ICT TRAINING DESIGN FOR SECONDARY SCHOOL TEACHERS OF STA. MARIA ILOCOS SUR

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INTRODUCTION

Project Context

"The illiterate of the 21st century," according to futurist Alvin Toffler," will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn."

Concerns over the relevance and quality coexist with the imperative of expanding educational opportunities to those made most vulnerable by globalization – developing counties in general; low income groups, girls and women and low-skilled workers in particular. Global changes also put pressure on all groups to constantly acquire and apply new skills. The international labor organization defines the requirements for educational and training in the new global economy simply as "Basic Education for All," "Core Work Skills for All" and "Lifelong Learning of All".

Information and communication technologies (ICTs) – which include radio and television, as well as newer digital technologies such as computers and the internet – have been touted as potentially powerful enabling tools for educational change and reform. When used appropriately, different ICTs are said to help expand access to education. Strengthen the relevance of education to the increasingly digital workspace, and raise educational quality by, among others, helping

make teaching and learning into an engaging, active process connect to real life.

However the experience of introducing different ICTs in the classroom and other educational settings all over the world over the past several decades suggest that the full realization of the potential education benefits of ICTs is not automatic. The effective integration of ICTs into the educational system is a complex, multifaceted process that involves not just technology – indeed, given enough initial capital, getting the technology is the easiest part! – but also curriculum and pedagogy, institutional readiness, teacher competencies, and long-term financing, among others.

ICT in Education intended to help policy makers in developing countries define framework for the appropriate and effective use of ICTs in their educational systems by first providing a brief overview of the potential benefits of ICT used in education and the ways by which different ICTs have been use in educational systems thus far. Second, it addresses the four broad issues in the use of ICTs in education – effectiveness, cost, equity, and sustainability. The primer concludes with a discussion of five key challenges the policymakers in developing countries must reckon with when making decisions about the integration of ICTs in educational policy and planning, infrastructure, capacity building, language and content, and financing. (Alvin Toffler. February 2016. ICT in Education/Introduction)

As years passed by the use of modern technologies have greatly influenced the lives of many people. This is the reason why others say that we are now living in the modern world. It has been in the culture of the people to dance with the flow of using such modern technologies. The use of such modern technology, computer have been found very useful and helpful in many aspects of living despite of some disadvantages of it if there are. Computers are very important tools in making our work easier and faster. They provide quality and comfortable way of living. Computers play vital roles in improving the lives of the people. It makes communications faster and easier. That even though you are far, by the use of computer you can be easily reach other people. In the field of transportation, it makes transportation fast and accessible to all. It helps us to finish our tasks within a short period time and requires less effort in doing so. In fact people need to use the computer because it is an instrument for change and attaining our nation's progress.

Computers are also important in the teaching and learning process that is the reason why teachers need to know about them. Computer makes the teaching learning process meaningful. It serves as a teaching material that will catch up the interest of the learners and also motivate and encourage them to be involved in the learning process. It is fact proven that computer aided instruction is more effective compared to the traditional way of teaching.

Statement of Objectives

This study aims to determine the training needs in the use of ICT among Secondary Teachers in Santa Maria, Ilocos Sur.

1. To determine the profile of Secondary Teachers of Sta. Maria, Ilocos Sur in terms of ;
    a. age;
    b. specialization;
    c. position;
    d. learning preference;
    e. frequency in using a computer:
2. To determine the ICT competencyof Secondary Teachers of Sta. Maria, Ilocos Sur in terms of;
    a. General computer use;
    b. Word processing;
    c. Spreadsheets;
    d. Presentation;
    e. Internet:
3. To prepare a training design for Secondary teachers of Sta. Maria, Ilocos Sur.

Purpose and Description

The study was conducted in Sta. Maria, Ilocos Sur by the proponents to determine the level of ICT Training Design for high school teachers of Sta. Maria. ICTs stands for Information and Communication Technologies and is defined, for the purpose of this primer, as a diverse set of technological tools and resources used to communicate, and to create disseminate, store, and manage information.

Administration. This study will determine the competency level of the high school teachers which serves as a basis to assess their needs for ICT training design to be implemented by the school administration.

Teachersand Future Teachers. The training design to be developed will serve as an avenue for self-improvement by upgrading themselves in the use of technology.

Students. The students will be benefitted through the use of technology and for them to become more globally competitive.

Researchers. The proponents of this studywill be able to apply their technical skills in the field of Information Technology.

