

Technological Pedagogy Among Senior High School Teachers

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Abstract: This study examined the technological pedagogy of the senior high school (SHS) teachers in one of the public high school in General Santos City. The descriptive-survey method was used employing quantitative data. The data were gathered through the survey questionnaires and administered to all teachers teaching at the SHS school program in the locale. The data were analyzed through frequency, percentage and weighted mean. The findings of the study revealed that most of the teachers agreed that: the teachers teaching in the SHS were relatively young and spread across different field of specialization, their knowledge on the basic information and communications technology (ICT) was relatively high with few low level areas for consideration, the school was lacking in terms of ICT facilities, the integration of ICT Technology in the delivery of instruction was not that extensive, and there were barriers in the full integration of ICT in the classroom learning activities. Given the overall results, the study recommends that the school should strengthen their teachers technological pedagogy and the strategies for proposed media center can be adopted.

Keywords: Pedagogy, Public school, Teacher, Technology, Senior high school.

1. Introduction

“Quality, Accessible, Relevant and Liberating Basic Education” this is the banner headline of Secretary Leonor Briones presentation for Deped at the Education Summit last November 3, 2016. Truly the vision of Quality education continues to be a challenge as teachers face the demands of educating the 21st Century Learner who must be tooled with 21st century skills, knowledge, attitudes and values as they confront 21st Century challenges of globalization and unprecedented growth in technology and communication. For all of these, the bulk of responsibility falls upon the shoulders of the ordinary teacher who must prepare her learners for these future challenges. After all, the battle is not fought in the streets or in the fields, or in the esteemed halls of Congress but in the four corners of the classroom. At the end of the day, the students learn through the masterful crafting of the learning experiences by the ordinary classroom teacher.

Despite the challenge, educators understand that the learning process is the concern of the classroom teacher. Today, the tools of teaching which we call as Educational Technology are varied

and far advanced. With personal computers, laptops, and the World Wide Web, the teachers can have a variety of teaching resources at his disposal. Educational technologies are learning/instructional materials and devices through which teaching and learning are done. (Adeyanju, 2003) in as much as technology is here to stay teachers are bound to embrace it as part of the growth of education. In general, teachers express positive feelings toward technology integration in the classroom. Mueller, Wood, Willoughby, Ross, & Specht (2008) attribute this to teachers being familiar with its use. They recognize the potential for technology to heighten engagement of students in instructional activities and to help solve complex problems (Bell & Garofalo. 2005). According to Obannon, Puckett & Rakes (2006) in comparison to traditional print formats, technology can enhance visual learning strategies due to the speed and ease with which translating, updating and modifying information can occur.

Not everyone is accepting of these educational technologies. According to Hall & Hord (2001), school teachers will have differing thoughts, feelings, attitudes, and perceptions – framed as —concerns – about the adoption and use of innovations such as the use of technology in teaching pedagogy. Consequently, school administration must also understand that not every teacher will automatically appreciate innovation or the use of pedagogy in the classroom.

One undeniable fact facing the teacher is the uniqueness of the 21st Century Learners. The demographics might still be the same but the lifestyle has greatly altered. Admittedly the profile of the 21st Century Learner is very much different than that of his Baby Boomer Teacher. Our 21st century learner grew up with social media and computers. They build network of friends and community over social media sites and obtain information with lightning speed at the tip of their fingertips. With a plethora of information bombarding them from their cell phones, tablets, laptop, television, and headphones, we have kids who are media savvy as well. In the not so distant future these children will deal with a world powered by computers, where their tasks and jobs are designed with the aid of computer.

Consequently, these, 21st century learners need to be computer savvy. The better place for them to learn and prepare

about this is the classroom. This brings us to the crux of the subject; do the teachers have what it takes to bring to the classroom educational technology needed today?

Thus, this study of integration of technology in teaching was conducted as a basis for the proposed educational media center.

2. Statement of the Problem

This study described the extent of the teacher's integration practices in Educational Technology to the Pedagogy of Senior High School (SHS) Teachers of Lagao National High School (LNHS) as basis for a proposed Educational Media Center.

Specifically, the study sought to answer the following questions:

1. What is the profile of LNHS-SHS faculty members in terms of:
 - 1.1 Age;
 - 1.2 Education;
 - 1.3 Number of Years in Teaching; and
 - 1.4 Area of Specialization?
2. What is the extent of facility/capability of the teachers' technological knowledge in terms of:
 - 2.1 Basic Skills; and
 - 2.2 Advanced Skills?
3. What information and communications technology (ICT) facilities are available for use in the classroom teaching?
4. What is the extent of use of technology by teachers in their pedagogy in terms of:
 - 4.1 Delivery of Instruction;
 - 4.2 Accommodation (Designing/redesigning teaching strategies to suit the capacity of the learners); and
 - 4.3 Student Projects and Assignments?
5. What are the perceived barriers in the full integration of ICT in the classroom learning activities?
6. Based on the findings of the study, what strategies can be formulated for the proposed media center?

