Relationship of Teachers' Technology Skills and Selected Profile: Basis for Redesigning Training for Online Distance Learning Modality

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Abstract - *The use of ICT as part of teacher's instruction heightened because of the COVID-19 pandemic. This study analyzed the relationship of teacher's selected profile such as educational attainment, field of specialization and years in service in association with skills in information processing, content creation, communication and problem-solving. The study utilized correlational research design and questionnaire as instrumentation. Simple random sampling was used to obtain the necessary number of sample from the population. Percentage and frequency distribution and chi-square test was used for analyzing the data collected. The data revealed in terms of content creation shows a significant relationship to educational attainment where it implies that the skills of making content using programs and software varies depending on the educational attainment a teacher achieved. Also, in terms of information processing, the data shows a significant relationship to years in service where it suggest that the skills in processing, collecting and analyzing information using online software and engine varies depending on the experience of the teacher. This study recommends to introduce and utilize a variety of technology options in training teachers and consider new and innovative learning methods in training them.*

Keywords – ICT, technology, skills, teachers

INTRODUCTION

For the last few decades, technology as part of teaching became a trend as part of a fast-changing educational system. These technology or Information and Communication Technologies (ICTs) such as the internet, wireless networks, cell phones, computers, software, middleware, videoconferencing, social networking, and other media applications and services were become a requirement as part of teaching instruction. Even though teachers are adjusting with the trend to increase work productivity and job performance, the guarantee of on the success and positive outcome was still far from reality in some because of the barriers encountered on the use of technology (Ghavifekr, n.d.) In the study of Habibu et al. (2012), the major barriers which were identified to teachers from Uganda were lack of genuine software, inadequate computer in the classroom, low speed internet, lack of motivation from teacher and student side to use ICT, lack of proper training skills, unavailability of latest ICT equipment, lack of expert technical staff, poor administrative support, etc.

The abovementioned existing problem in technology was heightened by the pandemic brought by COVID-19. The school were forced to closed and implement distance learning modalities. During this period of school closures, teachers require training in the use of distance learning platforms (where one of which is online learning) to ensure teaching and learning can continue. Montoya (2020), Director of UNESCO Institute for Statistics state in her article that while 63 million primary and secondary school teachers who were affected by COVID-19-related school closures have managed to reach students with the skills and equipment available, many of them have not received basic teacher training. Montoya also assert that even though teachers are attending

some training programs, most of it do not include the use of ICT in education especially topics for developing appropriate learning and teaching strategies.

This pandemic marks the time for government-led initiatives for schools to test innovative methods to reach out to students, learn from other countries and incorporate effective approaches into the regular provision of education. Digital technologies need to be integrated with appropriate teacher's training to create effective student learning experiences. Suggested professional development of teachers focusing new pedagogies and tools for learning with the aim of enhancing the teaching-learning process is advised. It is important for teacher trainers and policy makers to understand the barriers and cost-effectiveness of different approaches to ICT use in teacher training so that they can effectively provide meaningful training thus, this study was initiated in order to assess the technology skills of teachers as one of the barriers in order to recommend and redesign training for online distance modality.

OBJECTIVES OF THE STUDY

This study aimed to determine teacher's technology skills which will be a basis for redesigning training for online distance learning modality. Specifically, it sought to answer the following questions:

1. What is the demographic profile of the respondents in terms of:

   1.1. Field of Specialization;

   1.2. Educational Attainment; and

   1.3. Years in Service?

2. Is there a significant relationship between the technological skills of teachers based on the abovementioned profile?

3. What plan of action may be recommended in redesigning teacher's training for online distance learning modality anchored to their technological skills?

Null Hypothesis

There is no significant relationship between the technological skills of teachers based on the abovementioned profile. The null hypothesis was tested using the 0.05 level of significance.

MATERIALS AND METHOD

This study utilized the correlational method of research. It determines the technological skills of teacher using a standardized questionnaire which was adopted and was later administered.

