Internal Assessment of Department of Education Computerization Program Among Public Elementary Schools in the Philippines

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ABSTRACT

This study explored the practices, challenges, and influences of the Department of Education Computerization Program (DCP) in 20 public elementary schools in Pontevedra District. Using a descriptive research design and a validated questionnaire, data were analyzed through descriptive statistics and Spearman's Rho. Results indicated that while teachers and administrators frequently utilized the DCP, learners' access remained limited due to insufficient computer units. Major challenges included resource scarcity and minimal stakeholder involvement. Despite constraints, the DCP enhanced teaching practices, administrative functions, and student engagement. A training course design was proposed to strengthen program implementation and sustainability.

Keywords: DepEd Computerization Program, implementation, practices, challenges, influences.

INTRODUCTION

Technology and computer integration are now essential in every aspect of life, most notably in government offices and private companies. Furthermore, schools are taking advantage of technological opportunities, particularly during the education process, as they shape the minds and future of individuals.

Nowadays, there are new opportunities when technology is integrated into the learning process. Computers have characteristics that, if utilized effectively, can enhance student learning. It allows for teaching to occur at various stages, locations, and speeds, creating a highly adaptable learning setting by enabling increased engagement with either the material or with peers; computers can enhance real learning (Collins & Tinkew, 2010; Courts & Tucker, 2012; & Morgan, 2012).

Additionally, computerization involves the creation, execution, and utilization of computer systems for tasks like education, finances, communication, and managing a company. Numerous professionals, managers, educators, and students are quickly embracing computing systems, while grappling with how to structure positive social interactions related to them (Lacono & Kling, 2010).

DepEd Order Number 78, s. 2010 also called Guidelines on the Implementation of DepEd Computerization Program (DCP) is an initiative of the Department of Education to equip public schools with suitable technologies to improve the teaching and learning experience and address the demands of the 21st century.

DCP's goal is to equip public schools with suitable technologies to improve the teaching and learning experience and address the demands of the 21st century. This program aims to assist public schools with their computer backlog by supplying them with hardware and software, as well as offering training on basic troubleshooting.

With the collaboration of other government agencies and the private sector, five thousand four hundred nine (5,409) public secondary schools have been equipped with a computer laboratory each through this program (DCP Handbook 2010). Despite this achievement, teachers and administrators are facing challenges in effectively implementing and sustaining the program's role in the teaching and learning process. Therefore, incorporating technology into every classroom environment presents a significant hurdle within the education system. Especially that the Philippines scored low in the latest PISA 2024 result. Rep. Roman Romulo (Pasig

City) highlighted the significance of improving students' skills in reading, math, and science according to the findings. In the study of Martinez, O.N and Acuna, B, 2022 in their journal entitled Technology Usage and Academic Performance in the Pisa 2018 Report, They stated that the adoption of information and communication technology (ICT) and social media has created fresh opportunities for student education, necessitating proper guidance from family and educators.

It is in this light that the researcher found the conception of this study more than timely so as to determine the practices, challenges, and the advantages in the implementation of DepEd Computerization Program (DCP) in public elementary schools. Hence, the result of the study will serve as the basis of a program enhancement in the implementation of DepEd Computerization Program in the District of Pontevedra.

METHODOLOGY

This chapter elaborated on the methods and procedures used during the research. This includes research design, locale of the study, and respondents of the study, sample size and sampling techniques, research instruments, validation of the instruments, data gathering procedure, scoring and categorization of variables, data analysis procedure, and respondents of the study.

Research Design

This study utilized a descriptive research design to determine the DCP practices, challenges, and influences. Descriptive study is a method that describes a situation or a given state affair in terms of specified factors, (David, 2005).

As descriptive study, it aimed to describe the practices, challenges, and influences of the Public Elementary Schools in the implementation of DCP basis for the enhancement of program.

Locale of the Study

This study was conducted at the District of Pontevedra consisting of 20 public elementary schools. This covers all public elementary schools in the district of Pontevedra in the school year 2019 - 2020. Shown in Figure 1 is the map of Pontevedra district.
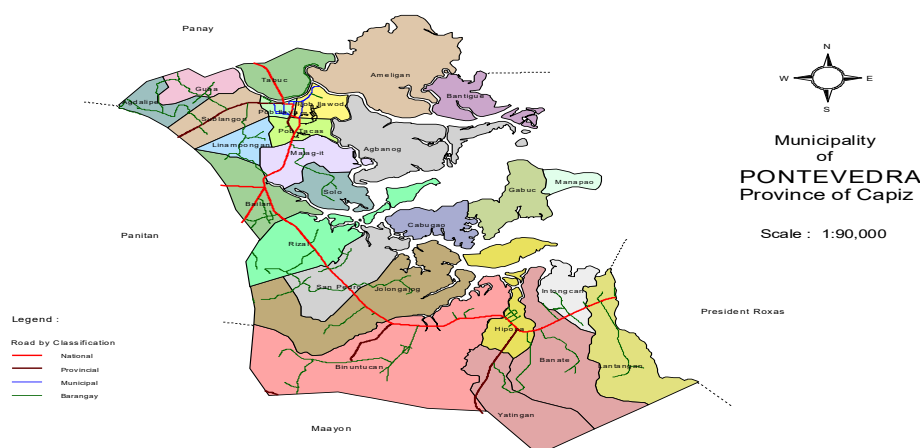
Respondents of the Study

This research involved the participation of the randomly selected 100 learners, 20 school heads and 20 ICT coordinators of 21 public elementary schools in the District of Pontevedra.

Sample Size and Sampling Technique

There were one hundred (100) intermediate pupils out of the total population of six thousand five hundred fifteen (6515) who served as the randomly selected learner-respondents, twenty (20) school heads, and twenty (20) ICT

Coordinators in the twenty-one (21) schools in the District of Pontevedra. A total of one hundred forty (140) respondents comprised the sample size.

Stratified random sampling was used in the identification and selection of the respondents.

