



DepEd – DIVISION OF QUEZON

Sitio Fori, Brgy. Talipan, Pagbilao, Quezon
Cell # 09175824627 or at www.depedquezon.com.ph
"Creating Possibilities, Inspiring Innovations"



Registration Number:
QAC/R63/0216

May 2, 2019

DIVISION MEMORANDUM

DM No. 113, s. 2019

INCLUSION IN THE DISTRICT IN-SERVICE TRAINING FOR TEACHERS (INSET) OF THE TRAINING ON INFORMATION COMMUNICATION TECHNOLOGY (ICT) BASED ON THE RESULT OF THE BERF-FUNDED RESEARCH OF EVARDOME, et al.

To: Asst. Schools Division Superintendents, CID Chief, SGOD Chief, Education Program Supervisors, Education Program Specialists, Public Schools District Supervisors, School Heads, Elementary and Secondary School Teachers, All Concerned

1. The Schools Division of Quezon recognizes the importance of research in the continuous improvement of schools in the division.
2. This office also believes that research **output utilization** should be given importance in order to compensate the efforts exerted by DepEd Quezon researchers whose primary intention in undertaking a scientific inquiry is *to constantly improve instruction and school governance* in the workplace.
3. In this connection, this office enjoins all school districts to include in the DISTRICT INSET the TRAINING ON ICT based on the study conducted by Evardome, et al. in 2018.
4. To guide the school districts in the inclusion of the above mentioned training, a copy of the full paper attached in this Division Memorandum may be reproduced.
5. Report on DISTRICT TRAINING ON ICT should be submitted to the Senior Education Program Specialist for Planning and Research not later than June 28, 2019 using the attached template.
6. For questions and other concerns, please contact the Planning and Research Section at 09567597393 or email at juanito.merle@deped.gov.ph.

DEPEDQUEZON-TM-SDS-04-009-001

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 DEPED QUEZON ICT UNIT	
UPLOADED	
Date/Time:	5-3-19
By:	Rommel
Ref. no.	113



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7. Immediate dissemination of this Memorandum is earnestly desired.


MERTHEL M. EVARDOME, CESO VI
Schools Division Superintendent

parjam05/02/2019

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Suggestions/Recommendations:

Prepared by:

Signature Over Printed Name of the TWG

Noted by:

Signature Over Printed Name of the PSDS

Date Submitted:

Note: The submitted report will be used by the Schools Division of Quezon for making administrative decisions. It will be kept confidential by the receiving Section, the Planning and Research Section.

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**DEPED QUEZON TEACHERS' ICT COMPETENCE: BASIS
FOR A STRATEGIC TECHNOLOGY INTEGRATION
PLAN FOR TEACHERS**

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ABSTRACT

PURPOSE. This research measured the ICT competence of DepEd Quezon teachers as basis for the preparation of a Strategic Technology Integration Plan for Teachers.

DESIGN/METHODOLOGY/APPROACH. This study involved 8,185 teachers (5,976 elementary and 2,209 secondary) of DepEd Quezon in answering the validated Google survey form containing a modified National Educational Technology Standards for Teachers which was used in measuring the ICT competence of the respondents. Data gathered from the online survey were treated statistically using frequency-percentage distribution. FGD that involved 36 teachers was also used in collecting qualitative data on ICT needs of DepEd Quezon teachers. Data gathered by the researchers served as basis for the crafting a Strategic Technology Integration Plan for Teachers.

FINDINGS.

Most of the teachers in DepEd Quezon have BASIC ICT level of competence who need training and re-training on ICT Fundamentals with Troubleshooting, Word Processing, Spreadsheet, Presentation, and Information and Communication and the Strategic Technology Integration Plan for Teachers was crafted by the researchers with six components, namely: domains, indicators, key players, outcomes, technology support, and transformative learning environment.

ORIGINALITY/VALUE. This study provided findings that served as basis in crafting a Strategic Technology Integration Plan for Teachers.

