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Configuring Grade 11 Senior High Advanced Computer Skills in Online Distance Learning in District 8 of the Schools Division of Paranaque City

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Abstract: Computer skills of teachers are considered significant nowadays. The said skills support and address the needs of the 21st century learners. For this reason, teachers as well as the learners should be technologically adept to respond to the advancing movement of technology. One-hundred fifty-four Grade 11 teacher-participants took part in this study. These teachers handle Quipper School School Learning Management System specifically for Senior High Schools in the entire Schools Division of Paranaque City. The objective of the current research is to determine the level of computer skills of Grade 11 SHS teachers and to identify the kind of training that should be given to Grade 11 teachers based on the result of the assessment given and The results revealed that the computer skills of the teacher-participants went beyond the standards and the obtained standard deviation was dispersed which may mean that the following computer skills should be developed and capacitated with the following computer skills: uploading the learning activities to be accomplished by the learners (Google, Quipper and Moodle Classroom); setting/converting the file type of the accomplished activities in PDF, MS Word, JPEG, etc.; and, providing additional learning support materials thru links (e.g. online videos, simulative materials, activity sheets, etc.) Recommendations were provided for research directions.

Keywords: Configuring, Advanced Computer Skills, Distance Learning, Learning Modality, Learning Modality, Online Distance Learning

1. Introduction

The increasing interest in online distance learning has heightened the need for exploring the research variables associated with computer skills of teachers and learners, which serve as the key instrument in online distance learning. Oxford Biographies [9] defined online distance learning also referred to as "distance education" and sometimes simply as "online learning" or "distributed learning," is a term used to describe the practice of learning at a distance. As the world is bearing a global health issue, the COVID-19 has had a major impact on education. Consequently, half way through the second semester of the academic year 2019-2020, learning methods were delivered through distance learning. For this reason, DipEd Order Number 18, [7] has been created to

address the learning needs of the learners. The said order ensures that education in the Philippines will continue despite the world health crisis that we are in.

Numerous studies have made efforts to explore and evaluate computer skills of teachers and learners. ICT integration is an aspect that can be associated with online distance learning. Investigated by Ghavifekr and Rosdy [5], Information and Communication Technology or "ICT integration in education, they claimed, generally means technology-based teaching and learning process that closely relates to the utilization of learning technologies in school" (p. 908).

Balavivekanandhan and Arulchelvan [3] espoused the study of mobile technology. They investigated students' acquisition of IT knowledge and its implication on M-Learning. The study examined the usage of mobiles even in

the academic context for further learning. The result revealed that perceived usefulness of mobile technology had the most resourceful effect on the objective to accept m-learning and tagged with a minor degree of the perceived usability, thereby illustrating that learners with strong fundamental IT proficiency.

In the study of Fisher [4] on computer skills of initial teacher education students, he intended to foster discussion about how further develop pre-service educational technology courses that best meet the needs of a continuously evolving and changing. The results revealed that 86% of the respondents were self-classified as more experienced users, or as having some knowledge of basic computer software applications.

Another interesting study on computer-based technology and student engagement was investigated by Schindler, Burkholder et. al [11]. The study presented a critical review of literature from the past five years related to how web-conferencing software, wikis, social networking sites (Facebook and Twitter) and digital games influence student engagement. Findings regarding wikis, blogs, and Twitter were less conclusive and significantly limited in number of studies conducted within the past 5 years. Overall, the findings provided preliminary support that computer-based technology influences student engagement.

The research was conducted to study the advanced computer skills of Grade 11 teachers in their active participation in the online virtual classroom. As stipulated in the Department of Education Learning Continuity Plan 2020, teachers will be trained in the use of technology for learning delivery. The Department of Education has already conducted two online training programs in the year 2020 with 17,000 participants each on the use of technology in teaching. DepED Memorandum No. 14-0120-0588 [1] Strengthens engagement of stakeholders in the use technology-based instructions that aims to promote and solidify the innovation and digitization project that will support the requirements of the K-12.

Curriculum in delivering quality, accessible, relevant, and liberating education for all that could be adopted in the New Normal. Education amid the pandemic has drastically changed in Metro Manila when it became the center of the pandemic. DepED Regional Office ordered Schools Divisions in adherence with the Regional Inter-Agency Task Force Against Infectious Diseases (RIATF-AID) to adopt distance learning in the incoming SY 2020-2021 to ensure the safety of all learners against the Covid-19. It is suggested that the Schools Division Office shall consider the use of online classrooms as one of the learning options of the learners. In preparation for this, the Schools Division has initiated advanced training development programs on computers as part of the LS of teachers.