Research Instrument

The researcher used a researcher-made questionnaire in gathering data. The formulated questionnaire was crafted based on the interview schedule made to school heads, learners and ICT coordinators of the twenty (20) public elementary schools. The indicators in this study was carefully chosen and improved after several consultations, validation and discussions with the advisory committee. Important points were chosen that can necessarily represent the essence, substance and intention of the study.

There were three sets of questionnaires which consist of five parts each. The first questionnaire was for learners which consist of four parts. Part I was the demographic profile of public elementary schools in the implementation of DCP. Part II of the questionnaire was on the DCP components acquired by public elementary schools. Part III was on the extent of DCP implementation in terms of learner's utilization which composes of 10 items. Part IV was on the influences of DCP to the public elementary school after the program implementation. The second set of questionnaire was for teachers which consist of five parts. Part I was still the demographic profile of public elementary schools in the implementation of DCP. Part II of the questionnaire was still on the DCP components acquired by public elementary schools. Part III was on the extent of DCP implementation in terms of teacher's utilization which composed of 10 items too. Part IV was on challenges encountered by public elementary schools in the implementation of DCP composed with 10 items. Part V was on the influences of DCP to the public elementary school in terms of: academic performance of learners which composed of 10 items; pedagogical practices of teachers composed of another 10 items. The third set of questionnaires was for school administrators which consist of five parts too which included the same components and items with the questionnaire for teachers.

Validity and Reliability of the Research Instrument

Prior to conduct of the study, the researcher-made questionnaire was submitted for validation. The validating committee consist of the members of the advisory committee and the examining committee who are expert in their respective field of discipline. Suggestions and corrections made by the validators regarding the content and construction of the items were considered and final statements were reconstructed and checked. In the reliability of the instrument the researcher conducted a pilot testing in the District of President Roxas and Maayon. Suggestions and corrections made by validators regarding the content and construction of the items were considered.

Data Gathering Procedure

In gathering the data for this study, the researcher constructed the instrument that was submitted to validity and reliability tests, the final copies were prepared after the validation. Then, the researcher asked for an endorsement from the dean of the Graduate School to formally ask permission to the schools' division superintendent of the Division of Capiz to conduct the study to the public elementary schools in the district of Pontevedra. The researcher personally distributed, administered and retrieved the questionnaire from the respondents.

Finally, the collation and tabulation of the data was made. The researcher collated, tallied and tabulated all the information acquired from the respondents. The results of the survey contributed for the researcher in planning and drafting an enhancement program based on the result of the study.

RESULTS

Table 1 shows the different components of DepEd Computerization Program received by the public elementary schools in the district of Pontevedra. Data revealed that all schools in the district of Pontevedra are recipients of DepEd Computerization Program for most of them, 14 or seventy percent (70%) received one host PC which is

branded and brand new as what is really specified in the memorandum with regards to the number of quantity and the kind of facility they will receive, while (4) or (20%) of them received this one host PC but with different specifications and (2) schools or (10%) did not receive this item. It can be inferred that not all public elementary schools in Pontevedra District received the complete brand-new package of DCP facility with the same specifications as to its brand and quantity. This further conforms with the result of the study of Tuazon, I. M. Q, (2019) that stated that this program is not being fully implemented due to lack of equipment. Moreover, (13) schools or (65%) received 6"-17'' LCD monitor with the same specifications in the memorandum while six (6) schools or (30%) received this LCD monitor with different specifications and one (1) school or (5%) did not receive this LCD monitor. Likewise, (11) schools or (55%) received keyboards and mouse with the same specification as to the brand and quantity and (8) schools or (40%) received these keyboards and mouse with different specifications and one (1) school or (5%) did not receive these items. A total of 7 schools or (35%) also received Two Kits – Desktop Virtualization Kit using shared computing technology which is branded and brand new as specified and (4) schools or (20%) received these kits with different specifications while many, nine (9) or (45%) among public elementary schools in the district of Pontevedra did not receive these units. Then, thirteen (13) schools or (65%) received one Uninterrupted Power Supply (UPS) as specified in the memo and (15%) or three (3) schools received this unit with different specifications. While four (4) schools or (20%) did not receive this item at all. On the other hand, One–Interactive Whiteboard which is branded and brand new as specified in the memorandum was received by seven (7) schools or (35%) and the same number of schools received these components with different specifications while (6) or (30%) did not receive this unit at all. Furthermore, 1"–3" Inkjet Printer which is branded and brand new and what is specified was received by (10) schools or (50%) while (20%) or (4) schools received it with different specifications and (6) or (30%) did not receive this component. Also, one LCD projector with the same specification as indicated in the memorandum was received by (12) schools or (60%) and six (6) schools or (30%) of them received this unit with different specifications while (2) or (10%) did not received this item at all. This result implies that not all schools acquired the complete set of the brand new and specified DCP components due to the level of priorities and reports submitted to the division office by each respective school. This is also with conforms to the DepEd memorandum No. 13, s. 2011 the Implementation of DepEd Computerization Program Batch 6, that a school may acquire the different components of DCP based on the set criteria by the Bureau of Elementary Education (BEE) such as quality of schools, potential and commitment of both school head and teachers and technology requirements such as the availability of internet connection. This further implies that the DCP program in accordance to the mandate of the Department of Education through Department Order No. 78, s. 2010 was being implemented regardless of its limitations to whether the recipient-school received a complete or incomplete set of DCP facility. Further, this contradicts with the study of Lu & Miller (2002) that described the technology used in the classroom to be in various forms including computers, DVD/VCR players, digital and video cameras, televisions, cooking equipment, and welding equipment and many more. They also described how classroom technology can help the teacher to use, assess, alter, and present information in a variety of ways.

Table 1. Department of Education Computerization Program Components.

