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# MSU Marawi Campus - Information and Communications Technology: Its Vital Role in Teacher Education Program in the Autonomous Region in Muslim Mindanao

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## ABSTRACT

The higher education system is a critical factor that influences the overall prosperity of a nation. The remarkable growth in the higher education sector leads to a diversified administration of higher education institutions (HEIs). The study assessed the: 1) school facilities, 2) training program, 3) number of graduated students by course, and 4) projects implemented. Using descriptive design involving qualitative research techniques, the researcher employed documentary analysis including annual reports, CHED Memoranda, special orders, bulletins found in the library and other relevant materials from the Office of Vice Chancellor for Academic Affairs. Personal interviews were conducted with key university officials involved in the implementation of ICT programs. Findings revealed that the effective implementation of ICT programs greatly depends on the interest, commitment and the presence of effective school leadership in the program. ICT programs like curriculum and managerial skills should be incorporated into the training of school leaders among its University campuses. The study developed an action plan program which includes: 1) developing a module which will serve as a reference for faculty and students; and 2) conducting a series of training program among secondary high school principals/faculty and students of the

MSU-Community High Schools on the effective usage of computers, Laptop Computers, LCD Projectors and the Internet in their day-to-day work.

***Keywords*** **—** Information and Communications Technology (ICT), assessment of program, school facilities, higher education system, documentary analysis, Philippines

## INTRODUCTION

Information and communication technologies (ICT) have become ordinary in all aspects of life. Over the past 20 years, the use of ICT has indispensably changed the practices and procedures of nearly all forms of endeavor within business and governance. A high degree of personal contact with learners is very vital to achieve quality education, and the use of ICT in education paved the way for a more student-centered learning environment. However, with the advent of digital media and information, the role of ICT in education continues to grow and develop in the 21st century (Mathur, 2012).

According to Daniels (2002 p.3), ICTs have become one of the basic buildings blocks of the modern society. Many countries consider mastering the fundamental skills and concepts of ICT as part of the core of education, aside from reading, writing, and numeracy. However, there appeared to be a misconception that ICTs mostly refer to computers and computing-related activities. Though computers and their application play a vital role in modern information management, other technologies and /or systems also comprise the phenomenon, that is, ICTs. Pelgrum and Law (2003) stated that near the end of the 1980s, the term "computers" was replaced by 'IT' (Information Technology) indicating a shift of focus from computing technology to capacity to store and retrieve information. The term 'IT' (information technology) was then introduced in 1992, when e-mail was already accessible to the general public (Pelgrum & Law, 2003).

ICTs include provision of internet services, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network-based information services, and other information and communication related services (Ajayi, 2005). With the advent of various formats of Information and Communication Technology (ICT), the world is shrinking at a rapid pace (Rastogi & Malhotra, 2013).

Today, ICT serves as a major factor in shaping the new global economy and producing fast changes in the society. Many acknowledged the advantages of ICT that include teaching and learning enhancement. It positively contributes to the ways in which the teachers teach and the students learn. ICT provides a display of powerful tools that help in transforming the present isolated, teacher-centered and text-bound classrooms into technology-enriched learning environment. It provides opportunities for greater flexibility, interactivity and accessibility for emerging teaching and learning to an individual, group, and societal levels. ICT has a unique and unusual place in the classroom as an educational innovation.

In the Philippines, Esteras and Fabre (2009) reported that Information and Communication Technology (ICT) is much more than computers. An ICT system involves the use of computers or other types of hardware to meet a specific need. Interactive television and the database of a library are types of ICT systems. Policy makers and educators are already aware that there is a need to reform the educational system to equip students with the knowledge, attitudes and skills for them to become successful and productive members of the society. The teacher education system and the country, in particular, need to take full cognizance of the ICT input in making this innovative process successful.

On the part of the Mindanao State University System-Main Campus, it developed its ICT Modernization Plan Program to improve the effective implementation of ICT. It started to fulfill its endeavor in line with the Commission on Higher Education's (CHED) thrust on making higher education more relevant to the demands of the 21st century through the CHED-Development Acceleration Program (CHED-DAP) and General Appropriations Act (GAA) of 2013. The University system was given 1 billion to modernize its buildings and facilities, and enabled to procure the necessary modern laboratory equipment items required for priority degrees like Information Technology, Agriculture, Natural Sciences and Health Sciences, among others.