Teachers were trained to make use of synchronous online teaching with the use of Google Meet and Zoom Meetings. Teachers were provided with online classroom accounts where they can download, accomplish, upload, and assess their digitized self-learning modules.

In December 2016, Bhebe and Maphosa [2] conducted a study on examining teachers' computer literacy and utilization of ICTs in teaching and learning at Primary School Level. It was found that ICTs were not fully utilized in teaching and learning for a number of reasons. The study recommended training teachers in computer and ICT, staff development, availability of ICT resources, and availability of the internet. The study aimed at determining whether one to one technology truly impacts the academic achievements of students. secondly, it aimed at determining whether one to one technology also affects motivation to learn of the students.

Integration of ICT in schools was investigated by Ghavifekr and Rosdy [5]. Teachers are assisted by the integration of ICT in schools and this has replaced traditional teaching methods with technology-based teaching and learning tools and facilities. The findings of the study indicated that ICT integration had a great effectiveness for both teachers and students. In addition, teachers' well equipped preparation with ICT tools and facilities may be considered as one of the main factors in the success of technology-based teaching and learning. It also revealed that professional development training programs for teachers played a key role in enhancing students' quality learning.

To intensify student academic achievement and motivation, one to one technology was recommended by Harris, Al-Bataineh, and Al-Bataineh [6]. The study exposed that technological shift was prevalent among the schools involved. Through more technology exposure for students and professional development for teachers, it will definitely hone their newly acquired teaching methods and will help students to achieve higher levels.

In the study of Mitra and Dangwa [8] on acquisition of computer literacy skills through organizing systems of learning among children in Bhutan and India. the study claimed that self-organized learning mechanisms seemed to work with children vis-à-vis the Internet.

Sahito and Vaisanen [12] underscored that more than 50% of the participants found to be with good at ICT competencies and skills. Moreover, the responses of the participants indicated a significant impact of ICT training on their personal attitudes and skills. For this reason, the participants of the current study need also to go through the same training to achieve the targeted ICT competencies and skills.

As far as impact of modern technology in education, Raja and Nagasubramani [10] conducted a study on modern technology and its impact in education. The study suggested a number of impacts on education such as: active learning, collaborative and cooperative learning, creative learning, integrative learning, and evaluative learning. Positive impact has been likewise provided namely: enhanced teaching and learning, globalization, and no geographical limitations. On the contrary, negative impact was also provided such as; declining writing skills, increasing incidents of cheating, and lack of focus.

A number of researches on computer skills of teachers and learners have been explored; however, few attempts have been made to conduct this current study. This study is proposed to determine and analyze the level of computer

skills of teachers. Specifically, this study sought to answer the following research questions:

1) What is the level of computer skills of Grade 11 teachers?
2) What is the level of performance of Grade 11 teachers with advanced computer skills in distance learning?
3) What kind of training should be given to Grade 11 teachers based on the result of the assessment given?
4) How will the SDO officials (focal person/s) prepare for these needs of Grade 11 teachers to improve their computer skills?

2. Methodology

2.1. Participants / Data Source

One-hundred fifty-four Grade 11 teachers took part in the current study. These were teachers who were handling the Quipper School Learning Management System specifically from 3 Senior High Schools in District 8. With the permission of their school heads, a link was provided to the participants to answer the survey questionnaires to assess their competence in advance computer skills in both synchronous and asynchronous modalities. The researchers employed the online Google Form to gather the needed data for the study.

2.2. Data Gathering Procedure and Instruments

The following the steps were undertaken in the study:

a) The researchers in the Curriculum Implementation Division (CID), conducted Focus Group Discussion (FGD) to identify the most arising issues in the delivery of online distance learning;

b) Developed the statement of the problem or the research question which will be used to develop the appropriate instrument;

c) Developed and validated the needed quantitative data gathering instrument in a form of Likert scale to collect the needed data for the research; and

d) The data collected were processed using the 2016 version of Statistical Package for Social Sciences or SPSS Software.

2.3. Data Analysis

This study utilized the following statistical tools through the aid of SPSS version 2.0, to wit:

Mean and Standard Deviation were used to describe the results of teachers. The small value of standard deviation that is equivalent to 0.8751 homogenous results while 1.14785 indicates heterogeneous results.