Keywords: DepEd Quezon teachers, ICT competence, strategic technology integration plan

I. INTRODUCTION

The Schools Division of Quezon (SDQ), being a very large schools division, has a total of 8,211 public elementary school teachers and 4,442 public secondary school teachers who are serving a total of 403,438 learners (DepEd Quezon Planning and Research Section, 2017). These teachers help the SDQ in fulfilling its mandate of providing quality education to the learners which is part and parcel of the Department of Education's Vision that states "...As a learner-centered public institution, the Department of Education continuously improves itself to better serve its stakeholders."

Part of the continuous improvement program of DepEd Quezon is the holding of Quarterly Monitoring and Evaluation for Plan Adjustment (MEPA) where analyzed data on quality were presented to the Public Schools District Supervisors and Education Program Supervisors and Education Program Specialists.

In 2016, the Division Planning Team of DepEd Quezon disclosed the following: (1) fluctuating academic achievement of Grade 3 pupils as indicated by the MPS of 59.83 in 2010, 56.39 in 2011 and 55.63 in 2012; (2) fluctuating academic achievement of Grade 6 learners as evidenced by the MPS of 67 in 2010, 63.95 in 2011, 63.6 in 2012, 55.67 in 2013, and 56.63 in 2014; and (3) fluctuating academic achievement of fourth year students as indicated by the MPS of 45.24 in 2011, 45.47 in 2012, 44.62 in 2013, and 40.66 in 2014.

To address the problem on learners' academic performance, research was made as a tool in improving instruction. DepEd Quezon teachers are encouraged to identify instruction-related problems, to do root cause analysis, and to design the most appropriate interventions to address these instructional barriers.

Likewise, DepEd Quezon teachers, the classroom leaders, are challenged to use Information Communication Technology (ICT) in the delivery of instruction since according to Stuart and Remus (2009), one of the required skills for the 21st century leaders is the ability to utilize the Information Communication Technology (ICT). This idea is supported by Tabbada and Buendia (2015) who claimed that using technology resources, (1) it helps teachers facilitate unique learning environments to be more powerful and effective; and (2) increases teacher productivity by freeing time to work with students by

helping with production and recording keeping tasks, providing more accurate information, and allowing teachers to produce better-looking, more "student-friendly" materials quickly.

With the recommendation to integrate the ICT in instruction, it is deemed necessary that DepEd Quezon determines the ICT competence of teachers. This ICT competence as used in this study is the one described by the National ICT Competency Standard (NICS) for Teachers that refers to the competency outcomes and the supporting knowledge and skills that are needed to utilize ICT in performing the job roles related to teaching (Commission on Information and Communication Technology, 2008).

The initiative to determine the ICT competence of teachers is brought about by the survey report of Rodriguez (2004) that only one out of seven schools has teachers who are computer literate. Relative to this, UNESCO Institute of Statistics (2014) believes that teachers are frequently considered to be the most important influence on classroom learning and, as such, play an invaluable role in ensuring that pupils use ICT effectively inside the school. However, there has been little or no research on exactly how much teacher training is required, how often it should take place, what kind of training is most appropriate and affordable, and what it should cover to create a teaching workforce that is motivated to use ICT in the classroom in the context of new curricula and new pedagogies.

In line with this, there is a need to assess the ICT competence of DepEd Quezon teachers as basis for the preparation of a Strategic Technology Integration Plan for Teachers. Thus, this study sought to answer the following questions:

1. What is the DepEd Quezon teachers' ICT competence on demonstrating knowledge, skills, and understanding of concepts related to technology as described in the ISTE National Educational Technology Standards for Teachers?
2. What is the DepEd Quezon teachers' ICT competence on demonstrating continual growth in technology knowledge and skills to stay abreast of current and emerging technologies?
3. Based on the findings of this study, what Strategic Technology Integration Plan for Teachers for DepEd Quezon teachers can be crafted by the researchers to make these teachers better prepared for ICT integration in instruction?

BRIEF REVIEW OF RELATED LITERATURE AND STUDIES

The researchers, in their desire to strengthen the foundation of this study, gathered ideas which have direct bearing to the present research undertaking.