Besides, the University should adopt the latest trends and technological advancements that are essential to its research and extension activities. To mention a few, the University needs to equip its newly constructed Digital Library Building with high-end computers, databases, stable internet connection, online subscriptions to prestigious journal and other publication. A fully-equipped computer training center to provide services through seminars and short-term trainings relevant to the IT entrepreneurial needs of the MINSUPALA, especially the Autonomous Region in Muslim Mindanao (ARMM) is also necessary. One of the major concerns is to help the teachers in the region improve their teaching

competence, skills and attitudes for effective teaching learning-process in the field of Information and Communication Technology (ICT).

Having ICT in the education environment does not automatically ensure that high quality, effective teaching-learning would take place; it may change a teacher's role but perhaps, will not alter pedagogy. To achieve this, teachers must adopt ICT to boost the teaching-learning process. They should be committed to improve their ICT skills, and in turn, integrate the ICT into their regular classroom teaching practices.

## FRAMEWORK

The use of ICT in classroom instruction can increase student learning in the traditional curriculum and basic skills area when combined with traditional instruction (Culp, Honey & Mandinach, 2005). The integration of computers with traditional instruction produces higher academic achievement in a variety of subject areas than traditional instruction alone. Furthermore, students are more convenient and have positive attitudes toward learning with the aid of computers.

Makrakis (2012) found technology as part of the educational curriculum which benefits student achievement. The use of technology in the traditional and online classrooms posed positive impacts in the educational environment. It further shows that students' learning styles are related to technology needs and teaching methodologies. Studies show that most teachers who do not make use of technology will not cause any disturbance, and teachers should believe that they have a control over technology.

However, study shows that most teachers do not make use of ICT to contribute to the quality of learning environments, although they value this potential quite significantly (Smeets, 2005). Harris (2002) found out that the benefits of ICT will only be achieved if teachers are willing to explore new opportunities to adopt ICT in their classroom practices.

To effectively implement ICT in schools, school leaders should be able to set goals, organize, manage, monitor and build relationships with other members of the community. They should be people-centered who can model standards and practices consistent with the culture of the school. Gronow (2007) argued that transformational school leader should be a person having ideas to improve the school standards. These are collective ideas which uplift teachers' and students' excitements and aspirations which provide principles for the school and allow the school community to work together in building up and conveying these ideas in

a form of an essential vision through his/her display of leadership characteristics.

Heifetz and Lurie (2001) believe that changes in the market and technologies around the globe had forced many organizations to clarify their values, develop new strategies and learn new ways of operating. The most important task for leaders in facing these changes is to mobilize people in the organizations to become adaptive.

A school leader who implements ICT program and shares a common vision with teachers stimulates them to use ICT in school (Yee, 2000). For effective implementation of ICT, the need for a strong school leadership to drive a well-coordinated and designed ICT plans should be considered.

Computers can be used extensively for educational administration including: a) General Administration; b) Pay Roll and Financial Accounting; c) Administration of Student Data; d) Inventory Management; e) Personnel Records Maintenance; and f) Library System (Barta & Gev, 1995). There is an increase in managerial effectiveness and efficiency through the usage of information and communication technology.

The impact and potential benefits of ICT should be given attention during the planning period of school leaders in relation to the cost of implementation, staff, ICT skills and development, and advantages of implementing ICT in relation to other technologies, availability of electricity and sustainability (Gronow, 2007).

## OBJECTIVES OF THE STUDY

The study aimed to assess the implementation programs of the College of Information and Communication Technology (ICT) Main Campus, Marawi, Philippines. The study covered the assessment of: 1) school facilities such as computers and laboratory equipment; 2) training programs conducted by the college; 3) number of students graduated from degree programs offered by the college; 4) projects implemented by the College, and 5) action plan developed to improve teachers' education program in the Autonomous Region In Muslim Mindanao (ARMM).

## METHODOLOGY

### Research Design

The study employed the descriptive design involving qualitative research techniques. Documentary analysis in terms of annual reports, special orders,

CHED Memorandum Orders relating to the implementation of ICT program and other materials found in the library were utilized by the researcher. Personal interviews were conducted with teachers and students and even attended some seminars on ICT program sponsored by the College.

The study also utilized the souvenir program from the Office of the University Registrar to obtain data as to the number of graduates for the last nine years to enhance better interpretation of the gathered data.

**Setting of the Study**

The Computer Science Department at Mindanao State University in Marawi, Philippines was mandated to develop and process electronic data for the University. Later, the Internet Center was established to provide internet access to MSU constituents under the direction of Office of the President.

