, webpage development tools, web browser, electronic mail. Hardware resources on the other hand, refer to electronic board, computer projector system, internet/web environment.

Open educational resources training workshop served as the dependent variables of the study.

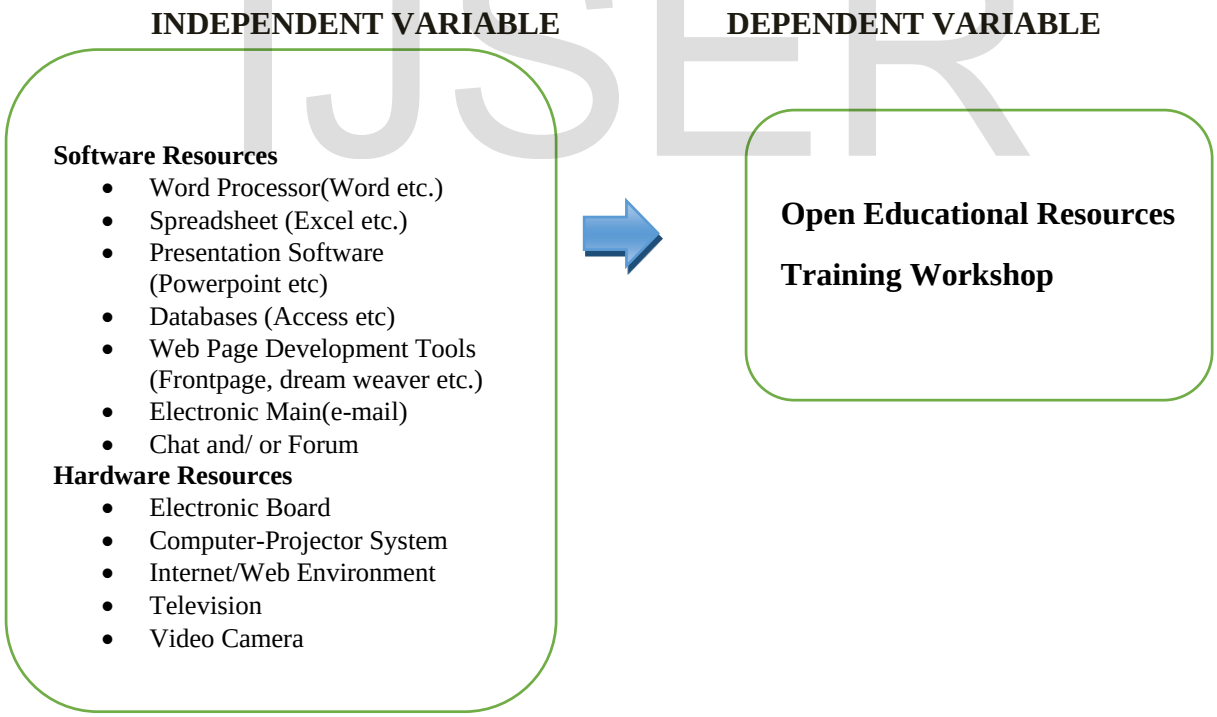

Figure 1. Conceptual Model of the Study

Research Question

The major concern of the study is to determine extent of technology utilization of secondary teachers: basis for open educational resources training. Specifically, the researchers answered the following questions.

1. To what extent do teachers integrate technology in teaching subjects in terms of:

   1.1 software resources

   1.2 hardware resources?

2. To what extent do teachers used open education resources?

3. What pedagogical implications may be drawn from the finding of the study?

Significance of the Study

In general, this study is important for the public secondary teachers in Bulakan Bulacan because it provides vital information regarding the extent of technology utilization of secondary teachers. With this study, the researchers expects to contribute to the proper direction in planning, developing, revisiting and implementing programs that could better support the school administration.

Particularly, the findings of the study have a greater value to the following:

School Administration. These study opened the administration to other possible factors affecting the academic performance of the teachers in technology integration in teaching subjects in public secondary teachers.