The questionnaire was designed and tested by the European Union (Europass). It is consisting of two parts: the first part is consisting of items regarding the respondents' demographic profile and the second part includes items that determine the respondent's technology skills. It is divided into different facets which includes information processing, content creation, communication and problem-solving. The items assessed using the scales of 1 for "beginner; 2 for "Intermediate" and 3 for: "advanced". Few necessary amendments were made based on the evaluation of the experts in the field of technology education and results of Cronbach's alpha to assure that it is more suitable for the context and participants.

The respondents of the study are the thirty-two (32) online teachers from Manuel I. Santos Memorial National High School. They were purposively chosen since they are the teachers facilitating the online learning modality of the school. Prior to the administration of the questionnaire, approval for the permission to conduct the study was requested to the school principal. The questionnaire was the administered via Google form. The data was then interpreted and analyzed using Statistical Package for Social Sciences (SPSS).

RESULTS AND DISCUSSION
Demographic Profile of the Respondents

Table 1.1: Frequency and Percentage Distribution of the Respondents in Terms of Field of Specialization

Field of Specialization	Frequency	Percent
Filipino	15	9.9
English	23	15.1
Mathematics	20	13.2
Science	19	12.5
Araling Panlipunan	18	11.8
Technology and Livelihood Education	12	7.9
Music, Arts Physical Education and Health	20	13.2
Values Education	25	16.4
Total	**152**	**100**

Table 1.1 presents the frequency and percentage distribution of the teacher-respondents according to their field of specialization. Out of one hundred fifty-two (152) respondents, fifteen 915) or 9.9% have specialization in Filipino subject; twenty three (23) or 15.1% in English; twenty (20) or 13.2% in Mathematics; nineteen (19) 0r 12.5 in Science; eighteen (18) or 11.8 % in Araling Panlipunan; twelve (12) or 7.9 in Technology and Livelihood Education; twenty (20) or 13.2% in Music, Arts, Physical Education, and Health; and twenty five (25) or 16.4% in Values Education.

Table 1.2: Frequency and Percentage Distribution of the Respondents in Terms of Educational Attainment

Educational Attainment	Frequency	Percent
Bachelor's Degree	92	60.5
Master's Degree	60	39.5
Doctorate Degree	0	0
Total	**152**	**100**

Table 1.2. presents the frequency and percentage distribution of the teacher-respondents according to their educational attainment. Out of one hundred fifty-two (152) respondents, ninety-two (92) or 60.5% have bachelor's degree and sixty (60) or 39.5% have master's degree. None of the respondents have doctorate degree.

Table 1.3: Frequency and Percentage Distribution of the Respondents in Terms of Years in Service

Years in Service	Frequency	Percent
0-5 years	28	18.4
6-10 years	46	30.3
11-15 years	37	24.3
15-20 years	29	19.1
20-25 years	12	7.9
More than 25 years	0	0
Total	**152**	**100**

Table 1.3. presents the frequency and percentage distribution of the teacher-respondents according to their years in service as a teacher. Out of one hundred fifty-two (152) respondents, twenty-eight (28) or 18.4% have below five years in service; forty-six (46) or 30.3% have six to 10 years in service; thirty-seven (37) or 24.3% have eleven to fifteen years in service; twenty-nine (29) or 19.1% have fifteen to twenty years in service; and twelve (12) or 7.9% have twenty to twenty-five years in service. None of the respondents have more than twenty-five years in service as a teacher.

Relationship of Respondents' Demographic Profile to their Technological Skills

Table 2.1: Relationship of Respondents' Field of Specialization to their Technological Skills

Technology Skills	Chi-square value	df	p-value	Decision on H_o	Remarks
Information Processing	12.083	14	.600	Failed to Reject	Not Significant
Content Creation	10.115	14	.754	Failed to Reject	Not Significant
Communication	18.031	14	.203	Failed to Reject	Not Significant
Problem-solving	7.158	14	.928	Failed to Reject	Not Significant

Table 2.1. presents the relationship of the respondents' field of specialization to their technological skills. Based on the table, the skills in information processing ($\chi 2$ (14)= 12.083, p=.600), content creation ($\chi 2$ (14)= 10.115, p=.754), communication ($\chi 2$ (14)= 18.031, p=.203), and problem-solving ($\chi 2$ (14)= 7.158, p=.928) shows no significant relationship to the subject or field they are practicing as a teacher since the computed p-values are greater than 0.05 alpha thus, the null hypothesis is accepted. This implies that teachers' specialization does not influence their skills in technology.