The completion of this study greatly relied on the International Society for Technology in Education (ISTE) Standards (2008) and NETS –T Standards for Teachers. ISTE provides a framework for...teaching and a roadmap for educators worldwide as they navigate decisions about curriculum, instruction, professional learning and the transformation of pedagogy.

In 2008, the International Society for Technology in Education (ISTE) issued its National Educational Technology Standards for Teachers (NETS-T) and intended this document to be a companion document to the previously released 2007 National Educational Technology Standards for Students (NETS-S). These two sets of standards reflected a fundamental shift in the way educators thought about technology in educational setting. Until these standards were released, the field of educational technology focused on "how" to use equipment rather than on "what" the educational benefits of technology-mediated learning environments could be (Maloy, et. al., 2011 cited in <https://people.umass.edu/pelliott/reflections/netst.html>).

ISTE believes that effective teachers design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community.

According to ISTE (2008), all teachers should meet the following standards and performance indicators: (1) *Facilitate and inspire student learning and creativity*. To attain this, teachers should use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments; to facilitate and inspire student learning and creativity, teachers need to: (a) Promote, support, and model creative and innovative thinking and inventiveness; (b) Engage students in exploring real-world issues and solving authentic problems using digital tools and resources; (c) Promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and

creative processes; and (d) Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.

The second ISTE standard is *Design and develop digital age learning experiences and assessments*. This requires teachers to design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the Standards. The second standard can be gauged by the following indicators: (a) Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity; (b) Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own learning, and assessing their own progress; (c) Customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources; and (d) Provide students with multiple and varied formative and summative assessments aligned with content and technology standards, and use resulting data to inform learning and teaching.

The third ISTE standard is *Model digital age work and learning*. In here, teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. The third strand can be measured using the following indicators: (a) Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations; (b) Collaborate with students, peers, parents, and community members using digital tools and resources to support students' success and innovation; (c) Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital age media and formats; and (d) Model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning.

The fourth ISTE standard is *Promote and model digital citizenship and responsibility*. With this standard, teachers are expected to understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Evaluation of teachers' ICT competence with reference to this standard is possible by considering the following specific competencies: (a) Advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate

documentation of sources; (b) Address the diverse needs of all learners by using learner-centered strategies providing equitable access to appropriate digital tools and resources; (b) Promote and model digital etiquette and responsible social interactions related to the use of technology and information; and (c) Develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital age communication and collaboration tools.

The fifth ISTE standard is *Engage in professional growth and leadership*. In this standard, teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers' ICT competence along with this standard can be measured using the following indicators: (a) Participate in local and global learning communities to explore creative applications of technology to improve student learning; (b) Exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others; (c) Evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning; and (d) Contribute to the effectiveness, vitality, and self-renewal of the teaching professional and of their school and community.

Similar to ISTE Standards for Teachers, there are NETS –T Standards for Teachers which the researchers also referred to in making this research. The first of these standards focuses on **learning and creativity** and how to facilitate these qualities in students using technology. The second standard looks as **learning experiences and assessments** via technology, while asking teachers to assess their own progress in the development of technology-enriched learning environments. The third standard asks teachers to model **digital-age work and learning** in their teaching, their work with families, and their action research activities. The call is for "use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning." The fourth standard asks teachers to promote and model **digital citizenship and responsibility**. Teachers cannot ask the students to respect "intellectual property" if teachers do not model its importance in "digital-age communication and collaboration." The fifth, and final, standard focuses on **professional growth and leadership**. This need for self-renewal and for a willingness to assume leadership roles has never been

so great as now when change-agents are needed in the "warp-speed" world the children are inheriting. (<https://people.umass.edu/pelliott/reflections/netst.html>).

With the ISTE and NETS Standards for Teachers, the researchers prepared a scoring rubric which was validated by ITO of DepEd Quezon. The levels of competence of the DepEd Quezon teachers was measured using this rubric that utilizes *novice*, *basic*, *proficient* and *advanced* for the ICT levels of competence. The descriptions of each ICT level of competence is presented in the methodology.

Measuring the ICT competence of the DepEd Quezon teachers is very crucial in order to prepare a responsive Strategic Technology Integration Plan for Teachers.