On February 18, 2005 the BOR through BOR Resolution No. 19, s. 2005 approved the conversion of the School of Info Tech into a Collegiate Unit to become the College of Information Technology. It envisions to be the leading innovative, entrepreneurial knowledge and IT hub in the MINSUPALA region and the rest of the world (MSU Website, 2012). Among its missions are the following: 1) To create and produce innovative and technologies in IT; 2) To provide services relevant to the IT entrepreneurial needs of the MINSUPALA clientele and the rest of the world; 3) To serve as converging point of IT in MINSUPALA and worldwide, and 4) To support the goal of MSU towards teaching and learning excellence through optimum utilization of IT.The work force of the IT Center is fed up with highly trained and highly qualified programmers and technicians who can deliver high quality services and professionalism.

**Data gathering and analysis**

The researcher started assessing the various documents gathered from the university officials involved in the implementation of ICT. Data collected were categorized into two aspects: 1) documentary analysis, and 2) group discussion composed of the Vice Chancellor for Academic Affairs, dean and selected faculty members and other committee members was utilized by the researcher to validate the data gathered.

## RESULTS AND DISCUSSION

The College of Information and Communication Technology (ICT) in main-campus plays a vital role in the conduct of the affairs of any academic institution

like the Mindanao State University. ICT helps in ensuring effectiveness, accuracy and efficiency in the discharge of the mandated functions and the delivery of services.

It also indicated its level of competitiveness. Convinced by the crucial role of ICT in achieving a sustained academic excellence, MSU President Macapado A. Muslim puts premium on the development of ICT in the campus. He ensures that every college and office of the university shall be improved by taking seriously the advantage of ICT. The ICT services in main-campus are divided into four areas, namely, promotion of ICT education by offering BS Computer Science and BS Information Technology through the College of Information Technology, Software Development and Website Management, ICT Network Installation Maintenance and Repairs; and Internet Services. Each of these areas has been improved to build up the ICT capability of the campus.

Along with the concept of the MSU-Marawi Campus ICT Modernization Plan, there are four major accomplishments of ICT program under the leadership of President Muslim; 1) the construction of 53 million 3-storey CIT building where President Benigno S. Aquino III led the ground breaking ceremony; 2) Eleven (11) million worth of upgrading the local Area Network, specifically interconnecting all colleges with fiber optic cables with new managed servers and switches; 3) Thirty-three (33) million worth of IT equipment and software for the new CIT building and other colleges, and 4) upgrading the internet from 4 mbps to 20mbps (Academic Planning Committee, 2011).

The establishment of the MSU's College of Information Technology Center of the University is also equipped with modern computer, training center, new teleconference, and multimedia room and laboratory equipment for teaching information technology.

According to Durbin, *et al.* (1998), resources are the only means through which organization activities, service and satisfactory end are attainable. For the achievement of organizational objectives, resources play the crucial role.

School facilities, which consist of all types of building that are used for academic and non-academic purposes, equipment, classroom facilities, instructional materials etc. are relevant to smoothly run the teaching and learning process. Hence, some other campuses should be given proper attention like providing them school facilities as they have a great value in teaching support and students' morale motivation and to improve the quality of education.

It gives emphasis to a sound policy and holistic plan for ICT as a building measure to attain the goals and objectives for effective implementation of the

program. This idea was supported by M. A. Khattak, S. R. Khattak, Ullah and Iqbal (2012) that adequate and quality school facilities are basic ingredients for quality and to achieve the intended goal of the school program. In the case of the ICT Modernization Plan Programs of MSU-main campus, they have formulated general objectives and strategies to strengthen, upgrade and re-assess their policy programs.

**Modernization plan program objectives**

1. To provide the campus an improved capacity in instruction, research, and extension by being equipped with relevant modern technologies such as the ICT.

2. To establish an Information Technology Literacy Program that is responsive to the multi-sectoral needs of the ARMM. This will provide a more rapid and greater transfer of skills through community-based training, distance and on-site learning, as well as bolster efforts to attain functional literacy in both formal and non-formal IT education.

3. To serve as a host for information relevant to the socio-economic development of the region for better provision of IT services, previously under-serviced areas, thereby, promoting more opportunities and more meaningful participatory approaches involving cultural minorities and indigenous organizations.

4. To create more employment, livelihood opportunities and economic growth among the people by developing potential IT business applications for the ARMM and the rest of Mindanao.

5. To encourage greater participation and involvement of partners in the private sectors in building the capacity to apply Information and Communication Technologies towards having sustainable human and economic development in the region.