3. Conceptual Framework

The study has underpinnings on the TPACK framework developed by Dr. Matthew J. Koehler in 2012.

It combines three knowledge areas: technological knowledge, content knowledge, and pedagogical knowledge. This framework looks at how these trio works together to increase students motivation and make the content more accessible to students. This study focuses on technological knowledge of the teachers in terms of teaching.

According to Koehler & Mishra (2009) the technological knowledge is about the certain ways of thinking about, and working with technology, tools and resources and working with technology can apply to all technology tools and resources. This includes understanding information technology broadly enough to apply it productively at work and in everyday life, being able to recognize when information technology can assist or impede

the achievement of a goal, and being able continually adapt to changes in information technology.

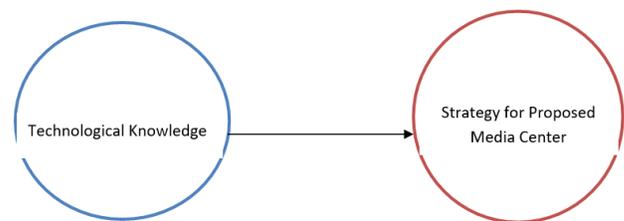


Fig. 1. Conceptual framework of the study

4. Methodology

A. Research Design

The study used a descriptive-survey approach to research. It involved the collection of data relative to the integration of technology to the pedagogy of SHS of LNHS. The results of the study will be inputs to a proposed Educational Media Center for the school.

The statistical tools used in this study are frequency, percentage and weighted mean.

B. Description of the sources of data

Primary data necessary for the research was on the extent of integration on the use of educational technology to the pedagogy of the teachers was obtained through survey questionnaire and classroom observation.

Secondary data was gathered from books, journals, published and unpublished theses and dissertations.

C. Locale of the study

This study was conducted at the Lagao National High School (LNHA) located at Aparente Street, Barangay San Isidro, General Santos City, Senior High School (SHS) Program. The school's SHS Program is in its maiden year of operation. The Academic program is offering the strands of HUMSS (Humanities and Social Sciences), ABM (Accountancy, Business and Management), and GAS (General Academic Strand), while the TVL (Technical Vocational Livelihood) program has Housekeeping, Cookery, and Wellness. The school is the center of secondary education in a community of middle income households in the Barangay of San Isidro.

D. Respondents of the study

The respondents were the teachers in the SHS Teachers of LNHS. These teachers numbering to 26 are engaged in teaching at the various programs of the SHS. Belonging to different fields of specializations, they face the challenge of setting the bar of excellence in the practice of teaching as the first batch of educators in the SHS Program.

5. Results and Discussions

A. Profile of LNHS-SHS program

Table 1 presents the demographic profile of the respondents.

As revealed in the table, the distribution of respondents in age ranges was seventeen percent (17%) for both 26 – 32 years old, and 47 years and above. The highest was the age range of 33 – 39 years old at 54% while 12% for 40 – 46 years old.

The respondents' undergraduate course was seventeen percent (17%) for BS Mathematics, BS Business Education and BSED English. It was followed by AB English with thirteen percent (13%) and the rest were eight and four percent (8% and 4%).

The respondents' highest years of teaching experience was the range of 7 – 12 years with thirty-three percent (33%). While twenty-five percent (25%) for both 1 – 6 years, and 19 years and above. While seventeen percent (17%) for the range 13 – 18 years.

Moreover, majority of the respondents were specializing under the academic track which has sixty-six percent (66%) and seventeen percent (17%) for each of TVL and Sports.

