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A Correlational Study on Teachers' Level of Competence on and Attitudes Towards ICT Integration: Basis for the Development of Extension Training Program

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Abstract

The integration of ICT in teaching and learning processes brings about powerful learning environments with the recent shift in Blended Learning-Online Distance Learning and helps teachers to deal with knowledge in active, self-directed and constructive ways. The purpose of this study was to determine if the adapted theory of Reasoned Actions as presented by Ajzen and Fishbein (1980) and Technological Acceptance Model developed by Davis (1989) relates to teachers' competence on and attitudes in the implementation of ICT to justify the interim guidelines on the across implementation of BL-ODL and MDL modalities by BE-Learning Continuity Plan of Department of Education as per memorandum of LDM1 and LDM2 in the current school year. As part of a pilot-testing program of the LGU, the researcher sought to develop an instrument that would effectively measure the teachers' level of competence on and attitudes with the utilization of ICT. Two schools JHS and SHS were studied since they belong to the same cluster. The study included 25 teacher-respondents from KERISHS-SHS and 25 teacher-respondents from GABHS-FBSHS. Each respondent completed the survey questionnaire, and gathered the necessary data for each level of competence on and attitudes that could benefit the entire educational community. The researcher applied Pearson's r correlation in order to determine if a significant correlation existed. The results of the study revealed to have a significant or strongly positive relationship data to support the study. This research may encourage administrators to recognize and utilize the availability of ICT computer-assisted laboratories and enhance the scope of internet connection in formal and informal learning environments available in the school district.

***Keywords*— Competence, Attitudes, Blended Learning-ODL/MDL, ICT**

I. INTRODUCTION

Many have been affected by the recent shift of education delivery from face-to-face and traditional ways of teaching to the so-called ***"New Normal"*** of delivering high-quality education. After the Covid-19 pandemic forced the indefinite closure of schools nationwide, the Department of Education (DepEd) is currently strengthening its ICT platforms for students and teachers in preparation for possible contingencies like a prolonged community quarantine.

Public school teachers who are not really familiar with technologies used in teaching and learning processes are steadily more of a detriment in the national implementation of blended learning but to date with little knowledge on how to deliver the modules online through the use of different platforms, teachers from public to private sectors were forced to do so. *Nowadays, there are many ways that schools had adopted the use and memorandum of the use of ICT tools in every school in NCR.* Many have managed to deliver computers/tablets to schools in need. In Gat Andres Bonifacio High School where the researcher teaches there were tablets and desktop computers donated by the Bonifacio Group for the improvement of teaching and learning processes in the said Barangay since it is the only public school in the community that caters to the most suburbs of the city. The center of the barangay where the widely known BGC High Street is located is where the city gets its revenues to use for the beautification and improvement of the community.

In connection to the recent platform and plan included in the BE-LCP plan that was implemented last year due to the immediate response of the Department of Education on how learning will take place in a different setting, ***ICT or Information and Communication Technology was pushed through even though this had started a few years back due to limited funds and resources, not all were fairly distributed the materials and connectivity needed for the online and distance learning.*** A pandemic

response with the sudden contingency plan was created and so the Department led with a plan accompanied by the Learning Continuity Delivery Some schools had already accessed free learning management resources, and some pieces of training were done by the DepEd Tech Unit in collaboration with some of the organization that is willing to extend their hands effort and time to make the whole nation work in an Online and Modular distance learning modality. A good example was the network frequency of a television network was borrowed to deliver the lessons vis televisions and radios if for example, students won't be possessing a gadget of their own. This limited access to the resources is just a few of the adversities the current administration is facing.

"The Basic Education Learning Continuity Plan of the Department of Education (DepEd) as made known adopted certain important keynotes. First if the attachments of many of numerous

Learning deliveries like face to face interaction, blended learning, modular and online distance learning and the other is homeschooling. These modes of learning delivery were implemented following the health protocols of the IATF or the Interagency Task Force on Emerging Infectious Diseases.

The department is hereby adopted the essential points which are as follows: ***Adoption of various learning delivery options such as but not limited to face-to-face, blended learning, distance learning, and homeschooling, and other modes of delivery shall be implemented depending on the local COVID Risk Severity Classification and compliance with minimum health standards;*** and given the anticipated disruptions in the face-to-face holding of classes, and the need for social distancing, distance learning will be a major component of learning delivery for the incoming school year. There are three kinds of Distance Learning Delivery Modalities (DLDM) during the implementation of this delivery one is the "Blended Learning", under blended learning is Online Distance Learning (ODL), this modality is most appropriate for students and teachers who have devices and internet connection. There are also learning resources learners can access anytime for free in the LRMS of DepEd and DepEd Commons. Some portals and LMS like Microsoft365 pieces of training, Google classroom YouTube videos on the functions and use of every icon, were given to teachers to prepare them readily in the next school year wherein there are talks of implementation of limited face to face interaction. In the researcher's school Gat Andres Bonifacio High School, there are two days Mondays and Tuesdays that they have to go for Synchronous classes and from Wednesday to Friday students and teachers are on Asynchronous classes which are self-paced in their functional and available time. **Another LMS present in the current state of Taguig city which the researcher is currently using for free is the Brightspace,** to complement their teaching expertise, Taguig City teachers are now using CAL Edison (Education Is Online), a Learning Management System (LMS) powered by international LMS provider Brightspace.