3. Results and Discussion

The statements given in the survey among Grade 11 teachers were identified as computer skills needed by teachers in this new normal in education. There were 10 statements each for the synchronous and asynchronous class conducted by teachers using their computer skills.

To have ease in interpreting the result, statements were grouped based on the computer skills required from the teacher during synchronous and asynchronous classes.

Table 1. Ability of teachers to create, record, and access google meet, online applications and other platforms in their synchronous classes.

Statements	N	Minimum	Maximum	Mean	Standard Deviation
1. create a scheduled Google Meet or any other synchronous platforms (Zoom, MS Teams, and Messenger Classroom) for the class	154	2.00	5.00	4.1169	.77500
4. record and access Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom) for meetings	154	2.00	5.00	3.9610	.83926
10. create an interactive board using different online games or interactive platforms that encourage learners' participation	154	1.00	5.00	3.3247	.97607
Average	154	1.6667	5.00	3.8009	0.86344

Table 1 exhibits the ability of teachers to create, record, and access google meet, online applications and other platforms in their synchronous classes. From the data, number 1, create a scheduled Google Meet or any other synchronous platforms (Zoom, MS Teams, and Messenger Classroom) for the class, most teachers have developed this skill with obtained mean of 4.1169, whereas number 10, create an interactive board using different online games or interactive platforms that encourage learners' participation

got the lowest mean of 3.3247. These findings may mean that the skills that teacher-participants have seen that number 1 should be developed, while number 10 is seen to less prioritize by the teacher-participants. This implies that if number 10 is given priority, learners may get defocused and no longer prioritize their studies. With the average of standard deviation of 0.86344, this result may indicate that the teachers have all these ICTY ICT competencies needed in synchronous classes.

Table 2. Ability of teachers to share online platform links and screen share during synchronous class.

Statements	N	Minimum	Maximum	Mean	Standard Deviation
2. share the Google Meet link and other synchronous (Zoom, MS Teams, and Messenger Classroom) platforms to students via Messenger or email	1.54	2.00	5.00	4.0130	.81639
5. share screen during lesson presentation using the Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom)	154	2.00	5.00	4.0195	.82026
Average	154	2.00	5.00	4.0163	0.81833

Table 2 displays the Ability of teachers to share online platform links and screen share during synchronous class. Numbers 2 and 5 were given priority of the teacher participants in this study. These results may imply that the two computer skills in table 2 specifically, share the Google Meet link and other synchronous (Zoom, MS Teams, and Messenger Classroom) platforms to students via Messenger or email and share screen during lesson presentation using the Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom), may probably most preferred skills to be developed by the teacher-participants who are computer teachers.

Table 3. *Ability of teachers to type messages and post links in the chat box of online platforms during synchronous class.*

Statements	N	Minimum	Maximum	Mean	Standard Deviation
6. type messages in the chat box during meetings using Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom)	1.54	1.00	5.00	4.0455	.85819
9. post links (attendance, evaluation, activity sheets, etc.) in the chat box for learners' access.	154	1.00	5.00	3.9221	.94649
Average	154	1.00	5.00	3.9838	0.90234

Table 3 shows ability of teachers to type messages and post links in the chat box of online platforms during synchronous class. From the table 3, the data revealed that number 6, type messages in the chat box during meetings using Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom) obtained a mean of 4.0,455, whereas number 9, post links (attendance, evaluation, activity sheets, etc.) in the chat box for learners' access obtained a mean of 3.9221. These results revealed that teacher-participants have seen the significance of number 6 because typing messages in the chat box may be the same with posting links in the chat box for learners' access. At any rate, learners have access in the chat box.

Table 4. *Ability of teachers to accept student's request to join online applications, change virtual background and mute student's microphone during online meetings.*

Statements	N	Minimum	Maximum	Mean	Standard Deviation
3. accept students' requests to join the Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom)	154	2.00	5.00	4.0974	.83054
7. change virtual background during meetings using Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom)	154	1.00	5.00	3.8701	.93376
8. mute student's microphone during meetings using Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom)	154	1.00	5.00	3.8312	.94146
Average	154	1.33	5.00	3.3933	0.90192

Table 4 shows the ability of teachers to accept student's request to join online applications, change virtual background and mute student's microphone during online meetings. From the table, the data revealed that number 3 got the highest mean of 4.0974, whereas numbers 7 and 8 got less than 3.9 mean. These findings may imply that number 3, accept students' requests to join the Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom) may be given most preference by the teacher-participants. This may probably mean that accepting students' requests to join the Google Meet is more significant than numbers 7, change virtual background during meetings using Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom) and 8, mute student's microphone during meetings using Google Meet and other synchronous platforms (Zoom, MS Teams, and Messenger Classroom).