Future Researchers. The result of this study will serve as future reference of researchers who have interest in the same related undertaking.

Scope and Limitation

This study is focused in determining the training needs on the use of ICT among the secondary teachers in Sta. Maria, Ilocos Sur. The results of the study was used in developing a training matrix that will enhance their ability to manipulate computer, use different computer applications like word processing, spreadsheets and presentations, and internet that will make the teaching learning process effective.

The respondents included the secondary school teachers of high schools in Sta. Maria for school year 2015-2016. The study is limited on the ability of secondary teachers in the ICT competencies include the use of word processing, spreadsheets, presentation and internet.

Chapter II

REVIEW OF LITERATURE

Teachers' Profile

As noted, a challenge for teacher training education lies in the implementation of these recommendations during the restructuring of course content. It is also a challenge for school districts to provide adequate technology access. Almost 41% of respondents said that when they choose not to use technology in instruction, it was because it was too great a hassle. Teachers indicated that they could not get into the computer labs because of scheduling. In the free-response section of the survey, twenty-six people said there were not enough materials to share among the faculty and students. The purpose of this study was to measure teachers' attitudes and perceived competency towards information technology (IT). The results revealed that most teachers possess positive attitudes towards IT. The findings also established that most teachers have moderate levels of IT competency. They also believe that they still lack the appropriate IT skills to integrate the technology into the teaching and learning process. The results of MANOVA analysis indicated that there are significant differences between the group of competent and incompetent teachers in terms of the success usefulness, confidence, anxiety and aversion toward the use of IT. Although teachers are equipped with knowledge and skills in using computers, the success of implementing the new curriculum with information technology (IT) in

education depends greatly upon the attitudes of the teachers and their willingness to embrace such technology. That being the case, teachers should possess not only IT knowledge and skills, but they must also have the right attitudes towards IT (Wong, 2002).

(Malaysian Online Journal of Instructional Technology, Attitudes and perceived information technology competency among teachers, Page 70)

The Level of Information Communication Technology

According to the study conducted by Kennisnet, IT is not a goal but a means, it can support teachers. ICT Training Design for Teachers are able to trained the teachers through using computer technology for their profession. The framework applies to Secondary Teachers. There are various approaches to describe this ICT Training, both nationally as well as internationally. However, many of these approaches are focused on the IT technology application (technology-driven) and not focused on learning goals. In this way, IT always seems the goal rather than the means. Within the framework that Kennisnet has developed, we do it differently and approach IT Training Design from the profession of the teacher, describing how can support each key task.

Moreover, in the secondary process, there is less research to the added value of computer technology in education, but based on experience and research outcomes in other industries see the following benefits of the training:a.) improve a using general computer, word processing, spreadsheets, presentation and internet.

As emphasized by Kennisnetthe use of IT in education is the balanced and coherent deployment of the 4 components: vision, expertise, digital learning materials, and IT infrastructure (Kennisnet, 2011). This paper will focus on the component of expertise: what knowledge and skills do you need as a teacher? In doing so, the researchers took the profession of the teacher as a starting point. In the general skill requirements for teachers, as defined by the Education Cooperative (Onderwijscoöperatie 2012), the following is said about IT: "Teachers are considered to be IT competent when they have knowledge of digital learning materials and resources, whilst understanding their pedagogical possibilities and limitations.

In addition, Kennisnet discusses the three key tasks has led to a threefold division of key tasks: pedagogical approach, working in the school organization, and professional development in which we describe the IT competency of teachers. To use IT effectively within these three key tasks, the teacher must first possess basic digital skills.

Furthermore, the basic digital skills are a summary of three sources: a.) The 10 Media Literacy Competencies (Mediawijzer.net, 2012);b.) The internet skills as applied in the E-skills model of ECP, based on research by Van Deursen (University of Twente, 2010); and c.) The instrumental skills from the Kennisbasis ICT of IT ADEF (2009).

Likewise, they can make efficient use of available digital learning materials and resources." In short, teacher has knowledge and skills

coupled with a professional attitude towards. Just like curiosity and readiness for lifelong learning, responding to the possibilities of new technological developments is part of a professional attitude.