Table 1
Demographic profile of respondents

	Frequency	Percentage
Age Range:		
26 – 32	4	17%
33 – 39	13	54%
40 – 46	3	12%
47 years and above	4	17%
Education: Undergraduate Course		
BSEd – Filipino	1	4%
AB Psychology	1	4%
BS HRM	1	4%
BS Math	4	17%
BS Business Education (Management/Commerce)	4	17%
BSEd – English	4	17%
BS Biology	2	8%
BPE	2	8%
BS ECE	1	4%
AB English	3	13%
BSIT	1	4%
Years of Teaching Experience:		
1 – 6	6	25%
7 – 12	8	33%
13 – 18	4	17%
19 years and above	6	25%
Specialization: Tracks		
Academic	16	66%
Technical-Vocational Livelihood	4	17%
Sports	4	17%
Arts and Design	-	-

B. Extent of Teachers' ICT Skills

The extent of SHS teacher's ICT skills was examined by the researchers and determines the level of the respondents' ICT skills. In table 2.A, for the basic ICT skills the highest percentage was broadly good in word processing which has fifty-eight percent (58%) and falls on high level skills. It was followed by the use of spreadsheet, with fifty-four percent (54%) as falls on the same level of skills. The uses of presentation tools and internet browsing have the same percentage of forty-six percent (46%) which falls on high level

skills. The lowest percentage was four percent (4%) which was on graphics which was described as very low skills level.

The extent of advanced ICT skills of the respondents was also examined. The Table 2.B showed that the highest percentage was forty-six percent (46%) which falls on the average level skills was "on the use of statistical tools". It also showed the developing of educational software had forty-two percent (42%) which belongs on the very low level skills. The advanced skills in programming had the same twenty-nine percent (29%) on the low and very low level skills.

Table 2
Extent of ICTskills of SHS teachers

A. Basic ICT Skills	Very High	High	Average	Low	Very Low
Word Processing	29%	58%	13%	-	-
Spread Sheet	8%	54%	29%	8%	-
Presentation Tools	13%	46%	33%	8%	-
Emailing	21%	37%	29%	13%	-
Internet Browsing	25%	46%	29%	-	-
Graphics	8%	38%	29%	21%	4%
Social Media	29%	37%	21%	13%	-
B. Advanced ICT Skills					
Use of Statistical Tools	4%	21%	46%	17%	12%
Programming	4%	17%	21%	29%	29%
Developing of Educational Software	4%	17%	12%	25%	42%

C. Availability of ICT facilities

Table 3
Availability of ICT facilities among teachers

Item	Available				Not Available	
	School Provided		Personal		-	%
	f	%	F	%		
Computer (Desktop/laptop)	9	38%	15	62%	-	-
Printer	14	58%	9	38%	1	4%
Multimedia Projector	15	63%	8	33%	1	4%
Internet facility/WIFI	16	67%	7	29%	1	4%
Educational Software for classroom instruction	9	38%	8	33%	7	29%

Table 3 shows the availability of ICT facilities among the SHS teachers. It was shown that sixty-two percent (62%) of the available computer (desktop/laptop) were personally owned by the teachers and the thirty-eight percent were provided by the school. The printer was available because fifty-eight percent (58%) were provided by the school and thirty-eight percent (38%) were personally owned by them and only four percent (4%) were not available. The sixty-three percent (63%) of the multimedia projector were available and it is provided by the school, thirty-three percent (33%) were personally owned by the teacher and only four percent (4%) were not available. Moreover, the Internet facility/WIFI was given high importance by the school of which sixty-eight percent (68%) were provided. The twenty-nine percent (29%) were owned by the teachers. On the other hand, educational software for classroom instruction totaled of seventy-one percent (71%) available. It was thirty-eight percent (38%) and thirty-three percent (33%) provided by the school and personally owned by the teacher,

respectively. There were twenty-nine percent (29%) not available.

D. Extent of integration of technology in pedagogical approach

The extent of integration of technology in the SHS classroom instruction and in the pedagogical approach of the teachers was described using the weighted mean.

Table 4
Extent of Integration of Technology

A. Delivery of Instruction	Weighted Mean	Description
Use of Multimedia in lectures	3.96	High
Use of Films & video to explain concepts	3.79	High
Use of technology based games	3.50	High
Use of computer-aided instruction software	3.17	Average
Use of Inter-active board in the classroom	2.79	Average
Overall Weighted Mean	3.44	High
B. Accommodation		
I have facilitated physical changes in the classroom to accommodate integration of technology	3.33	Average
The objectives for the use of technology were explained.	3.50	High
The safety on the use of technology was thoroughly discussed.	3.54	High
The coaching and mentoring were made on the use of the software and hardware to facilitate learning in the classroom.	3.79	High
Appropriate computers and gadgets were provided to facilitate learning	3.33	Average
Overall Weighted Mean	3.50	High
C. Student Projects and Assignments		
Multimedia Presentation	3.17	Average
Short Films and Video	3.04	Average
Blogging	2.75	Average
Use of Social Media Sites	3.42	High
Posting of Assignments over the Social Media	3.04	Average
Use of E-mailing in submission of Assignments and Projects	2.58	Low
Overall Weighted Mean	3.00	Average

Table 4A showed the extent of integration of technology in terms of delivery of instruction. It had an overall weighted mean of 3.44 which was generally described that the extent was high. The highest weighted mean was the use of multimedia in lectures which was described as high (3.96). This implies that the delivery of instructions or lectures was through multimedia. The use of films and video to explain concepts were also described as high (3.79). The lowest was the use of inter-active board in the classroom which was described as average (2.79).