Table 5. *Ability of teachers to create, access, and schedule online asynchronous class of their learners.*

Statements	N	Minimum	Maximum	Mean	Standard Deviation
1. create and access online asynchronous classroom account (Google, Quipper and Moodle Classroom) *	154	1.00	5.00	3.7532	.89524
3. schedule the deadline of submission of the outputs (Google, Quipper and Moodle Classroom) *	154	1.00	5.00	3.8636	.91515
9. create an online support learning system (Facebook Closed Group Page, Messenger, SMS etc.) to address the needs of 1students who are at risk of failing *	154	1.00	5.00	3.9545	.81922
Average	154	1.00	5.00	3.8571	0.87654

Table 5 exhibits the Ability of teachers to create, access, and schedule online asynchronous class of their learners. As can be seen from the data, numbers 3 and 9 got the highest mean of 3.8571 which may mean that teacher-participants may have experienced these with their teachers. This particular finding implies that the needs of the respondents have been addressed by their teachers.

Table 6. *Ability of teachers to provide, upload and convert files that will be accomplished by learners during asynchronous class.*

Statements	N	Minimum	Maximum	Mean	Standard Deviation
2. upload the learning activities to be accomplished by the learners (Google, Quipper and Moodle Classroom) *	154	1.00	5.00	4.1494	4.22687
4. set/convert the file type of the accomplished activities in PDF, MS Word, JPEG, etc. *	154	1.00	5.00	3.8442	1.00411
5. provide additional learning support materials thru links (e.g. online videos, simulative materials, activity sheets, etc.)	154	1.00	5.00	3.9052	.88619
Average	154	1.00	5.00	3.9663	2.03906

Table 6 shows the ability of teachers to provide, upload and convert files that will be accomplished by learners during asynchronous class As seen from the table, numbers 2, 4, and 5 obtained the means of 3.9663. These findings revealed that the respondents' teachers may have uploaded learning for them to accomplish, may have converted files into PDF, MS WORD, JPEG, may have provided additional learning support materials thru links. These results may imply that students were somehow very satisfied with the strategies that their teachers may have employed. This result may seem to support the study of Mitra and Dangwa [8] on acquisition of computer literacy skills through organizing systems of learning among children in Bhutan and India claiming that self-organized learning mechanisms seemed to work with children vis-à-vis the Internet.

Table 7. *Ability of teachers to evaluate and show learners outputs using different asynchronous platforms.*

Statements	N	Minimum	Maximum	Mean	Standard Deviation
6. evaluate learners' outputs using the different types of asynchronous platforms	154	1.00	5.00	3.7273	.81868
7. show learners' individual outputs using the different asynchronous platforms	154	1.00	5.00	3.6948	.88064
Average	154	1.00	5.00	3.7238	0.84966

Table 7 displays the ability of teachers to evaluate and show learners outputs using different asynchronous platforms. As can be seen from the data, numbers 6 and 7 got the highest mean of 3.7238. The findings seem to imply that respondents may have experienced that their outputs have been evaluated employing different asynchronous platforms. In addition, the respondents' teachers might have shown them their students' outputs utilizing the different asynchronous platforms.

Table 8. *Ability of teachers to provide necessary intervention and track learners at risk of dropping-out using different asynchronous platforms.*

Statements	N	Minimum	Maximum	Mean	Standard Deviation
8. provide intervention materials for least mastered competencies using different asynchronous platforms *	154	1.00	5.00	3.6169	.82603
10. track down learners who are at risk of dropping-out using different asynchronous platforms *	154	1.00	5.00	3.6623	.82621
Average	154	1.00	5.00	3.6396	0.82612

Table 8 exhibits the ability of teachers to provide necessary intervention and track learners at risk of dropping-out using different asynchronous platforms. The data from the table showed that numbers 8 and 10 obtained perfect means of 3.6396 These results reveal the respondents' contentment with their teachers' computer skills by providing them intervention materials and by tracking them down to identify who among themselves are at risk of dropping out utilizing asynchronous platforms.