To realize this endeavor, among its major strategies are the upgrading of the existing 2 mbps internet bandwidth of the University to 6 mbps; procurement of state-of-the-art IT (hadrware and software) and other relevant multimedia

equipment to improve the capabilities in Instruction, Research, and Extension of all colleges and units in the campus; establishment of linkages with local, national and foreign organizations; establish an e-portal for the Autonomous Region in Muslim Mindanao (ARMM), and organization and conduct of conferences, seminars and community-based training with emphasis on peace and development as well as proper utilization and use of technological advancement.

**ICT Public Service Outreach Program**

Many MSU campuses have actively implemented some high-impact technology transfer and public service outreach programs and initiatives in their respective areas or client-communities.

In line with the world-wide emphasis on inclusive education, the University has started implementing a new public service outreach program to benefit some of students in *Madaris* (Madrasah schools or Islamic Schools) in many of the Muslim communities in Mindanao, Philippines. This program addresses the problem of low employability or inadequate livelihood and employment among graduates of *Madaris*. It is designed to help enrich the learning experience of college or *kulliyah* level students in the *Madaris* with demand-driven short-term livelihood skills training activities during weekends (once-a-week technology vocational skills training program) which include information technology, culinary arts and hotel and restaurant services, rough carpentry, fine carpentry, practical electricity,masonry, welding, plumbing, tile setting, automotive, crop production, poultry and animal production, garments making, and others.

The pilot projects for the *Madaris* outreach program were launched on September 27, 2015 at MSU Marawi attended by MSU officials with *Madaris* Administrators and students. The two initial training activities, namely, Computer System Servicing Training under the College of Information Technology (2 section) and Culinary Arts Training under the College of Hotel and Restaurant Management (2 sections) were supervised by the College of Information Technology.

These training activities included two (2) M*adaris* in Marawi City, Lanao del Sur, namely, the *Jam'iyyato Waqf Al-Islamic Bilfilibbin* (JWF) and the *Jamiatu Janoufil Filibbin Al-Islamiah* (JIF).

All expenses for these training activities were sponsored by MSU from its government appropriation. The University Administration envisions to expand the coverage of the programs to include the *Madaris* in other Bangsamoro communities in Mindanao where MSU has campuses like Maguindanao, Sulu, Tawi-Tawi, Lanao del Norte and General Santos City.

In addition to these activities, the Office of the Assistant Vice Chancellor for Academic Affairs (External units) conducted a Mass Training Program on the K-12 Enhanced Basic Education Curriculum aimed to produce graduates who will: 1) acquire mastery of basic competencies; 2)be more emotionally mature, be aware, pro-active and involved in public and civic affairs; 3) be legally employable with potential for better earning; 4) be adequately prepared for entrepreneurship or higher education; 5) be globally competitive and 6) be empowered individuals who have learned through a program that is rooted on sound educational principles and geared towards excellence.

Such initiatives are anchored on a legal basis. One of these is DECS Memorandum No. 272,s. 2001, known as "Personal Computers for Public School Project" to set up DepEd effort to facilitate learning and learner's performance through the provision of latest instructional tools. For instance, DepEd Memorandum No. 57 (s. 2002) known as "Intel Tech to the Future Program" was designed to prepare teachers for the effective use of Information technology in the classroom and to build on the capability of teachers to integrate ICT into teaching-learning.

DepEd Order No. 1 (s. 2007), known as Strengthening the Information and Communication Governance of the Department Plan 2004-2010 and the Ten-Point Agenda of the National Government indicated the use of Information and Communication Technology to support teaching and learning processes. DepEd Secretary Jesli A. Lapus (2008) said, "Technology is the way forward, and the most economical means of reforming the education system. Indeed, what better way to democratize access to education and reach 45,000 public schools than through learning advanced and transformed with ICT? Our vision for information and CommunicationTechnology for Education in the Philippines is "21st Century Education for All Filipinos, Anytime, anywhere". It encapsulates our desire to bring about the transformation required to make our country more competitive in this day of technology."

In addition to the foregoing official executive fiats, DepEd and the United States Agency for International Development (USAID) embarked on a collaborative undertaking- i.e. a review on computer accessibility in public schools achieved by past and ongoing information communication technology (ICT) programs. The assessment of the current state of computerization of public schools was designed to help DepEd better integrate ICT in its K to 12 Basic Education Curriculum (BEC) reform program. Education Secretary Luistro declared that ICT education would be an important aspect as they formulate an effective enhanced K to 12 BEC curriculum (Ronda, 2012).