In Table 4.B showed the extent of integration of technology in terms of accommodation was generally described as high (3.50). The extent of integration by coaching and mentoring the use of software and hardware to facilitate learning in the classroom was also high (3.79) which was the highest in the accommodation in order to address the needs of the learners. It was followed by discussing the safety use of technology which was also described as high (3.54). The least is the facilitation of physical changes in the classroom at an average rating (3.33).

The extent of integration of technology in terms of the

students' assignments and projects had an overall weighted mean of 3.00 which was generally described as average. It was shown that the extent of using of social media sites in the assignments and projects of students was high (3.42). It was followed by the multimedia presentation which was described as average (3.17). The lowest was the use e-mail in submission of assignments and projects of which was described as low (2.58).

E. Perceived barriers and benefits of ICT integration in classroom activities

Table 5.A shows the overall rate of perceived barriers of ICT full integration in the classroom learning activities was (3.04) which was generally described as average. As shown in the table below, the major perceived barrier was the length of time to develop lessons in using the technology which had the rate of average (3.29). It was followed by the limited ability of the teacher to integrate in the teaching processes which also had a rating of average (3.17). In Table 5.B also shows the rate of the perceived benefits of ICT integration in the classroom activities. It had an overall rating of high (3.82). In details, majority of respondents rated the benefits of at ease in preparation of grades which was described as very high (4.25). The lessons become more interesting for the students was also rated included as a major benefits in integrating the ICT in the classroom activities which was high (4.04).

Table 5
Perceived barriers and benefits of ICT integration

A. Perceived Barriers	Weighted Mean	Description
Availability of computers for all my students	3.13	Average
Availability of technical support to use instructional technology	2.92	Average
Enough time to develop lessons using technology	3.29	Average
Availability of internet facilities	3.13	Average
Availability of instructional software	2.79	Average
Limited ability to integrate technology in the teaching/learning process	3.17	Average
Busy with other activities	2.83	Average
Overall Weighted Mean	3.04	Average
B. Perceived Benefits		
Ease in the preparation of lessons	3.96	High
Ease in preparation of grades	4.25	Very High
Lessons are more interesting for the students	4.04	High
Effectively communicates to students	2.96	Average
Enhances collaboration among teachers	3.97	High
Students adapt the new technology	3.63	High
Students acquire skills in technology	3.96	High
Overall Weighted Mean	3.82	High

6. Conclusion

Based on the findings the following conclusions were drawn:

1. The profile of the respondents we can draw the conclusion that the teachers at the Senior High School of Lagao National High School were relatively young. Their undergrad Degrees spread across different fields

of specialization.

2. The Extent of the teachers' knowledge in Basic ICT skills was relatively high where low levels was identified on facility and knowledge on spread sheet, presentation tools, e-mailing, and graphics.
3. There were available ICT facilities for use but not enough for the needs of the students and the teachers. However, the personal commitment of the teachers to augment the lack of ICT facilities of the school was evident. Yet, despite of the augmentation by teachers on the lack of facilities there were still deficiencies in ICT.
4. There were integration of ICT Technology in the delivery of instruction but not extensive enough particularly in the area of Students Projects and assignments.
5. The barriers in the full integration of ICT in the classroom learning activities should be given thorough consideration by the school.

7. Recommendations

The following recommendations were drawn:

1. Teachers who have deficiencies in the use of ICT shall be trained to be more effective in teaching.
2. There is a need to equip classrooms with ICT Facilities to meet standards of 21st century learners. If shortage of funds is a limiting factor, tap partner stakeholders to commit ICT facilities.
3. There is a need to sustain teachers ICT integration efforts and address the shortage of integration in the area of students projects.
4. There shall be a provision for benchmarking activities with teachers in the industry and in other schools to highlight the need to improve ICT integration practices in classroom instructions.
5. There is a need to address the barriers to integration in the LAC sessions and solicit teachers contributed solutions to address the problem.

6. There is a need to address the barriers to integration in the LAC sessions and solicit teachers solutions to address the problem.
7. The proposed media center as prescribed by the researchers can be considered for the SHS program to address technological knowledge in teaching.

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