Teacher. These study revealed the student's strengths and weaknesses, data of the study could be used by the teacher in the selection of teaching strategies and evaluation techniques to insure the effectiveness and efficiency of classroom instruction.

Researcher. The study provides a workable guide to researchers who are undertaking or will be undertaking studies similar nature in the future in terms of problems and hypothesis formulation, framework methods and techniques, as well as statistical treatments.

Scope and Delimitations of the Study

The main concern of the study was extent of technology utilization of secondary teachers: basis for open educational resources training. The study focused on the perceived roles of the teachers as instructional leaders, the values of the teacher's place on the importance of technology, the practices teachers utilized to influencing the use of technology in classrooms. The data was gathered from four public schools in Bulakan, Bulacan SY 2019 – 2020.

Method

Type of Research

This study utilized descriptive correlation type of research according to Geology Makkawi (2014), this method is concerned with the description of the independent variable, which may be in the form of current practices, characteristics of groups of individuals as well as their behavioral patterns, attitudes and opinions and correlating them with quantitative dependent variables.

Respondents

Table 1

Respondents of the Study

Name of School	Teachers Population

A	21
B	55
C	45
D	27
TOTAL	148

The study involved one hundred forty-eight (148) teachers from the four (4) public secondary schools in the Bulakan Bulacan representing 100 % of the population.

Sources of Data

Other sources of data include the respective school records on retrieving the total numbers of respondents.

Instrument of the Study

This study utilized standardized instrument on extent of technology utilization of secondary teachers. The instrument on ICT integration was tested by Nalugon (2014) for its validity and reliability. The instrument on ICT integration will be appraised in terms of their ability to use software resources and hardware resources.

Data Collection Procedure

The mode of data gathering was questionnaire method and one on one interview. Each of the respondents was given a structured set of questions. In gathering the data, the researchers carried out the following procedures:

1. The researchers asked permission from the district supervisor on the conduct of the research study.
2. With the approval of the school head the researchers distributed the questionnaire to the respondents personally.
3. Researchers scheduled the one on one interview with the respondents.

Ethical Considerations

The following ethical guidelines observed by the researchers during the research period:

1. The dignity of the respondents was protected at all times.
2. Full consent was obtained from the respondents prior to the study.
3. Acknowledgement of works of other authors used in the study is properly cited using the APA referencing system.

Data Analysis

The data gathered were processed by computer system using the Statistical Packages for Social Sciences (SPSS). The following statistical tests were applied in data analysis:

1. The extent to which teachers integrate technology in teaching subjects were quantified using a five-point Likert Scale:

Scale	Range	Verbal Interpretation
5	4.50-5.00	Very Great Extent
4	3.50-4.49	Great Extent
3	2.50-3.49	Moderate Extent
2	1.50-2.49	Small Extent

1	1.00-1.49	Never

Results and Discussion

Extent of Technology Utilization of Secondary Teachers

Seasoned educators recognized the value of utilizing technology in teaching. Beeland (2012) contends not only make teaching efficient and effective but also enhances the motivation of students to study. In this light, the utilization of instructional technology among secondary teachers was assessed and the data gathered are summarized in Tables 2 and 3.

The findings revealed that the teachers utilized various software and hardware resources in teaching. The software resources that have been greatly utilized were word processor as shown by the mean value of (3.93); spread sheets (4.04); and presentation software (3.64). Two other instructional software's were utilized to a moderate extent. These were search engines (3.36); and electronic mail (3.07). The rest of the instructional technologies were reportedly utilized to a small extent. These were discussion lists and chat and/or forum (2.18); templates (2.14) and photo editing/lay outing (2.04).

In terms of hardware resources, multimedia computer system/laptop have been utilized to a very great extent. This was shown by the obtained mean values of 4.57 respectively. LED TV/Projector was greatly utilized in teaching (3.93). Other instructional technologies were utilized to a moderate extent like DVD player/speaker (2.93), internet/web environment (3.18), video camera (3.46) and cellphone/ipad (3.46).