(Kennisnet, Zoetermeer (2012), IT Competency Framework for Teachers, pages 3-4)

Teachers' Training

Based on the study conducted by Mercedes Fisher, a challenge for teacher training education lies in keeping courses up to date. This study provides a view of the top ten IT competencies required of pre-service teachers, as perceived by practicing teachers in USA schools. This study reports findings from 215 teachers in Colorado public schools. A complimentary view of reasons that teachers have for using new media in instruction indicates that convenient access to hardware and software are significant issues and recommends re-examination of traditional teacher training and practice. With the increasing technology changes taking place in schools, there is a growing responsibility being placed on teachers to become computer literate. Today, teacher training institutions must be prepared to successfully provide teachers with the technological skills necessary to effectively prepare students for the digital age in order to provide pre-service teachers with effective experiences in educational media whereas, teacher training institutions must provide opportunities for pre-service students to apply technology during their programs to prepare them for their future classrooms. In-

service teachers have knowledge and experience that can identify the needs of pre-service teachers by having them recommend instructional media competencies that are beneficial to their teaching and that they considered most important in an introductory media and technology course. Furthermore, this study explores what factors most frequently contribute to the decision by in-service teachers not to use media and technology in instruction. It is essential that educators join other leaders in society in order to better implement appropriate applications to technology in our schools. This information will enable educators to expand hands-on experience in identified areas. Pre-service teachers can then develop projects that have educational value while they work through the conceptual framework of utilizing hardware and software as an effective tool in the classroom.

(Mercedes Fisher (2006), Integrating Information Technology competency recommendations by teachers for teacher training, page 233)

According to UNESECO (2005), education issues around the world are under increasing pressure to use the new information and communication technologies (ICT) to teach the students the knowledge and skills they need in 21st century.

Information and Communication Technology

Reviews from http://www.det.nsw.edu.audetermine the desired ICT skills/ competencies of a teacher. The competencies were group into five categories: basic computer operations, information technology,

evaluation of software, pedagogical issues – classroom management/learning theories/learning styles and values and ethics.

Basic Computer Operations

There are basic proficiencies desirable for all teachers along computer operations. These include: an understanding of the functions of the various components of the computer, basic troubleshooting and maintenance skills, use variety of software, including basic word processing, electronic spreadsheet, database management, information retrieval through the use of CD-ROMS and other commercial programs, preparation of graphics and artworks like invitation, programs etc. and simple desktop publishing.

Information Technology

As computer technology becomes standard equipment in many homes, and as the industry targets the home market as its major focus, classroom teacher will increasingly be expected to be familiar with a more sophisticated level of computer proficiency that is: Information Communication Technology proficiency.

These skills are allied with other information skills, such as the ability to located information, to select appropriate applications and software, to organize material sequentially, to assess the relevance of information and to present it appropriately. Skills and understanding expected to teachers along information technology includes: using the multi-media presentations, using interactive presentations, the ability to

use the internet and electronic mail programs and awareness of overall developments in information and technologies and of the potential these have for student learning.

Evaluation Software

Teachers need to be equipped with the ability to use integrated software packages and commercial applications. These skills involve: the ability to select and evaluate technology-based learning materials, the ability to determine underlying pedagogical assumption, gender and ethnic bias, educational relevance, social impact and sustainability for the classroom environment for cooperative learning and for peer interaction, ability to match computer applications to specific curriculum content and processes and the ability to evaluate computer software for educational purposes.

Pedagogical Issues

The key issue for computer proficiency is pedagogical rather than technical. While basic skills will assist teachers to advise and supervise students, the most important competency associated with computers is the ability to structure classroom and student centered planning.

The key skills included the ability to develop innovation ways of using technology to enhance the learning environment, and to encourage creativity and research. Important elements of these include: understanding of how computer technology can enhance student learning and help learners explore their world, the creation of self-

regulating environments, the ability to use computers for profiling and reporting, lesson preparation and class/faculty administration.

Values and Ethnics

Equally as important as competence in the use of appropriate current technologies is the development of critical and discerning attitudes and values related to computers and associated and software application. Teachers require the capacity to be open to new ideas and technologies to evaluate each new advancement to determine if and how it can enhance the learning of students, and to be confident of their own ability to use these new technologies.

Teachers must also be aware of the impact of these developments on society in general, on the nature of work, on personal interactions and other important ethical issues relating to classroom use of any technology, and be aware of the legal aspects involved.