Components	Available as Specified	%	Available at different Specification/Quantity	%	Unavailable	%
One - host PC (branded and brand new)	14	70%	4	20%	2	10%
Six - 17" LCD Monitor (branded and brand new)	13	65%	6	30%	1	5%
Six – Keyboard and Mouse (branded and brand new)	11	55%	8	40%	1	5%
Two kits – Desktop Virtualization Kit using shared computing technology (branded and brand new)	7	35%	4	20%	9	45%

One – UPS (branded and brand new)	13	65%	3	15%	4	20%
One – Interactive Whiteboard (branded and brand new)	7	35%	7	35%	6	30%
One– 3 in 1 Inkjet Printer (branded and brand new)	10	50%	4	20%	6	30%
One – LCD Projector (branded and brand new)	12	60%	6	30%	2	10%

Department of Education Computerization Program Practices

The Department of Education Computerization Program also known as DCP under DepEd Order No. 78, series of 2010, is a program of Department of Education that aims to provide public schools with appropriate technologies that would enhance the teaching-learning process and meet the challenges of the 21st century. This program responds to the computer backlog of public schools providing them hardware and software, and training on simple troubleshooting. It was suggested thru several studies that a teaching-learning process will be successful if we can augment the traditional instruction in ways that provide enrichment without overshadowing the intended objective. It was also said that technology allows faculty to build a bridge between the classroom and the world (Ward & Clark, 2000) thus, the extent of practices of every public elementary school in the implementation of DepEd Computerization Program may vary in terms of learners' utilization, teachers' utilization, and administrative utilization and support.

Learners' Utilization

Table 2 shows the practices done by the learners in public elementary schools in the district of Pontevedra with regards to the utilization of DCP facility. Data revealed that the practices made by the learners in the district of Pontevedra in the utilization of the said program is "sometimes implemented" (M=3.01, SD=0.98) which means that the practices are observed at certain times. This implies that the learners do not always use the different DCP components but they only utilize these when their teachers advise them to do so and it too depends on the availability of these DCP facility in their school. This is also in conforms with the result of this study with regards on the incomplete DCP package received by every school in the district of Pontevedra. Likewise, this is supported with the result of the study of Tuazon, I. M Q, (2019) on the problems encountered in the implementation of this DCP program which she narrated as: the ratio of computers to pupils, no LAC sessions or trainings conducted, not enough budget or funds to support for the replacement of the equipment damaged, and people in the community have less knowledge in operating computers. The following learners' utilization practices are: (1) develop basic computer skills through hands-on activities (M=3.29, SD=1.13) which is sometimes implemented so this means that this is being observed at certain times. This implies that the use of DCP facility by the learners and by exposing them to these components during the different classroom activities enhanced their basic skills in computer. Thus, According to Reil, Schwarz, Peterson, and Henricks (2010), programs that foster the use of computer technology in the classroom increased familiarization with technology and led to improvement in technology. Then, next is they enjoy playing educational games (M=3.14, SD=1.39); It can be inferred in this result that learners indeed enjoy manipulating these units while learning. As Bates (2011) emphasized that the reasons for using technology is to provide students with opportunities to learn technology skills while expanding the search of technology in the world outside the classroom. Utilize as research facility (M=3.10, SD=1.32) ranks as third to be sometimes implemented which means that they use these DCP components if their teachers gave them something to research on. This is in conforms with McFadden, Croxall, and Wright, 2001 who stated that the internet serves as a valuable teaching and learning tool to help to enhance the curriculum through free downloads, interactive websites, and e-Mail which are utilize for research purposes both by teachers and students. While conduct seminars and symposium (M = 3.02, SD = 1.15), take online examination (M = 2.78, SD = 1.39), do homework in the computer laboratory (M = 2.65, SD = 1.34), though still sometimes implemented but ranks as the bottom list due to the fact that there is unavailability of space or room with vast area where the DCP facility situated that can be used to hold seminars and symposia. This implies too that most of the barrio schools were not able to access to internet connection due to its location

and network availability as supported. This result can be associated with study of White (2000) who stated that the problems found by the students most frequently in technological environments includes slow downloads due to modem speed; e-mail problems that prevented students from turning assignments in on time; difficult-to-navigate course websites and dysfunctional web links.

Table 2. Extent of learners' practices in the implementation of DepEd Computerization Program (DCP)

Learner's Utilization The learners'…	M	SD	VERBAL INTERPRETATION
develop basic computer skills through hands-on activities.	3.29	1.13	Sometimes Implemented
enjoy playing educational games.	3.14	1.36	Sometimes Implemented
utilize as research facility.	3.10	1.32	Sometimes Implemented
enjoy online learning.	3.08	1.27	Sometimes Implemented
explore computer updates.	3.06	1.29	Sometimes Implemented
have classes in the e-classroom.	3.05	1.32	Sometimes Implemented
conduct students meeting	3.02	1.15	Sometimes Implemented
conduct seminars and symposium.	3.01	1.40	Sometimes Implemented
take online examination.	2.78	1.39	Sometimes Implemented
do homework in the computer laboratory	2.65	1.34	Sometimes Implemented
GRAND MEAN	**3.01**	**0.98**	**SOMETIMES IMPLEMENTED**

Note**:** 4.50 –5.0 (Always) ; 3.50 – 4.49 (Often) 2.50 – 3.49 (Sometimes) ; 1.50 – 2.49 (Seldom) 1.0 – 1.49(Never)