As a whole, it may have gleaned from the findings that instructional technologies have been utilized in teaching to a moderate extent. Despite the scientific findings on the usefulness of technology in teaching and its capability in enhancing the interest and motivation of students to study, it is surprising why instructional technology is not to advantage. It may be a good idea for researchers to look closely on the matter. Wang (2014) opened that knowledge and self-efficacy perceptions of teachers is an important factor to consider. They claim that the teachers with the high self-efficacy perceptions on technology integration tend to be more successful in the technology process.

Table 2

Instructional Technology of Teachers in terms of Software Resources

Indicators	**Mean**	**Interpretation**
Word Processor (Word etc.)	3.93	Great Extent
Spreadsheet (Excel etc.)	4.04	Moderate Extent
Presentation Software (PowerPoint etc.)	3.64	Great Extent
Templates (Publisher etc.)	2.14	Small Extent
Photo Editing/Lay outing (Adobe Photoshop)	2.04	Small Extent
Search Engines (Google, yahoo etc.)	3.36	Great Extent

Electronic Mail (e-mail)	3.07	Moderate Extent
Chat and/or Forum	2.18	Small Extent
Average	**3.05**	**Moderate Extent**

Table 3

Teachers Integrate Technology in term of Hardware Resources

Indicators	**Mean**	**Interpretation**
Multimedia Computer System/Laptop	4.57	Very Great Extent
DVD Player/Speaker	2.93	Moderate Extent
Internet/Web Environment	3.18	Moderate Extent
LED TV/Projector	3.93	Great Extent
Video/Digital Camera	2.82	Moderate Extent
Cellphone/iPad	3.46	Moderate Extent
Average	**3.48**	**Moderate Extent**

Extent of teachers' integration of technology in open educational resources

Results of the regression analysis revealed that the software resources and hardware resources correlated with the teachers' performance in varying extent. This was shown by the obtained non-zero coefficient which are software resources (B=0.017), hardware resources (B=0.04).

A closer look at the results would show that integration of technology revealed positive coefficient which means direct effects of the independent variable software resources and hardware resources to the dependent variable (OER). This means that in general the higher the teachers' integration of technology the higher the teaching performance. Conversely the lower the teachers' integration of technology the lower the teaching performance. Analysis of the obtained Beta Coefficient, one could glean that the variable that exerts the highest influence is software resources (B=0.452) followed by hardware resources (B=0.387). This means that the best predictor of open educational resources is software resources. The results of the analysis of variance revealed an F value = 1.300 with an associated probability = .291. Since the P value is greater than alpha null hypothesis may be accepted. It may be concluded that the software resources and hardware resources did not exert significance combined effects on the open educational resources.

Table 4

Regression Analysis of Open Educational Resources

Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	1.146	0.067		17.138	0
Software Resources	0.017	0.02	0.207	0.859	0.399
Hardware Resources	0.04	0.025	0.387	1.608	0.121

R-squared = .098
F-value = 1.300
p-value = .291

alpha = 0.05

Pedagogical Implications drawn from the Findings of the Study

There are number of implications drawn in this study, to wit:

1. The value of extent of technology integration in teaching has been well established. This implies that teachers have to give high priority in software resources and hardware resources
2. Determinants of software and hardware resources correlated positively with teacher's performance. It may be gleaned from the findings, the importance of teachers' integration of technology in improving teacher's performance.

Conclusions

In the context of the foregoing findings, the researcher draws the following conclusions:

1. Determinants of hardware and software resources of public secondary teachers higher the teaching performance.
2. The integration of technology of teachers' influence students' academic performance.
3. A number of implications were drawn from the findings of the study that will further strengthen the research culture in the Department of Education in the Bulakan, Bulacan regarding extent of technology utilization of teachers.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are hereby submitted:

That the school heads take precedence suspend piercing expectations from the teachers and grant intellectual stimulations as able-bodied as to result efficient innovators in the school community.

That teacher should engage in seminar, training and workshop for open educational resources.

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