Teachers with such competencies need also to develop attitudes of collegiality, tolerance and patience to work cooperatively in a professional environment with colleagues who have a range of attitudes and skills. Key proficiencies include: recognizing plagiarism, understanding the issues of copyright, censorship and of privacy, recognizing the issues of appropriate access to and verification of information gained from such sources as the internet and interpersonal skills for working in environment where colleagues have a wide range of abilities in using the new technologies.(Villanueva, 2010)

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COMPUTERS & DEVICES E-CATALOGUE OF ISPSC

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According to Bernard (2008) inventory deals primarily with determining the size and placement of the materials within a facility or within multiple locations. It is also concerned with the importance of forecasting the required inventory, availability of physical space, and cost in carrying those inventories to maintain the planned course of production against the random fluctuations, or shortage of materials. One way of managing inventory is to have a web-based system in place that can instantly track and update the information about the tools or equipment. The importance of implementing a web based computer inventory system is becoming vital as most of the time the information are accessible instantly, thereby making the details of the usage of the equipment available, and improving the movement and anticipation of their demand as well as the productivity of the system as a whole.

Furthermore, Bernard (2008) elaborated that the implementation of this system can help institutions develop the skills to cope with their operational environments. Because lack of system tool to be used to monitor the availability and quantity of materials in this university. In the modern World, the effect of modern technology is really undeniable as it continues to grow. We cannot deny the fact that now a days we are very much embedded and influenced by the modern product of technology thus,

enjoying whatever it has offer. These things will help people in many ways and also affect their way of living like in doing some office works – instead of using typewriter they prefer to use computers which allows them to change or revise their documents. Because of many problems encountered such as large volume of paper files, stored files are hard to locate, transactions are slow, duplication of entering data, or some files or documents get lost. Information and communication technology change our lives. The things we do now are really in a much faster pace than before.

Smith (2007) the inventory system is an effective way for monitoring and tracking different materials that are transferred in and out. This is usually for accounting purposes. It is also important for a company to monitor all the transactions and movements of items in order to keep an account of all their stocks. However, in some establishments, the inventory of materials is done manually in such a way that an employee writes down the information of different materials every time it is transferred in and out of the room.

The same case applies in Ilocos Sur Polytechnic State College (ISPSC) and as a result, the manual inventory becomes prone to human error and time consuming. There is a corresponding form for every incoming or outgoing item (from the technical office). These forms serve as the basis of comparison when having an inspection of inventory. Afterwards, all the transactions will then be encoded manually in Microsoft Excel/Microsoft Word for future reference. In addition to the complexity of the process, the employee responsible on this task also needs to check the stocks once in a

while so as to monitor which items are already getting below the allowable minimum quantity. As results of the draining work, there were circumstances when the inventory record in the computer does not tally with the actual amount of the available items. Another thing to consider in manual inventory is its tendency to errors since it is inevitable that the employee assigned to do the inventory would commit mistakes. Due to the inefficiency of manual inventory, security is also being risked. If not properly monitored, theft and loss of items can actually take place. It is also time consuming to take note of several details each time an item is brought in and out of the stock room. These instances show that manual inventory consumes a lot of time and incurs errors sometimes.

Along with the articulated ideas mentioned above, the researchers tend to create an e-Catalogue of Computers & Devices of ISPSC to make easier for the user to give information to the faculty.

Purpose and Description

The purpose of creating an E-Catalogue of Computers and Devices is to monitor and track the amount of materials/ parts that are transferred throughout the technical office. This will help the following:

Clientele – processing and checking their item/s through the use of the system will be easy and it became accessible in all faculties/offices in ISPSC.

Technician – the system will make the process easy and fast in taking down the parts, tracking the location in which the computer is placed.

Researchers – the researchers can impart their knowledge in this system (e-catalogue) to the clientele. This will be a great help for them, as a beginner, in applying the learned skills in the field of searching, programming encoding and other computer related competencies.

Future researchers – the system will be their basis in developing an inventory system.

Statement of Objectives

The capstone aims to create and develop an e-catalogue of computers and devices that will eliminate manual inventory of computers, computer parts, and its devices and establish a fast and efficient way of taking down/ listing down items.

Specifically, this study sought to answer the following:

1. to acquire the necessary requirements based on the inventory system from the technical services,
2. to develop a Computers and Devices E-Catalogue in technical services office for ISPSC Sta. Maria, and;
3. to test the usability of the Inventory System for ISPSC Sta. Maria using:
    a. Alpha; and
    b. Beta

Scope and Limitations

The coverage of the study was directed to design and develop a web-based E-Catalogue of Computers and Devices for the different offices of ISPSC Sta. Maria campus. The system only keeps record of the different computers and electronic devices by serial number, barcode and description of each office. It provides different reports such as repaired items, pending item for repair, condemn item, and change item.