Teachers' Utilization

Table 3 presents the practices of teachers in utilization of DCP. Data divulged that the practices of public elementary school teachers of DepEd Computerization Program are "often implemented" (M=3.01, SD=0.98) which means that these practices are frequently observed. It can be inferred in this result that teachers really utilize this program in their teaching. This is in conforms with study of UNESCO Institute for Statistics (April 2014) with regards on the Information and Communication Technology (ICT) in Education in Asia which revealed that there was a total of two hundred fifty percent (250%) increase in the teachers integrating ICT in their classes. And after the first quarter of the school year there was a significant increase in the Teachers ICT Competence. Among the varied practices of teachers in utilization of the DCP facility are: (1) Utilize computer technology during Learning Action Cell (LAC) session (M=4.20, SD=0.95). This explains the fact that teachers during LAC session has been taught to be technology literate. As what UNESCO Institute for Statistics (April 2014) on their study of Information and Communication Technology (ICT) in Education in Asia data revealed that during LAC sessions and through mentoring program conducted by the ICT Coordinator, teachers were introduced to various computer applications such as Basic Computer System, Google Drive applications, Graphic tablet and PHET Simulations. This conforms too with Naquin (2000) who said that faculty in Virginia served as technology mentors to other faculty as a successful technique in motivating reluctant faculty toward the use of technology in the classroom. Then, prints daily lesson log (DLL), Curriculum Guide (CG), and other teaching materials (M=4.15, SD=0.93) is second in rank which can be associated to the study of McFadden, Croxall, and Wright, (2001) who said that the Internet also serves as a valuable teaching tool, helping to enhance the curriculum through free downloads, interactive websites, and e-Mail. This is too supported with the study of Grasha and Yangarber-Hicks (2000) who reported that there is an 83% increase in faculty adopting Internet-based classroom activities. The next is teachers utilize computer in making teaching materials and use as instructional materials (M=4.10, SD=1.02). This is supported by Chizmar and Williams (2001) who suggested that information technology professionals direct their efforts toward the creation of instructional templates.

Likewise, this conforms with Bruenjes (2002), in basing her work on that of Rogers (1995), found teachers typically used technology as a tool for teaching, producing, or communicating. This can be associated too to the study of Demmon (2001) who found access to various types of technology, access to student information, improvement of productivity in developing course materials, and communication with students and colleagues via e-mail to be the primary reasons for adoption of technology. However, some practices were rated as "sometimes implemented" which means that these activities are not always practiced but only being observed at certain times such as: conduct of meeting inside the e-classroom (M = 3.35, SD = 1.31), conduct classes in the e-classroom (M = 3.30, SD = 1.17) and, conduct symposium (M = 3.20, SD = 1.19). This contradicts with Sandholtz, Ringstaff, and Dwyer (1997) who created a model describing five (5) phases educators go through when increasing their use of technology and the first phase is Entry which teachers adopt to change in physical environment created by technology which means that these DCP facility especially the e-classroom given to every school should be used as avenue to let learners experience beyond what they experienced in the four walls of their classroom.

Table 3. Extent of teachers' practices in the implementation of DepEd Computerization Program (DCP)

Teachers' Utilization The Teachers'…	M	Sd	Verbal Interpretation
Utilize Computer Technology During Learning Action Cell (LAC) Session	4.20	0.95	Often Implemented
Print Daily Lesson Log (DLL), Curriculum Guide (CG), And Other Teaching Materials	4.15	0.93	Often Implemented
Utilize Computer In Making Teaching Materials And Use As Instructional Materials	4.10	1.02	Often Implemented
Develop Basic Computer Skills	4.05	1.10	Often Implemented
Utilize Different Teaching Strategies Using Computer Technology	4.00	1.02	Often Implemented
Integrate Computer Utilization In Different Subject Areas	3.95	0.83	Often Implemented
Conduct Seminars And Training	3.50	1.24	Often Implemented
Do Research And Teachers Activity	3.40	1.23	Sometimes Implemented
Conduct Meeting Inside The E-Classroom	3.35	1.31	Sometimes Implemented
. Conduct Classes In The E-Classroom	3.30	1.17	Sometimes Implemented
. Conduct Symposium	3.20	1.19	Sometimes Implemented
Grand Mean	**3.74**	**0.76**	**Often Implemented**

Note: 4.50 –5.0 Always – Practices are implemented at all times ; **3.50 – 4.49 Often** – Practices are implemented at certain times **2.50 – 3.49** Sometimes – Practices are implemented frequently ; **1.50 – 2.49** Seldom – Practices are implemented in few instances but not all times and **1.0 – 1.49**   Never – Practices are never implemented.

Administrative Utilization and Support

Table 4 presents the administrative utilization and support done by the school heads in the public elementary schools in the district of Pontevedra. Data elucidated that the administrative practices and support of public elementary school administrators in the DepEd Computerization Program are "often implemented" (M=3.75, SD=0.72) which means that the school heads claimed that they frequently support and utilize various DCP practices. It can be inferred that school heads were knowledgeable in utilizing the program and integrating its purpose to deliver quality service to its clientele. Among their varied administrative utilization and support are: utilize computer technology during Learning Action Cell (LAC) session (M=4.20, SD=0.79);generate reports/acquired documents using computer technology (M=4.15, SD=1.09); and secure the e-classroom and its facility (M=4.05, SD= 0.89); This result only shows that the school administrators of public elementary schools

in the district of Pontevedra are religiously utilizing the program and provide support at all times to realize the objectives written in the DepEd Order No. 78, series of 2010. On the contrary, there are some practices such as provide maintenance thru updating the program and windows of the technology used (M = 3.45, SD = 1.36); provide technical assistance to teachers (M= 3.35, SD = 0.99) and conduct of Continues Improvement (C.I.) for DepEd Computerization Program (M = 3.30, SD = 1.26) that were rated as "sometimes implemented" or being practice only at certain times. This only shows that not all schools were able to preserve the DCP facility and give technical assistance to their subordinates because of the fact that they themselves are not knowledgeable enough to mentor their teachers with regards to the usage of this facility. This conforms with the result of the survey of Tinio, V.L. (2002) that revealed that there is a need to have capital intensive funds to defray the recurring costs of maintenance, repairs and upgrades of the DECP facility so to upgrade the skills of hundreds of thousands of teachers and school administrators in the Philippines.