The conceptual framework of Strategic Technology Integration Plan for Teachers was adopted from the rough draft document of the Department of Education in 2016. The aforementioned document aims to illustrate the assumption that teacher and student utilization of ICTs, categorized into five process indicators, can help learners meet learning standards and develop 21st century skills. It also shows the importance of a transformative learning environment as an enabler and product of the integration of ICT in the teaching and learning processes.

Based on the aforesaid DepEd unnumbered document, there are six components necessary to ensure that ICT integration in teaching and learning takes place. These components are domains, indicators, key players, outcomes, technology support, and transformative learning environment.

A *domain* presents specific context on how ICT is utilized, and the purpose on why ICT is used for instruction. It gives a specific perspective on the roles of ICT in supporting teaching-learning processes. Relative to this, the present researchers considered the ISTE Standards. They also referred to the work of Inte (2017) that disclosed specific potential topics for teachers' training such as ICT Fundamentals with Troubleshooting, Word Processing, Spreadsheet, Presentation, and Information and Communication.

The second component necessary to ensure that ICT integration in teaching and learning takes place is *Indicators*. Indicators are processes or skills that categorize somehow what teachers and learners do using ICTs in teaching and learning. In this regard, the researchers considered the result of Google survey in identifying the most appropriate indicators in the crafting of Strategic Technology Integration Plan for Teachers.

Key Players is the third component necessary to ensure that ICT integration in teaching and learning takes place. This refers to the main users of technology. They are the teachers and learners who take an active role in using technology in the instructional process. Relative to this, Corpuz and Lucido (2012) opined that if the teachers use technology to help the students and they become caring, relating, thinking reflecting and analyzing and feeling beings, then it is a boon, a blessing. But if they abuse and misuse it and so contribute to the ruin and downfall and those of other persons, it becomes a bane or a curse.

The fourth component necessary to ensure that ICT integration in teaching and learning takes place is *Outcomes*. This refers to the end-goal of using ICT to support the teaching-learning process: the learners' attainment of learning standards and the development of 21st century skills. It is based on the premise that ICTs should be able to assist the delivery of instruction in various learning areas for different competencies. In this relation, Tabbada and Buendia (2015) discussed some favorable effects of integrating ICT in teaching and learning. These are (1) Many students feel confident in doing research work due to the speed of surfing in the internet; (2) Students can solve problems and represent their knowledge by engaging in higher level skills; and (3) Teachers increase their productivity.

Ballado (2012) mentioned that the chief advantage of the computer is interactivity. The learner is involved as it is required to respond. Researches on the use of CAI in various educational levels as a Supplement to traditional, teacher-directed instruction reveal the achievement effects of those expected to CAI more superior than those who are exposed with traditional instruction alone.

Technology Support is the fifth component necessary to ensure that ICT integration in teaching and learning takes place. This refers to the hardware and software available that are necessary to attain the integration. The presence of computers, digital devices, supplementary hardware peripherals, and software application, allows the adoption of ICT Integration. To make the ICT Integration in teaching more effective, Ballado (2012) identified ten important variables to be considered in evaluating computer softwares. These are: (1) Relevance to objectives; (2) Accuracy of information; (3) Likely to arouse and maintain interest; (4) Ease of use; (5) Appropriate color, sound, graphics; (6) Frequent, relevant practice (active participation); (7) Feedback provides remedial branches; (8) Free of technical flaws (e.g. dead ends, infinite loops); (9) Clear, complete documentation; and (10) Evidence of effectiveness (e.g. field test results).

The sixth component necessary to ensure that ICT integration in teaching and learning takes place is *Transformative Learning Environment*. This is where everything takes place. A learning environment must be transformative to enable learners and teachers to use appropriate ICTs to support their regular activities. This kind of environment, with the presence of ICTs, allows innovation of strategies to fully adopt technologies for the strengthening of competencies. A transformative learning environment can also further be enhanced through the continuous and regular use of appropriate technologies and development of innovative strategies through the integration of ICT in the teaching-learning process.