Hence, the system cannot keep information about the other details of the devices such as manufacturer, price etc. The software not included. The system only accepts computers and electronic devices as an input. The designated computer technician will only be the administrator of the said system. The system does not provide a dynamic interface for the viewers and is only intended for viewing purposes. The system cannot generate weekly, monthly & quarterly.

Chapter II

REVIEW OF LITERATURE

Inventory Stocks

"Inventory refers to stocks of anything necessary to do business." (U.S. Small Business Administration, 2010, pp.1-2) It describes what constitutes successful inventory management balancing cost versus benefits of inventory, including maintaining a wide assortment without spreading the rapidly moving items too thin, Increasing inventory turnover without sacrificing service, Keeping stock low without sacrificing performance, obtaining lower prices by making volume purchases, maintaining an adequate inventory without an excess of obsolete items.

Inventory Management in SAP

According to Murray (2014), inventory management is the process of efficiently monitoring the flow of products into and out of an existing inventory in the warehouse. This process involves controlling the receipt of products in order to prevent the inventory from becoming too high where items are stored at an unnecessary cost, or too low where it can cause a stock-out and production could be halted due to lack of raw materials.

In SAP, the inventory management functionality revolves around the movement of materials in and out of the storage facility and the physical count of those items at regular interval.

Inventory Control System

Monroe (2006) defined inventory control system as a set of hardware and software based tools that automate the process of tracking inventory. The kinds of inventory tracked with an inventory control system can include almost any type of quantifiable good, including food, clothing, books, equipment, and any other item that consumers, retailers, or wholesalers may purchase. Modern inventory control systems are almost exclusively based on barcode technology. Though barcodes were initially developed to automate the process of grocery store checkout, their ability to encode a wide variety of alphabetic and numeric symbols makes them ideal for encoding merchandise for inventory applications. Inventory control systems work in real-time using wireless technology to transmit information to a central computer system as transactions occur.

Agency Record Inventory System

One of the shared services under the integrated Government Philippines (iGovPhil) Project, is in the final stages of development. The system is already operational but it is undergoing a series of vulnerability test to ensure that it is secured prior to actual implementation.

AgRIS is integrated with Public Key Infrastructure (PKI) that allows digital signing and document encryption. This is to ensure that all the information in the system are done by authorized record officers.

The vulnerability test will run until the end of the month.

AgRIS will be available for adoption by the end of this year. Training for AgRIS will be conducted with National Archives of the Philippines (NAP) under its National Records Inventory Training. (i.gov.ph/updates-on-agency-records-inventory-system/)

Inventory System Philippines (System Application Product)

According to SAP Inventory System Philippines, SAP is an ERP (Enterprise Resource Planning) software that helps businesses, manufacturers and retailers in managing their supply chain. SAP provides you and your supplier's fast access and real time information. SAP creates transparent system that implements efficient collaboration for a better and responsive supply network. (www.fasttrackph.com/sap-inventory-system/)

Every business, companies, manufacturers and retailers are particular with their inventory. It is important not to have an excessive inventory to avoid overhead expenses. Manufacturers and Retailers need to ensure that they have enough number of a given item in stock depending on its trends of sales. Our Inventory System software provides real time assessment of items in stock. As each item is sold, the inventory database is automatically updated. When the inventory level is at its minimum, it automatically creates a purchase order sent to the supplier. As soon as the order has arrived, the inventory database is automatically updated and the system will issue a notification to the accounting department for the supplier's invoice and purchase order copy.

Computer-Based Inventory System

Computer-based system is a complex system wherein information technology plays a major role. It makes the work easier, faster and more accurate. Due to that fact, the automated scheme has become essential to small and big companies for they are expected to give the best services possible. Nevertheless, some businesses still prefer sticking with the system that is not integrated with technology. Probable causes are computer illiterate staff and lack of funds. Companies, especially the big ones are recommended to switch from manual to automated systems because this will improve the efficiency and productivity of the business which will uplift the industry's reputation.

As stated in the study of Mirondo et.al (2013) one of the most sought after automated systems of different companies is a purchasing and inventory system which comes hand in hand. A purchasing and inventory system is very important in every organization because a good purchase and inventory management can create excellent productive

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