Table 4. Extent of teachers' practices in the implementation of DepEd Computerization Program (DCP)

Administrative Utilization And Support The School Heads…	M	Sd	Verbal Interpretation
Utilize Computer Technology During Learning Action Cell (Lac) Session	4.20	0.79	Often Implemented
Generate Reports/Acquired Documents Using Computer Technology	4.15	1.09	Often Implemented
Secure The E-Classroom And Its Facility	4.05	0.89	Often Implemented
Provide Assistance From Maintenance And Other Operating Expenses (Mooe)	3.85	0.93	Often Implemented
Generate School Statistics Using Computer Technology	3.85	1.42	Often Implemented
Submit Reports On Deped Computerization Program (Dcp)	3.80	0.89	Often Implemented
Validate The Compliance Of The Program	3.80	0.95	Often Implemented
Monitor The Utilization Of E-Classroom	3.75	0.91	Often Implemented
Evaluate The Status Of E-Classroom	3.65	0.87	Often Implemented
Invite The Parents And Other Stakeholders In Improving The Facility	3.50	0.95	Often Implemented
Provide Maintenance Thru Updating The Programs And Windows Of The Technology Used	3.45	1.36	Sometimes Implemented
Provide Technical Assistance To Teachers	3.35	0.99	Sometimes Implemented
Conduct Continues Improvent (C.I.) For Deped Computerization Program (Dcp)	3.30	1.26	Sometimes Implemented
Grand Mean	**3.75**	**0.72**	**Often Implemented**

Note: 4.50 –5.0 Always – Practices are implemented at all times ; **3.50 – 4.49Often** – Practices are implemented at certain times**2.50 – 3.49** Sometimes – Practices are implemented frequently ; **1.50 – 2.49** Seldom – Practices are implemented in few instances but not all times and**1.0 – 1.49** Never – Practices are never implemented.

Department of Education Computerization Program Challenges Challenges Encountered by Teachers

Table 5 presents the challenges encountered by teachers in the implementation of DepEd Computerization Program in the district of Pontevedra. Data revealed that challenges encountered by teachers are "moderately serious" (M=2.76, SD = 0.44) which means that the challenges are of moderately extent & encountered at certain

times. However, insufficient number of units (M = 3.80, SD = 1.40) ranks as the serious challenge encountered by the teachers which means that this is of great extent & encountered by the teachers frequently but not all times. This implies that the program itself cannot accommodate the whole group of learners per grade section, which contradicts to the aim of DepEd Order No. 78, s. 2010 to provide public schools with appropriate technologies that would enhance the teaching-learning process and meet the challenges of the 21st century because the program itself is a challenge in the part of teachers on what teaching strategy will he will use to fully utilize the limited computer. It can be noted also in the result of this study that mostly of schools in Pontevedra District have not received a complete package of the different components of this DCP facility. This conforms with the study of Tuazon, I. M. Q, (2019) that revealed that one of the problems encountered in the implementation of the program is the ratio of computers to pupils. While weak participation of stakeholders (M = 3.15, SD = 1.09 and no studies conducted like Continues Improvement (C.I.) (M = 3.10, SD= 0.97) were rated as moderately serious which means that these challenges are of less extent & encountered at certain times. This implies that public elementary schools in the district of Pontevedra are quite weak in tapping and communicating to stakeholders to find potential partners to maintain and sustain the needs of the program and contradicts with DepEd Order No. 78, s. 2010 paragraph 5.f. that states must have a strong partnership with other stakeholders to ensure the sustainability of the program. However, there are some challenges rated to be not serious such as: no technical assistance provided from the division office (M = 2.60, SD = 1.10), lack of support from the school heads (M = 2.25, SD = 1.07), and insufficient electric supply (M = 1.55, SD = 0.60) which means that these problems are not that extent. This implies that teachers did not find it to be a serious problem with regards to technical assistance given to them which means that DepEd division personnel and administrators gave support to the teachers though it can be noted in the result of this study that giving technical assistance is sometimes implemented but the fact that there is an effort coming from them make every teacher confident enough in making his best in the delivery of quality instruction. This can be associated too with the statement of Abromitis (2009) that in order for a school community partnership to work, it is essential to build strong communication among all the participants and those who will be affected by the partnership.

Table 5. Challenges encountered by teachers in the implementation of DepEd Computerization Program (DCP)

Challenges Encountered By Teachers	Mean	Sd	Verbal Interpretation
Insufficient Number Of Units	3.80	1.40	Serious
Weak Participation Of Stakeholders	3.15	1.09	Moderately Serious
No Studies Conducted Like Continues Improvement (C.I.)	3.10	0.97	Moderately Serious
Insufficient Working Place	2.85	1.04	Moderately Serious
Programs Were Not Sustained	2.85	1.09	Moderately Serious
Lack Of Training On Deped Computerization Program (Dcp) For Teachers	2.80	1.06	Moderately Serious
No Maintenance Budget From Maintenance And Other Operating Expenses (Mooe)	2.65	1.06	Moderately Serious
No Technical Assistance Provided From The Division Office	2.60	1.10	Moderately Serious
Lack Of Support From School Heads	2.25	1.07	Slightly Serious
. Insufficient Electric Supply	1.55	0.60	Slightly Serious
Grand Mean	**2.76**	**0.44**	**Moderately Serious**

Note: 4.50 –5.0 Very serious– Challenges are of great extent and encountered at all times. **3.50 – 4.49 Serious** – Challenges are of great extent & encountered frequently but not all times. **2.50 – 3.49 Moderately Serious** – challenges are of less extent & encountered at certain times; **1.50 – 2.49 Slightly Serious –** challenges are not that of extent and encountered in few instances and **1.0 – 1.49 Not Serious** – challenges are never encountered