This framework shall serve as the basis for all forthcoming programs and initiatives of the Schools Division of Quezon to strengthen instruction through technology integration. The Strategic Technology Integration Plan of DepEd Quezon is enhanced by the findings of the study conducted by Inte (2017) entitled *Improving the ICT competence of Ungos National High School students through COMPSEP*. Inte's study specifically gave importance to ICT Fundamentals with Troubleshooting, Word Processing, Spreadsheet, Presentation, and Information and Communication.

III. METHODOLOGY AND RESEARCH DESIGN

This study involved 8,185 teachers (5,976 elementary and 2,209 secondary) of DepEd Quezon. A validated Google survey form containing a modified National Educational Technology Standards for teachers was used to measure the ICT competence of the respondents. Frequency-percentage distribution was used in measuring the level of ICT competence of the respondents. Focus Group Discussion (FGD) was also conducted to identify the specific competencies needed by DepEd Quezon teachers. The analyzed and interpreted data served as the researchers' basis in crafting the Strategic Technology Integration Plan for Teachers of DepEd Quezon.

Choices for assessing the respondents' ICT competence are novice, beginner, proficient, and advanced. The following guided the respondents in expressing their answers in the Google survey:

- A. Demonstrate Knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Educational Technology Standards for Teachers)

ICT Competence Level	Qualitative Indices
Novice	Teachers identify functions of the computer describing access, control, and use of classroom computer hardware including input devices (e.g. keyboard, track-pad, and mouse), output devices (e.g. monitors and printers), and internal and external storage options (e.g. hard drive, portable drive); Teachers describe general uses

	of computer-based curriculum materials; applications programs (e.g. word processor, drawing program, presentation software, e-mail); online reference materials; Internet browser; and school administrative reporting software; Teachers identify graphical user interface (GUI) functions represented by menus, symbols, and icons commonly used to navigate and control computer-and Internet-based curriculum software; and identify drawing, editing, menu selection, or other option within a program.
Basic	Teachers identify and use common peripheral devices found in the classroom (e.g., printer, monitor, scanner, digital camera, video projector) and describe how to locate information on uses, care, and basic maintenance of these classroom technology resources; Teachers describe teacher and student uses for application software; network-based curriculum resources; spreadsheets, database, and e-mail application software; and common utilities software; Teachers identify and apply GUI menu options to select, create, edit, manage and maintain computer files on a hard drive, or networked location.
Proficient	Teachers compare and evaluate hardware components and software resources used to provide access to local area networked curriculum materials, Web resources, and multimedia resources e.g., computer system, printers, monitors, video projectors, external drives, scanners, digital camera, speakers, browsers, plug-ins, media players, movie, photo and music utilities; Teachers identify, describe, and solve simple hardware, software, and networking problems that occur during everyday use and know how to clearly communicate more serious technical difficulties, need for support, or technical assistance to appropriate technical staff; Teachers recognize, manage, and maintain computer files in a variety of different media and formats on a hard drive, network, and Web location.
Advanced	Teachers know how to connect and use common peripherals, identify and describe uses, advantages and challenges for advanced resources (e.g., digital probes, artificial intelligence, virtual reality, simulations) and advanced network resources (e.g. compressed video, video server, video conferencing software, and Web casting); Teachers know how to access and use help desks, online help, and user documentation to recognize common hardware or software and network problems; Teachers select advanced utilities (e.g. compression, anti-virus, spam blocker) based on specific system needs)

B. Demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.

ICT Competence Level	Qualitative Indices
Novice	Teachers select school, district, university, or online professional development opportunities based on the ISTE National Educational Technology Standards for Teachers; Teachers develop a plan for their own professional growth.
Basic	Teachers select and use correct terminology to describe functions of current and emerging hardware, software, and network-related resources used for classroom settings.
Proficient	Teachers research emerging hardware, software, and network-related resources reported by current news, periodical, and internet resources, and at professional meetings and involve students in investigating and assessing possible effects of evolving technologies on education and jobs.
Advanced	Teachers identify emerging technology resources and formulate strategies for acquisition and use of emerging technologies with a convincing degree of educational potential.