These issues prompted the researcher to explore the level of competence in and attitudes toward using ICT. When some teachers are incompetent in using the ICT tools for the integration it is agreeable that they cannot be put into good use. The ongoing pandemic has reached teachers to a point of no return and choice. The need to reach students remotely to deliver quality education in their best interest is a lot more significant than having thought of not wanting to apply any modality. Therefore, teachers of both Junior High school and Senior High school are the concentration of participants since they are believed it has been using some ICT tools even before. The use of google forms was widely utilized in substitution for the formal assessments. These plans and programs that were adopted and being carried through in the schools, especially in areas under ECQ and MECQ were all helpful and beneficial to saving the growing number of infected learners in the city, LGU's opted to minimize and limit the operations of different businesses including institutions.

Coleman, Gibson, Cotten, Howell-Moroney, and Stringer (2016), mentioned in their study that the use of skills in transforming the learning environments into a meaningful one wherein the emphasis relies alone on the learner-centered setting. The current trend is a makeshift traditional classroom to enjoyable and fun e-classroom from the corners of a home. Thus, this gives the concept that the role of an educator is essential in transmitting knowledge through the integration of ICT in the current Blending Learning modality for Online Distance Learning and Modular Distance learning learners.

Theory of Reasoned Action

The TRA was first introduced by Martin Fishbein and Icek Ajzen in 1967, it was also believed that it is based on other research and theories of attitudes and behavior. This theory focuses on explaining the relationship of attitudes in human interaction. Human interaction is associated with the representation of ICT according to the study. This mainly anticipates the pre-existing attitudes of a participant on how a participant will react based on the prior attitude with the integration of ICT in the blended learning concept of modality. The researcher had tried to explain the relationship between the level of competence and attitudes in the current chosen modality. How a participant and the

rest happened to relate and feel upon themselves if they are expected or competent enough in using ICT.

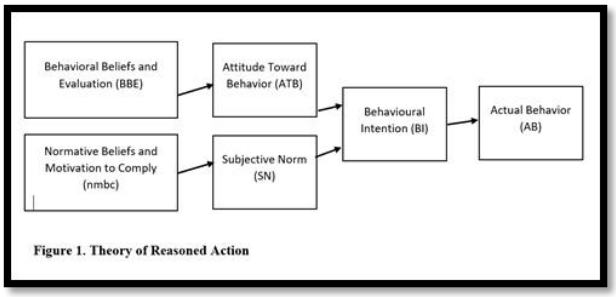
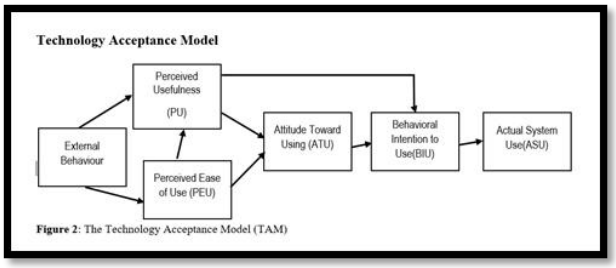


Fig.1. Theory of Reasoned Action

Based on Figure 1, Behavioral beliefs and Evaluation are a basis for executing a target behavior. These target behavior may result to Behavioral Intention and Actual Behavior. This means that if the participants believed to have been competent enough in using the ICT tools in Blended modality this ma infer a positive intention continued to Actual Behavior in the utilization. While Normative Beliefs to what have been asked from you to work on or follow head on, either a participant can perform a decision whether they approve or not a motivation of the purpose of complying is what they want them to achieved in the end. In which the participants will normally feel less positive if they were not being a part of a certain group to come up a result the wanted from the beginning.

Nevertheless, in terms of findings based on the study of Otieno et al. revealed that there are studies reviewed by them that some of the TRA applied were mostly from disciplines rather than technology, the researcher still believes that TRA played a big part in the study.

Furthermore, it is also noted that there are other theories related to this study that might be of help in other further studies in the future regarding ICT integration like TAM, TOE and UTAUT had been studied and adapted too over the years in trying to evaluate if attitudes and behavior play an additional input in technology related studies. Yet, it was added that, social psychology-based theories such as TRA, really have a better concept in reviewing the availability of newest invention in technology.