Challenges Encountered by School Heads

Table 6 presents the challenges encountered by school administrators in the implementation of DepEd Computerization Program. Data revealed that the challenges encountered by school heads are moderately serious (M = 2.68, SD = 0.45) which means that challenges are of moderately extent & they encountered these frequently but not all times, such as: insufficient number of computer units (M = 3.55, SD = 1.23), no studies conducted like Continues Improvement (C.I.) (M = 3.15, SD = 1.04) and programs were not sustained (M = 2.95, SD = 1.19). This implies that the program itself don't have enough upgrading system to cope up with the demand of our educational system, this data also contradicts with the guidelines on the implementation of DepEd Computerization Program paragraph 6 which states that an augmentation of ICT equipment with huge enrolment shall be provided based on enrolment and paragraph 7 that states that annually, the allotted budget for DepEd Computerization Program shall be provided under the General Appropriation Act (GAA) to support the procurement of computer hardware and software. This is in conforms with the study of Manlagñit, M.S. (2013) on the problems met of the school were revealed that "After two years of warranty ICT equipment and peripherals break down, the school cannot avail of the technical assistance and/or repair services from DepEd-hired ICT maintenance crew", "No budget/funds to support for the replacement of the parts for this equipment", "Not secured for the natural calamity all the time and thief", "There is no CD's installer for the recovery of the program provided by the supplier problems met after 2 years of warranty", and "Simultaneous using of the computer causes slowdown processing of the program" the least attained were "Cannot avoid if all the teachers used the computer laboratory the possible computer virus infection will always be treated", "There is no enough space of the hard disk to occupy all the files to be saved by all pupils activities and teachers", "Some parents are not cooperating for the maintenance of the computer laboratory". On the other hand, there were challenges rated as "not serious" such as: insufficient working place (M = 2.45, SD = 0.89), no maintenance budget from Maintenance and Other Operating Expenses (MOOE) (M = 2.30, SD = 0.66), and insufficient electric supply (M = 1.30, SD = 0.47). These challenges which found by the school heads to be not serious implies that they did not allocate enough budget for the maintenance of this DCP facility which conforms with Illano (2009) who cited that the problems in public schools are mainly attributed to the government's lack of budgetary allocation for education. This is true to some barrio and small schools that cannot provide additional or special allocation from school revenues for the enhancement of the program. Likewise, Rodrigo, M.M.T. (2001) in his survey of public high schools nationwide, electrical power is widely available that supports the result of this study that school heads found no electricity not to be a serious problem though in some schools the frequency of power interruptions can cause breakdowns in the ICT equipment and interruptions to instructional use

Table 6. Challenges encountered by school heads in the implementation of DepEd Computerization Program (DCP)

Challenges Encountered by School Heads	MEAN	SD	VERBAL INTERPRETATION
insufficient number of computer units	3.55	1.23	Serious
no improvement studies conducted like Continues Improvement (C.I.)	3.15	1.04	Moderately Serious
programs were not sustained	2.95	1.19	Moderately Serious
weak participation of stakeholders	2.95	1.23	Moderately Serious
lack of support from private sectors	2.75	1.02	Moderately Serious
no technical assistance provided from the division office	2.70	0.92	Moderately Serious
lack of training on DepEd Computerization Program (DCP)	2.70	0.98	Moderately Serious
insufficient working place	2.45	0.89	Slightly Serious

no maintenance budget from Maintenance and Other Operating Expenses (MOOE)	2.30	0.66	Slightly Serious
. insufficient electric supply	1.30	0.47	Not Serious
GRAND MEAN	**2.68**	**0.45**	**Moderately Serious**

Note: 4.50 –5.0 Very Serious– Challenges are of great extent and encountered at all times. **3.50 – 4.49 Serious** – Challenges are of great extent & encountered frequently but not all times. **2.50 – 3.49 Moderately Serious** – challenges are of less extent & encountered at certain times; **1.50 – 2.49 Slightly Serious –** challenges are not that of extent and encountered in few instances and **1.0 – 1.49 Not Serious** – challenges are never encountered

Department of Education Computerization Program Influences

The influences of DepEd Computerization Program implementation in the public elementary schools is in terms of academic performance of learners, pedagogical practices of teachers and administrative and leadership performance of school heads had indeed something to do in the effective and efficient teaching and learning process. As Hammer & Keller (2000) contended that faculty must get beyond the mechanics of using technology to the point of truly incorporating into their classrooms. They also expressed a need for faculty to assist students in developing "their own cultural artifacts with the educational setting" (New Educational Technology: Challenges and Potential, Section 4) as a means of bringing quality to learning. The use of technology for instruction in the classroom should serve to "empower and enlighten" both students and faculty (New Educational Technology: Challenges and Potential, section 18). The implementation of computer technology in the classroom can be characterized as the selection of experiences and activities that augment traditional instruction in ways that provide enrichment without overshadowing the intended objectives (Jewett, 2000).

Academic Performance of Learners

Table 7 presents the influence of DepEd Computerization Program implementation in the academic performance of learners. Data revealed that public elementary school teachers rated "agree" (M =4.19, SD = 0.49) that DCP program influences the academic performance of learners this means that influences are experienced frequently but not all times by the learners this result also conforms with Bates (2011) that states reasons for using technology to enhance the classroom experience includes improvement of learning quality, providing students with opportunities to learn technology skills, extending access to post-secondary instruction, and expanding the search of technology in the world outside the classroom. First, increase participation rate during classes (M = 4.35, SD = 0.61) this factor also conforms with the study of N. Azmi (2017) that states that the use of instructional technology and ICT in particular in the English language classroom can improve and optimize students' language acquisition and substantially motivate them to continue their learning and stimulate their creativity and passion. Next, increase learner's listening span during the integration of computer (M = 4.32, SD = 0.63), which coincide with the statements N. Azmi (2017) that states that technology in language learning can boost variety and increase the diversity of learning environments and opportunities and enhance the quality of the learning experience by making class content more varied and accessible to almost each individual learner; thus ensuring more participation and engagement among learners and lastly, become more interested to attend the class (M = 4.29, SD = 0.82); which can also be considered as the realization of objective number 5 of DepEd Order No. 78, s. 2010 that states, to raise the ICT literacy of learners, pupils, students, teachers and school heads. However, there are factors found like enhance computer skills and enthusiasm in learning (M = 4.12, SD = 0.78), (9) reduce computer illiteracy (M = 4.08, SD = 0.95), and (10) motivate in doing their homework (M = 3.93, SD = 0.84) that becomes the challenge in the part of teachers, on the other hand it contradicts with K. Ramsey, et. Al (2006) that states ICT enables them to 'read' and revisit their learning, strengthening their identities as confident and competent learners. These identified influences imply that insufficient number of unit leads to learners to lose their enthusiasm in learning, reduce computer illiteracy as it cannot accommodate the whole population of each section. This can also be a contradiction with Bates (2011) that states reasons for using technology to enhance the classroom experience includes improvement of learning quality, providing students with opportunities to learn technology skills, and expanding the search of technology in the world outside the classroom.