The respondents were instructed to answer in the Google survey form online through a Division Memorandum signed by the Schools Division Superintendent. This procedure facilitated the data

collection and organization. Accuracy of data was ensured through the Google sheet designed for the purpose of this research.

Respondents of this study are teachers who were informed of the intention of this research project. They were also assured of the confidentiality of their responses to the online survey. Hence, the researchers were able to convince them of their wholehearted participation in the completion of this study.

IV. RESULTS AND DISCUSSION

Table 1

DepEd Quezon Teachers' ICT Competence in Demonstrating Knowledge, Skills, and Understanding of Concepts Related to Technology (as described in the ISTE National Educational Technology Standards for Teachers)

Categories	Proficient		Advanced		Basic		Novice		Total	
	F	%	f	%	F	%	f	%	f	%
Schools by Congressional District										
First	556	27	94	32	1,221	25	316	31	2,187	27
Second	431	21	39	13	1,020	24	153	15	1,643	20
Third	549	26	77	26	1,237	26	288	28	2,151	26
Fourth	531	26	88	29	1,319	28	266	26	2,204	27
Total	2,067	25	298	4	4,797	59	1,023	12	8,185	100

Table 1 presents the DepEd Quezon teachers' ICT competence in demonstrating knowledge, skills, and understanding of concepts related to technology. The statistical data reveal that out of 8,185 teachers, 4,797 or 59% have BASIC ICT competence, 2,067 or 25% are PROFICIENT, 1,023 or 12% are NOVICE, and 298 or 4% are ADVANCED. It means that most of the teachers in DepEd Quezon can identify and use common peripheral devices found in the classroom (e.g., printer, monitor, scanner, digital camera, video projector), can describe how to locate information on uses, care, and basic maintenance of these classroom technology resources, can describe teacher and student uses for application software, network-based curriculum resources, spreadsheets, database, e-mail application

software, and common utilities software. They can also identify and apply GUI menu options to select, create, edit, manage and maintain computer files on a hard drive, or networked location (ISTE, 2008).

Since the intention of this study is to develop a Strategic ICT Integration Plan, it is worthy to note the presence of 1,023 or 12% who categorized themselves as NOVICE in using the ICT in instruction. Novice teachers according to ISTE (2008) are those teachers who can identify functions of the computer describing access, control, and use of classroom computer hardware including input devices (e.g. keyboard, track-pad, and mouse), output devices (e.g. monitors and printers), and internal and external storage options (e.g. hard drive, portable drive). They are teachers who can describe general uses of computer-based curriculum materials: applications programs (e.g. word processor, drawing program, presentation software, e-mail); online reference materials; Internet browser; and school administrative reporting software. Likewise, these teachers can identify graphical user interface (GUI) functions represented by menus, symbols, and icons commonly used to navigate and control computer- and Internet-based curriculum software and can identify drawing, editing, menu selection, or other option within a program.

To make the above mentioned findings more specific, the researchers conducted a focus group discussion (FGD) involving 36 DepEd Quezon teachers from the four Congressional Districts of Quezon guided by Intel's (2017) self-devised questionnaire on Teachers' ICT Needs. Information elicited from the FGD participants were categorized into ICT Fundamentals with Troubleshooting, Word Processing, Spreadsheet, Presentation, and Information and Communication. The following is the affinity diagram that presents the FGD participants' answers:

Table 2

Affinity diagram of DepEd Quezon teachers' ICT needs gathered through a focus group discussion

ICT Fundamentals with Troubleshooting	Word Processing	Spreadsheet
<p>Needed Competencies</p> <ul style="list-style-type: none"> • Know the different capacity of storage, processing, resolution, etc. • Identify the different kinds of optional peripherals for specific use • Differentiate and categorize the different networking media • Identify the functionalities of the operating system • Test computer using standard diagnostic tools/software 	<p>Needed Competencies</p> <ul style="list-style-type: none"> • None <p>Competencies for Review</p> <ul style="list-style-type: none"> • Indent paragraph • Insert line and page breaks • Add headers, footers, line numbers, footnotes, and table of contents • Copy data to duplicate text within the document • Apply automatic formatting • Switch to one-page, multiple-page or full-screen views 	<p>Needed Competencies</p> <ul style="list-style-type: none"> • Generate formulas using cell references <p>Competencies for Review</p> <ul style="list-style-type: none"> • Open and close a workbook • Open multiple workbook • Create a new workbook • Switch between workbooks • Select a cell, a range of cells, range of non-adjacent cell, entire worksheet, entire row, entire column • Delete rows or columns