Theory of Acceptance Model

The researcher also tried to incorporate the Technology Acceptance Model in this study for better knowledge on where study gains its right to continue. The Technological Acceptance Model (TAM) in Figure 2, was first developed by Davis in 1989.Deriving from an observable individual's use of a particular knowledge of system in technology. It is explained that attitude towards using may add a big role in the ICT integration because if not about having a positive attitude to perform such a duty or task the behavioral intention with this perceive usefulness will never be put into good use by the one using it, thus ensuing to a either a poor or positive in proximity intelligence of its actual use.

In a study of Chuttur from 2009, he included that there is still a gap in using the model particularly for student-participants as this might result to a not so generalized in a real setting since students have different motivations in a performed behavior a good example is the use of ICT.But, the study's contributors are teachers of JHS and SHS in two schools so the academic researcher is confident that this will get a genuine result.

This study was conducted, at a clustered basis because Junior High Schools in Taguig city are clustered from Cluster 1 to 9, two participating schools were sent letter to ask if the researcher can administer the survey questionnaire at Gat Andres Bonifacio High School during S.Y. 2020-2021. It is located in Barangay Fort Bonifacio, Taguig city, while Kapitan Eddie T.Reyes JHS-SHS is located in Phase 2,Brgy.Pinagsma where the researcher currently resides.

The researcher's experience served as an inspiration to conduct a study related to ICT which could really help other teachers in the same school. It is a mere fact that teachers who have a low exposure in the use of ICT to the teaching-learning processes have big problems and difficulties in utilizing and navigating the e-learning platforms. This led the researcher to decide and start working out on this study.

This research is based on the following objectives:

1. To identify the KERIS-SHS and GABHS-FBSHS school teachers' level of ICT competence in terms of ICT Skills and Knowledge and E-learning platforms.

2.To know the attitudes of KERIS-SHS and GABHS-FBSHS school teachers' on the ICT integration in teaching and learning process in the classroom.

3.To identify the relationship between the teacher's level of ICT competence on and attitudes toward the use of ICT.

Research Questions

1. What is the level of ICT competence of the respondents towards ICT integration during the implementation of Blended Learning in KERIS-SHS and GABHS-FBSHS in terms of;

1.1 ICT Skills and Knowledge

1.2 E-Learning Platforms

a. Zoom

b. Google meet

c. Brightspace

2.What is the attitude of the respondents towards ICT integration during the implementation of Blended Learning in KERIS-SHS and GABHS-FBSHS?

3. Is there a significant relationship between the respondents' level of competence on and attitudes toward the use of ICT?

II. METHOD AND DESIGN

This study will utilize the Correlational research type of non-experimental research method in which a researcher measures two variables such as Level of Competence on and Attitudes, deprived of further involvement of any irrelevant variable.

This study will use the quantitative survey questionnaire to ask questions to a sample of respondents, using online surveys through google forms by attaching a QR code, one method of research in fulfilling the main goal of the study.

The study gives a comprehensive explanation how to utilize the use of ICT and how important it is to be knowledgeable in this trying times, wherein contactless approaches are more encouraged to be used in everyday transactions. The researcher will be using a type of ICT integration in trying to gather the data needed for the study. QR code stands for Quick Response Code and that was first initiated in 1994. There are a lot of readily made applications for free to use from google play. In an example from the contact tracing that was used in China to battle the pandemic which started in their country. The researcher will try to also use the same tool. This will deliberately divert the respondents to answer in remote areas through the use of another ICT integration the google forms.

POPULATION AND SAMPLING OF THE STUDY

Stratified Sampling will be used in this study. Out of 25 Junior and Senior High School Teachers and 25 teachers in KERIS this involves splitting the participants into two depending on the participants' respective school where they were given a regular-permanent item in particular.

A random sampling will be applied right after that will be the respondents of 50 in each of the participating schools.

INSTRUMENT/DATA GATHERING PROCEDURE

A multiple survey questionnaire will be used by the use of QR code that will be sent to each group chats powered by Facebook messenger which widely used with an internet connection. By using he said QR Code it will be easier to direct and download the data from different schools even if the researcher works from home. The questionnaire consists of 2 sections. As for the scale used, the questionnaire adopted a five-point Likert scale format to assess teachers' responses for each related section. (5 = very high competence, 4 =high competence, 3 = average competence , 2 = low competence, 1 = no competence). On the other hand, there is a section in this survey on how to assess the respondents by a 5-point Likert scale, where 5= Highly Positive, 4 = Positive, 3 = Moderately Positive,2=Negative,1-Highly Negative, to rate their attitude towards ICT integration during Blended Learning implementation nationwide.

STATISTICAL DATA ANALYSIS PROCEDURE

The study will use SPSS, Jmetrik, basic descriptive statistics, frequency percentage, mean, Pearson's r, and so forth were exploited in order to get the authentic result for data analysis.