Table 9. *Summary of Computer Skills of Teacher Participants in Synchronous Classes.*

Clustered Ability of Teacher Participants	Synchronous Class	
	Mean	SD
Ability of teachers to create, record, and access google meet, online applications and other platforms in their synchronous classes	3.8009	0.86344
Ability of teachers to share online platform links and screen share during synchronous class	4.0163	0.81833
Ability of teachers to type messages and post links in the chat box of online platforms during synchronous class	3.3933	0.90192
Ability of teachers to accept student's request to join online applications, change virtual background and mute student's microphone during online meetings	3.3933	0.90192
Average	3.7986	0.87151

Table 9 summarizes the computer skills of teacher participants in synchronous classes. As seen from the table, Ability of teachers to share online platform links and screen share during synchronous class ranked first with obtained mean of 4.0163, whereas Ability of teachers to create, record, and access google meet, online applications and other platforms in their synchronous classes. On the contrary, Ability of teachers to create, record, and access google meet, online applications and other platforms in their synchronous classes and Ability of teachers to accept student's request to join online applications, change virtual background and mute student's microphone during online meetings both land as rank three. These results

imply that these asynchronous computer skills are most preferred by the teacher-participants. In addition, they might have seen the importance of these computer skills using the lenses of the learners. In addition, the level of computer skills of teacher-participants in a synchronous class seems high because it goes beyond the standards of computer skills that teacher-participants must possess. This finding seems to support the study of Sahito and Vaisanen [12] underscoring that the reason of having high or going beyond the standard of computer skills is because of the past training that participants may have obtained during their tertiary education or on the training. The said training should be given in the immediate future to achieve the advanced ICT competencies and skills for professional development.

Table 10. *Summary of Computer Skills of Teacher Participants in Asynchronous Classes.*

Clustered Ability of Teacher Participants	Asynchronous Class	
	Mean	SD
Ability of teachers to create, access, and schedule online asynchronous class of their learners	3.8571	0.87654
Ability of teachers to provide, upload and convert files that will be accomplished by learners during asynchronous class	3.9663	2.03906
Ability of teachers to evaluate and show learners outputs using different asynchronous platforms	3.7238	0.84966
Ability of teachers to provide necessary intervention and track learners at risk of dropping-out using different asynchronous platforms	3.6396	0.82612
Average	3.7967	1.14785

Table 10 summarizes the computer skills of teacher participants in asynchronous classes. As can be seen from the table, Ability of teachers to provide, upload and convert files that will be accomplished by learners during asynchronous class ranked first with a mean of 3.9663, Ability of teachers to create, access, and schedule online asynchronous class of their learners ranked second with an obtained mean of 3.8571, Ability of teachers to evaluate and show learners outputs using different asynchronous platforms ranked third with an obtained mean of 3.7238, Ability of teachers to provide necessary intervention and track learners at risk of dropping-out using different asynchronous platforms ranked last with a mean of 3.6396. These results may mean that those computer skills are needed for asynchronous classes. Teachers who less competent with those computer skills might not bring motivation to the learners. Furthermore, the level of computer skills of teacher-participants on an asynchronous class seem high for it goes beyond the standards.

4. Conclusion

The current study sought to answer four research questions:

1) What is the level of computer skills of Grade 11 SHS teachers?
2) What is the level of performance of Grade 11 teachers with advanced computer skills in distance learning?
3) What kind of training should be given to Grade 11 teachers based on the result of the assessment given?
4) How will the SDO officials (focal person/s) prepare for these needs of Grade 11 teachers to improve their computer skills?

The level of computer skills that is presented in the current study seems high both ordinary and advanced skills in computers. The obtained means 3.7986 and 3.7967 as seen in synchronous and asynchronous class go beyond the standards set by the current study. The standard deviation as shown in Table 10 specifically 2.03906 may mean dispersed data, thereby making this as evidence for capacitating the teacher participants of specific computer skills presented in Table 6 such as:

1) Uploading the learning activities to be accomplished by the learners (Google, Quipper and Moodle Classroom);
2) Setting/converting the file type of the accomplished activities in PDF, MS Word, JPEG, etc.;
3) Providing additional learning support materials thru links (e.g. online videos, simulative materials, activity sheets, etc.);

Computer skills of teachers may probably influence how learners perform inside the class. The following recommendations are provided for research directions in the future:

a) Researchers may use the variable, computer skills of the learners and how these variables influence their learners' performance;
b) Computer skills of both teachers and learners may be used as variables to determine how these two variables influence the learners' performance in the classroom; and
c) Researchers may determine the performance of learners with gadgets and without gadgets.

The findings of the current study may not be considered conclusive; more studies as regards the computer skills of teachers are needed to be configured and how computer skills influence the learning outcomes of the learners.

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