<ul style="list-style-type: none"> • Reinstall software as needed • Recover data and/or files • Restore system to normal operating standard • Prepare failure/trouble reports • Access in-house or external support as needed <p>Competencies for Review</p> <ul style="list-style-type: none"> • Define Information Technology, Communication Technology and other ICT related terms • Identify the different types of computers • Discuss the use, characteristics, and advantages of a computer • Identify the different parts of computer system associated with input, process, and output • Identify the commonly used computer software • Discuss the steps for connecting to the internet • Identify and differentiate the part of a computer • Install/uninstall an application • Switch between open application • Apply appropriate file and disk management techniques • Use appropriate directory and file names • Back up data periodically to a storage media • Connect to a network printer • Use the Control Panel for basic PC configuration 	<p style="text-align: center;">Information and communication</p> <p>Needed Competencies</p> <ul style="list-style-type: none"> • Understand the terms cookie, cache, and proxy -25 <p>Competencies for Review</p> <ul style="list-style-type: none"> • Define and understand the terms: internet, WWW, HTTP, URL, home page, and web page • Understand the format of a web address • Know what a browser is and what it is used for • Activate a hyperlink • Delete the cache • Bookmark a web page • Display a bookmarked web page • Select a specific search engine • Download text file, image file, sound file, video file, and software from a web page • Print a web page • Create groups • Sort messages • Print a message or selected contents of a message <p style="text-align: center;">Presentation</p> <p>Needed Competencies</p> <ul style="list-style-type: none"> • None <p>Competencies for Review</p> <ul style="list-style-type: none"> • Choose a presentation technique • Apply appropriate font, font style, color and size 	<ul style="list-style-type: none"> • Insert worksheets • Delete worksheets • Copy a worksheet • Format numbers using different number style • Apply font formatting • Apply alignment formatting options • Sort data • Filter data • Adjust cell content orientation • Change worksheet orientation • Adjust page scaling to fit worksheet contents on one page or on a specific number of pages • Add, modify header and footers • Insert page number, date, time, etc. • Use relative and absolute cell referencing • Generate formulas using arithmetic and logical functions • Create different types of charts/graphs bases on given data • Add title, label to the chart/graph • Format the chart/graph by applying colors • Change the chart type • Resize, delete charts/graphs • Printing a cell, a range of cells, or an entire worksheet
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Based on the qualitative data gathered from the FGD participants, the researchers realized that DepEd Quezon teachers need ten (10) specific competencies for thorough discussion and 14 distinct competencies for review in the area of ICT Fundamentals with Troubleshooting, no specific competency for thorough discussion and six (6) distinct competencies for review in the area of Word Processing, one (1) specific competency for thorough discussion and 27 distinct competencies for review in the area of Spreadsheet, no specific competency for thorough discussion and two (2) distinct competencies for review in the area of Presentation, and one (1) specific competency for thorough discussion and 13 distinct competencies for review in the area of Information and Communication.

The affinity diagram implies that the research output, the Strategic Technology Integration Plan for Teachers should be focused more on ICT Fundamentals with Troubleshooting and Spreadsheet.

In relation to the research findings presented earlier, ISTE Standards for Teachers (International Society for Technology in Education, 2008) emphasize the following: (1) learning and creativity and how to facilitate these qualities in students using technology; (2) learning experiences

and assessments via technology, while asking teachers to assess their own progress in the development of technology-enriched learning environments; (3) digital-age work and learning in teachers' delivery of the lesson, their work with families, and their action research activities that call for use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning and (4) digital citizenship and responsibility that highlights the idea that teachers cannot ask the students to respect "intellectual property" if teachers do not model its importance in "digital-age communication and collaboration."