Table 7. Influence of DepEd Computerization Program (DCP) implementation in the Academic performance of learners

Academic Performance of Learners The Learners…	MEAN	SD	VERBAL INTERPRETATION
increase participation rate during classes	4.35	0.61	Agree
increase learner's listening span during the integration of computer	4.32	0.63	Agree
become more interested to attend the class	4.29	0.82	Agree
find lessons easy to understand	4.24	0.73	Agree
increase productivity in terms of output-based lessons	4.21	0.83	Agree
enhance communication skills	4.17	0.77	Agree
reduce absenteeism	4.16	0.77	Agree
enhance computer skills and enthusiasm in learning	4.12	0.78	Agree
reduce computer illiteracy	4.08	0.95	Agree
motivate in doing their homework	3.93	0.84	Agree
GRAND MEAN	**4.19**	**0.49**	**Agree**

Note: 4.50 –5.0 Strongly Agree– Challenges are of great extent and encountered at all times. **3.50 – 4.49 Agree** – Challenges are of great extent & encountered frequently but not all times. **2.50 – 3.49 Moderately Agree** – challenges are of less extent & encountered at certain times; **1.50 – 2.49 Disagree –** challenges are not that of extent and encountered in few instances and **1.0 – 1.49 strongly Disagree** – challenges are never encountered.

Pedagogical Practices of Teachers

Table 8 presents the influence of DepEd Computerization Program implementation in the pedagogical practices of teachers. Data revealed that the pedagogical practices made by the teachers in the district of Pontevedra in the utilization of the said program was rated "strongly agree" (M =4.59, SD = 0.36) which means that the program has significant effect in the pedagogical practices of teachers which also conforms to Murray et al, (2005) which states that the use of a computer by teachers in the classroom has also brought about a change in the role of the teacher, taking him or her from the role of a lecturer to a facilitator of learning. Thus, helping students become more independent and more self-sufficient these are: Enhance teaching strategies (M = 4.75, SD = 0.44), (2) motivate to develop more teaching materials (M = 4.70, SD = 0.47), (3) become more interested to attend the class (M = 4.70, SD = 0.47) which also conforms with the study of Amparo Sison (2005) stated that computer programs are actually being used in schools not to replace the classroom teaching, but to increase the students' understanding of a specific topic. This implies that the program's objective specifically, objective no. 3 of DepEd Order No. 78, s. 2010 which is to integrate ICT in the school system has been realize in the public schools in the district of Pontevedra. However, some influences were rated as "Agree" means that influences are experienced frequently but not all times these are: (8) make lessons easy to understand (M = 4.50, SD = 0.51), (9) enhance communication skills via internet (M = 4.40, SD = 0.60) , and (10) become more constructive in delivering the lesson (M = 4.20, SD = 0.62). This only implies that two-way teacher-learner instruction is better than a one way technology-based instruction in delivering the lessons, and enhancement of communication skills is already built-in in every teacher. This can also be associated with the statement of Bilimoria (2007) in his book that the future generations would be computer literate and would expect technology in the classroom. In order to find ways to avoid becoming "pedestrians on the information superhighway", the author recommended that faculty members cease to view themselves as the "receptacles of knowledge in our societies" and expand their

professional competencies as facilitators and technologists.

Table 8. Influence of DepEd Computerization Program (DCP) implementation in the pedagogical practices of teachers

Pedagogical Practices of Teachers The Teachers…	MEAN	SD	VERBAL INTERPRETATION
enhance teaching strategies	4.75	0.44	Strongly Agree
motivate to develop more teaching materials	4.70	0.47	Strongly Agree
become more interested to attend the class	4.70	0.47	Strongly Agree
enhance computer skills and enthusiasm in teaching	4.70	0.47	Strongly Agree
increase productivity in terms of teaching process	4.70	0.47	Strongly Agree
make paper works easy	4.70	0.47	Strongly Agree
reduce stress in preparing the lessons	4.60	0.50	Strongly Agree
make lessons easy to understand	4.50	0.51	Strongly Agree
enhance communication skills via internet	4.40	0.60	Agree
. become more constructive in delivering the lesson	4.20	0.62	Agree
GRAND MEAN	**4.59**	**0.36**	**Strongly Agree**

Note: 4.50 –5.0 Strongly Agree– Challenges are of great extent and encountered at all times. **3.50 – 4.49 Agree** – Challenges are of great extent & encountered frequently but not all times. **2.50 – 3.49 Moderately Agree** – challenges are of less extent & encountered at certain times; **1.50 – 2.49 Disagree –** challenges are not that of extent and encountered in few instances and **1.0 – 1.49   strongly Disagree** – challenges are never encountered.