Table 2.2: Relationship of Respondents' Educational Attainment to their Technological Skills

Technology Skills	Chi-square value	df	p-value	Decision on H_o	Remarks
Information Processing	.226	2	.893	Failed to Reject	Not Significant
Content Creation	9.334	2	.046	Reject	Significant
Communication	3.813	2	.149	Failed to Reject	Not Significant
Problem-solving	3.118	2	.210	Failed to Reject	Not Significant

Table 2.2. presents the relationship of the respondents' educational attainment to their technological skills. Based on the table, the skills in information processing ($\chi 2$ (2)= .226, p=.893), communication ($\chi 2$ (2)= 3.813, p=.149), and problem-solving ($\chi 2$ (2)= 3.118, p=.210) shows no significant relationship to the subject or field they are practicing as a teacher since the computed p-values are greater than 0.05 alpha thus, the null hypothesis is accepted. The data reveals that the information processing, communication and problem-solving skills with the use of technology do not have a direct association with teacher's education.

However, in terms of content creation ($\chi 2$ (2)= 9.334, p=.046), the data shows a significant relationship to educational attainment since the computed p-values is less than the 0.05 alpha, rejecting the null hypothesis. This implies that the skills of making content using programs and software varies depending on the educational attainment a teacher achieved.

Table 2.3: Relationship of Respondents' Years in Service to their Technological Skills

Technology Skills	Chi-square value	df	p-value	Decision on H_o	Remarks
Information Processing	16.830	8	.043	Reject	Significant
Content Creation	11.886	8	.156	Failed to Reject	Not Significant
Communication	9.861	8	.275	Failed to Reject	Not Significant
Problem-solving	12.752	8	.121	Failed to Reject	Not Significant

Table 2.3. presents the relationship of the respondents' years in service to their technological skills. Based on the table, the skills in content creation ($\chi 2$ (8)= 11.886, p=.156), communication ($\chi 2$ (8)= 9.861, p=.275), and problem-solving ($\chi 2$ (8)= 12.752, p=.121) shows no significant relationship to the subject or field they are practicing as a teacher since the computed p-values are greater than 0.05 alpha thus, the null hypothesis is accepted. The data reveals that the content, communication, and problem-solving skills with the use of technology do not have a direct association with teacher's years of experience as an educator.

However, in terms of information processing ($\chi 2$ (8) = 9.334, p=.046), the data shows a significant relationship to years in service since the computed p-values is less than the 0.05 alpha, rejecting the null hypothesis. This implies that the skills in processing, collecting and analyzing information using online software and engine varies depending on the experience of the teacher.

Plan of Action Recommended in Redesigning Teacher's Training for Online Distance Learning Modality Anchored to Their Technological Skills

Introduce and utilize a variety of technology options.

In online learning, utilizing technology is absolutely crucial for success. Training should be planned accordingly in order to effectively deliver and achieved the objectives set by these trainings. As part of the planning, identify the different technology which are just essential in teaching and compatible to teachers' technological skills most especially in information processing and content creation. Identify the availability of resources before introducing a certain technology to be used for teaching. It may include material resources and human resources which will be a great assistance in the training.

Consider new learning methods in training

There are a wide variety of learning methods that can utilize in order to deliver the training efficiently and effectively to teachers as they are transitioning to online learning. Before selecting the means of delivery and strategy, it

may be better to evaluate first the lesson plans and strategies so that it can be identified whether these resources are appropriate to the objectives targeted in training session for teachers. Aside from the material, take into consideration the demographics such as educational attainment and years in service if these factors are appropriate to the learning methods to be introduced to teachers of different profile.

CONCLUSION AND RECOMMENDATION

Based on the findings, the following conclusions were drawn: Skills in Information processing, content creation, communication and problem-solving do not have a significant relationship to the abovementioned profile except for content creation in educational attainment and information processing for years in service.

Teacher's training should be redesign, aligned to their educational attainment and years in service as educator. The focus should be on exploring ways in introducing new technology and effective delivery anchored to the said variables.

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