Knowing the number of teachers who found themselves proficient and advanced in using the ICT is also very useful in crafting the Strategic ICT Integration Plan. This is a very good information to consider in crafting a Strategic ICT Integration plan particularly in identifying the human resource need of the plan.

Table 3

DepEd Quezon Teachers' ICT Competence in Demonstrating Continual Growth in Technology Knowledge and Skills to Stay Abreast of Current and Emerging Technologies

Categories	Proficient		Advanced		Basic		Novice		Total	
	F	%	f	%	F	%	F	%	F	%
Schools by Congressional District										
First	539	27	73	30	1,295	26	280	29	2,187	27
Second	433	22	30	12	1,038	21	142	14	1,643	20
Third	506	25	75	30	1,284	26	286	29	2,151	26
Fourth	530	26	69	28	1,328	27	277	28	2,204	27
Total	2,008	25	247	3	4,945	60	985	12	8,185	100

Presented in Table 3 is the DepEd Quezon teachers' ICT competence in demonstrating continual growth in technology knowledge and skills to stay abreast of current and emerging technologies. The statistical data reveal that out of 8,185 teachers, 4,945 or 60% have BASIC ICT competence, 2,008 or 25% are PROFICIENT, 985 or 12% are NOVICE, and 247 or 3% are ADVANCED. It means that most of the teachers in DepEd Quezon have BASIC competence in demonstrating continual growth in technology knowledge and skills to stay abreast of current and emerging technologies. These teachers according to ISTE are those teachers who can select and use

correct terminology to describe functions of current and emerging hardware, software, and network-related resources used for classroom settings.

Engagement in Professional Growth and Leadership according to International Society for Technology in Education (2008), teachers need to continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers should participate in local and global learning communities to explore creative applications of technology to improve student learning; exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others; evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning; and contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community.

Since the intention of this study is to develop a Strategic ICT Integration Plan, it is worthy to note the presence of 985 or 12% who categorized themselves as NOVICE in using the ICT in instruction. These teachers are those teachers who can select school, district, university, or online professional development opportunities based on the ISTE National Educational Technology Standards for Teachers and those who can develop a plan for their own professional growth.

Knowing the number of teachers who found themselves proficient and advanced in using the ICT is also very useful in crafting the Strategic ICT Integration Plan. These teachers may be tapped to serve as in-house resource persons in whatever program DepEd Quezon may implement for teachers' ICT competence enhancement.

V. CONCLUSIONS

Based from the result of this study, the following conclusions were drawn:

1. Most of the teachers in DepEd Quezon have BASIC ICT level of competence who need ten (10) specific competencies for thorough discussion and 14 distinct competencies for review in the area of ICT Fundamentals with Troubleshooting, no specific competency for thorough

discussion and six (6) distinct competencies for review in the area of Word Processing, one (1) specific competency for thorough discussion and 27 distinct competencies for review in the area of Spreadsheet, no specific competency for thorough discussion and two (2) distinct competencies for review in the area of Presentation, and one (1) specific competency for thorough discussion and 13 distinct competencies for review in the area of Information and Communication.

2. Most of the teachers in DepEd Quezon have BASIC competence in demonstrating continual growth in technology knowledge and skills to stay abreast of current and emerging technologies who can select and use correct terminology to describe functions of current and emerging hardware, software, and network-related resources used for classroom settings.
3. The Strategic Technology Integration Plan for Teachers designed by the researchers considered six components, namely: domains, indicators, key players, outcomes, technology support, and transformative learning environment.

V. RECOMMENDATIONS

Having the result of the study, the researchers recommend the following:

1. Conduct Teachers' ICT Needs Assessment in every School District of DepEd Quezon before the implementation of Strategic Technology Integration Plan for Teachers.
2. Mobilize teachers who have ADVANCED AND PROFICIENT levels of ICT competence in the implementation of Strategic Technology Integration Plan for Teachers.
3. Implement the Strategic Technology Integration Plan crafted by the researchers in all Schools Districts of DepEd Quezon during the District INSET.

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