Administrative and Leadership Performance of School Heads

Table 9 presents the influence of DepEd Computerization Program implementation in the administrative and leadership performance of school heads. Data divulged that the influences of DepEd Computerization Program in the public elementary school are rated as "often implemented"(M =4.40, SD = 0.42) which means that the program has a direct effect in the administrative and leadership performance of school heads these are : (1) become faster in accessing to DepEd memos and advisories (M = 4.60, SD = 0.60), (2) connect with stakeholders easily (M = 4.50, SD = 0.61), (3) enhance report submission system (M = 4.50, SD = 0.61). This result can also be associated with the statement of D. Passey (2002) that states ICT and school management is an important issue, since it is well recognized that senior managers in schools have a major impact upon classroom and curriculum practices, and that the use of ICT within schools is permeating aspects of school practice to the extent that it will impact upon the practice of all staff (both teaching and non-teaching). This result implies the great effect of the program when it comes to administrative and leadership performance of school head like accessing to departments memorandum and advisories that can be considered as integral part of institutional flow to have and effective and efficient management, this program helps administrators to easily troubleshoot the possible problems and connect to other stakeholders easily to deliver best instruction. Enhancement of report submission can avoid delays and miscommunication within the institution. However, there are identified rated influences such as: (8) increase engagement in technology-based management (M = 4.30, SD = 0.66), (9) enhance management communication process (M = 4.30, SD = 0.73), and (10) become more productive (M = 4.25, SD = 0.64). This implies that the technology-based instructions cannot replace the traditional way of management which values the personal interaction that avoids miscommunication and misunderstanding of instruction. This data also conforms with the statement of which are highly valued by Lang, 2000 that technology can be the curriculum, a mechanism for the delivery of course materials, a means of supplementing instruction, or an instructional device to enhance learning (Milliron & Miles, 2009).

Table 9. Influence of DepEd Computerization Program (DCP) implementation in the administrative and leadership performance of school heads.

Administrative And Leadership Performance Of School HeadsThe School Heads…	Mean	Sd	Verbal Interpretation
Become Faster In Accessing To Deped Memos And Advisories	4.60	0.60	Strongly Agree
Connect With Stakeholders Easily	4.50	0.51	Strongly Agree
Enhance Report Submission System	4.50	0.61	Strongly Agree
Provide Immediate Action During Updates Of Program	4.50	0.61	Strongly Agree
Develop Technology-Based Strategies In Managing Personnel	4.35	0.67	Agree
Enhance Technology-Based Research In Disbursing School Funds	4.35	0.67	Agree
Create Innovative Programs For Teachers And Learners	4.35	0.75	Agree
Increase Engagement In Technology-Based Management	4.30	0.66	Agree
Enhance Management Communication Process	4.30	0.73	Agree
Become More Productive	4.25	0.64	Agree
Grand Mean	**4.40**	**0.42**	**Agree**

REFERENCES

1. Abromitis, B. (2009). School Community Partnerships that work, Building Relationships among stakeholders to support real change. Retrieved April 10, 2014 from the World Wide Web,http://educationalissues.suite1011.com/article.cfm/schoolcommunitypartnershipthatwork
2. Andrews, R. (2000) Framing and Design in ICT in English: towards a new subject and practices in the classroom. In A. Goodwyn (ed.), English in the Digital Age: Information and Communications Technology and the Teaching of English (London: Cassell).
3. Aquino. G.V. (2004). Effective Teaching National Bookstore pp. 471-472, 467-469, 479-480
4. Baporikar, Neeta (2018). Augmenting Research Competencies for Management Graduates. Retrieved December 2018 from the World Wide Web, https://www.igi-global.com/chapter/augmenting-research-competencies-for-management-graduates/196464
5. Bush, Tony (2011). Theories of Educational Leadership and Management. Retrieved June 2012 from the World Wide Web, http://books.google.com.ph https://www.academia.edu/20339329/THESIS_on_the_use_of_computer_technology_in_secondary_schools
6. Carney, J. M. (1998) Integrating technology into Constructivist classrooms: an examination of one model for teacher development. Journal of Computing in Teacher Education, 15, 7-15.
7. CEO Forum (2010) Year 2 Report. Professional development: A link to better learning. Retrieved October 6, 2015 from the World Wide Web, Online: http://ceoforum.org
8. Dodge, B. (2012) Some thoughts about WebQuests. Online: Retrieved August 21, 2014 from World Wide Web, http://edweb.sdsu.edu/courses/edtec596/about_webquests.html
9. Hall, G. E., Loucks, S. F., Rutherford, W. L ., & Newlove, B. W. (2009). Levels of use of the innovation: A framework for analyzing innovation adoption. Journal of Teacher Education, 26(1), 52–56.
10. Hodas, S. (2003) Technology refusal and the organizational culture of schools. Education Policy Analysis Archives, 1 (10). Retrieved March 21, 2005 from the World Wide Online: http://epaa.asu.edu/epaa/v1n10.html.

11. Jones, A. (2002) Refusing or ignoring? An investigation of student teachers' perceptions and use of computers. Paper presented at the Australian Society for Educational Technology Conference. Melbourne, July.

12. Manlagñit, M. S., (2013) Level of attainment of the Objectives of the Computerization Program in Juan M. Alberto Memorial Elementary School as Viewed by teachers. Retrieved from https://www.slideshare.net/JMAMESIAN/level-of-attainment-of-the-obejctives-of-tmhe-computerization-program-in-jmames-thesis-presented-by-marivic-s-manlagnit

13. McKinsey and Company (2007) The future of information technology in UK schools. McKinsey and Company, London.

14. Martinez, O. & Acuna, B. (2022) Technology Usage and Academic Performance in the

15. Pisa 2018 Report. Retrieved September 9, 2024 from the World Wide Web Online: https://files.eric.ed.gov/fulltext/EJ1325570.pdf

16. OFSTED (2002) ICT in schools: Effect of government initiatives. Progress report April 2002. Office for Standards in Education, London. Online: http://www.ofsted.gov.uk/public/index.htm

17. Papert, S. (2009) Mindstorms: Children, computers and powerful ideas. Basic Books, New York.

18. Papert, S. (2003) The children's machine: Rethinking school in the computer age. Basic Books, New York.

19. Ramsay, G. (2000) Quality matters. A review of teacher education in NSW. Online:

20. Watson, D. M., Cox, M. and Johnson, D. (ed.) (1993) The Impact Report: An Evaluation of the Impact of Information Technology on Children's Achievements in Primary and Secondary Schools. (London: Department for Education and Kings College London) pp.45