III. RESULTS

Research Question 1: 1. What is the level of ICT competence of the respondents' of KERIS-SHS and GABHS-FBSHS in terms of;

1.1 ICT Skills and Knowledge

1.2 E-Learning Platforms

a. Zoom

b. Google meet

c. Brightspace

To answer the research question 1, Likert scale were used to get the frequencies of teachers' competencies on: ICT skills and knowledge, and e-learning platforms, zoom, google meet and Brightspace. The estimation of the analysis is presented in Table 1, 2 and 3: The first research question is to distinguish the level of computer skills and knowledge for JHS and SHS in both schools where the respondents currently perform their duties regardless their subject areas they answered all the set of questions in the google forms.

Table 1. Frequencies of Respondents with Very High Competence in Skills and Knowledge

RELIABILITY STATISTICS

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Test Items	No. of Items
0.6309	0.7138	5

Statement	Descriptive	Frequency	Percentage
9. Online Research or Internet Browsing	Very High Competence	45	90%
	High Competence	5	10%
Total		50	100%
11. Multimedia presentations using MS Powerpoint.	Very High Competence	33	66%
	High Competence	15	30%
	Average Competence	2	4%
Total		50	100%
13. Produced written documents using MS Word Processor.	Very High Competence	32	64%
	High Competence	14	28%
	Average Competence	4	8%
Total		50	100%

Table 1 shows that From Table 1, the frequencies of teachers' competencies on ICT skills and knowledge have been generated. As item 9 shows, all of respondents have very high competence (90%) as shown in item number 11, in online research and internet browsing and (66%) that they know Multimedia presentations using MS PowerPoint functions; however, more than half of respondents have very competence in produced written documents using MS Word Processor(64%) as stated in item number 13. This means that most of the respondents are competent in online research, multimedia presentations and produced written documents using

Statement	Descriptive	Frequency	Percentage
4. Installing operating system or system software (OS) and application software.	Average Competence	10	20%
	Low Competence	40	80%
Total		50	100%
5. Troubleshooting and hardware/software maintenance.	Average Competence	5	10%
	Low Competence	45	90%
Total		50	100%
7. Executing keyboard shortcuts.	High Competence Average Competence	8	16%
	Low Competence	32	64%
Total		50	100%

Table 2. Frequencies of Respondents with Low Competence in ICT Skills and Knowledge

GOOGLE MEET			
Statement	Descriptive	Frequency	Percentage
2.Starting and joining a meeting.	Very High Competence	44	88%
	High Competence	6	12%
Total		50	100%
ZOOM			
1.Scheduling and hosting a meeting	Very High Competence	38	76%
	High Competence	12	24%
Total		50	100%
BRIGHTSPACE			
9.Creating and posting announcements.	Very High Competence	33	66%
	High Competence	17	34%
Total		50	100%

Table 3. Frequencies of Respondents' with Very High Competence in E-learning Platforms

Research Question No.2 What is the attitude of the respondents towards ICT integration during the implementation of Blended Learning of KERIS-SHS and GABHS-FBSHS toward the use of ICT in teaching-learning processes?

As displayed in Table 4, frequencies score of teacher's attitude on ICT integration in blended learning modality were computed. Basically respondents had were highly positive or positive on the items asked. For example, from item 1,2,3,4 and item no.5 , all of respondents agreed on all items that were highly positive about its statement that they would feel comfortable integrating ICT in teaching, positively accept ICT in Education and try to do my part for it to succeed, be updated with the current trends about ICT, attend related ICT seminars and trainings and believe that ICT can increase work productivity/performance. This is a very high and strong positive attitude that can be observed from respondents.

Research Question no. 3. Is there a significant relationship between the respondents' level of competence on and attitudes toward the use of ICT?

For the third research question, if there is a significant relationship between the respondents' level of competence on and attitudes towards the use of ICT during the implementation of Blended Learning-ODL and MDL will be identified. As displayed in Table 5, frequencies of score or teacher respondents were calculated. As shown from the displayed data, the computed correlation coefficient of

Pearson is equal to .579. It shows that there is a strong positive relationship between the level of competence in using google meet and their attitude towards the use of ICT during the implementation of Blended Learning-ODL and MDL. This only proves that google meet is one of the best and easiest e-learning platform tool that the respondents used during blended learning.

Conclusion

The discoveries of this study signify that most of the teacher-respondents in clustered schools of KERIS-SHS and GABHS-FBSHS are more likely to have very high competence in online Research or Internet Browsing, Troubleshooting and hardware/software maintenance, Executing keyboard shortcuts during the implementation of Blended Learning-MDL and ODL. At the same time, It also resulted to installing operating system or system software (OS) and application software. Troubleshooting and hardware/software maintenance, executing keyboard shortcuts appeared to be in low competence or even preparation for educational purposes.

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