**MSU-Marawi ICT graduates Data**

MSU is one of the most productive higher education institutions in the country, with a total tertiary education graduates of 161,606 from Academic Year (AY) 1961-62 to AY 2014-15. However, in the case of the College Information Communication and Technology (ICT), it had produced 158 graduates broken down as follows; 55 graduates Bachelor of Science Computer Science and 103 Bachelor of Science in Information Technology covering the years from 2009 to 2015. MSU System President Dr. Macapado A. Muslim (2016) reported that there was a gradual increase number of students who have graduated in the ICT program. This is an indication that more students take this course because they feel that they can easily launch for a job. Most MSU new graduates were already employed in some firms/industry in our nearby provinces and cities.

**ICT Projects implemented by present administration**

In accordance with the ICT modernization plan of the University, the following projects were implemented by the present administration. Among these are: 1) implementation of IT fee of Php 100.00 (2 USD)/student per semester to upgrade and sustain the ICT Program; 2) upgrading of University internet cafe to 60 PCs all with flat screen monitors; 3) additional one Computer Laboratory at CIT, and replacement of all old computer with CRT monitors with new ones with flat screen monitors of the other two computer laboratories; 4) provision of Laptop Computers and LCD Projectors and screens to all departments of the seventeen colleges and offices; 5) installations and implementation of Biometric Daily Time Record (DTR); 6) upgrading of Internet Bandwith from 2mbps to 4mbps; 7) upgrading of existing Local Area Network, and Design and implementation of Comprehensive Fiber Optic Backbone for MSU Marawi; 8) enhancement of the MSU website portal; 9) improvement of Payroll System and Computerized Enrollment System ,and 10) establishment of CCTV camera network in the campus.

The administrative subsystem includes Personnel administration, student administration, resources administration, financial administration and general administration. Furthermore, these assessments will serve as a basis for a program which will benefit schools evaluating quality of education of teachers and students through the use of computers equipment and other school facilities (Maki, 2008).

## CONCLUSION

The effective implementation of ICT program greatly depends on school head leadership interest, commitment and championing the smooth various aspects of the program. This could be achieved with the support of the faculty members, students and staff and other officials involved in the implementation of ICT program. The administration should allot adequate and sufficient budgets to address and provide the needs of the faculty and students to ensure effective teaching-learning process. Participation of the community is needed and further planning should be involved in ICT program.

## TRANSLATIONAL RESEARCH

The researcher has developed an action plan program of ICT which will be implemented with the approval Office of the Vice Chancellor for Academic Affairs. This includes: 1) a module which serves as a reference for faculty and students; and 2) series of training programs among secondary high school principals/faculty and students of the MSU-Community High Schools on the effective usage of computers, Laptop Computers, LCD Projectors and the Internet.

Through this educational process, the communities and out of school youth will be educated as to the proper use of ICT and its significance and importance to their day-to-day living.

## LITERATURE CITED

Academic Planning Committee (2011). MSU-Marawi Campus ICT Modernization Plan. Prepared by the College of Information Communication and Technology approved by APC.

Ajayi, G. O. (2005). e-Government in Nigeria's e-Strategy. *5th Annual African Computing and Telecommunications Submit, Abuja, Nigeria*. Retrieved on August 20, 2016 from http://unllib.unl.edu/LPP/womboh.htm

Barta, B. Z., & Gev, Y. (1995). *Information technology in educational management*. Springer Science & Business Media.

Culp, K. M., Honey, M., & Mandinach, E. (2005). A retrospective on twenty years of education technology policy. *Journal of Educational Computing Research*, *32*(3), 279-307.

Daniels J.S. (2002) "Forword" in Information and Communication Technology-A Curriculum for Schools and Programme for Teacher Development. Paris. UNESCO. P.3. Retrieved on August 20, 2016 from http://unesdoc.unesco.org/images/0012/001295/129538e.pdf

Durbin, J., et al (1989) Management and Organization. Ohio Southern Western Publication Company. Retrieved from http://www.majersite.org/issue11/4afeworkasfaw.pdf

Esteras, S. R., & Fabre, E. M. (2009). Professional English in Use ICT. *For Computers and the Internet, CUP*.

Gronow, M. (2007). ICT leadership in school education. *Australian Catholic University*.

Harris, S. (2002). Innovative pedagogical practices using ICT in schools in England. *Journal of Computer Assisted Learning*, *18*(4), 449-458.

Heifetz, R. A., & Laurie, D. L. (2001). The work of leadership. *Harvard Business Review*, *79*(11).

Iqbal, N., Khattak, S. R., Khattak, M. A., & Ullah, I. (2012). Testing the Arbitrage Pricing Theory on Karachi Stock Exchange. *Interdisciplinary Journal of Contemporary Research in Business*, *4*(8), 839-853.

Lapus, J. A. (2008, September). Speech presented at 3rd National ICTs in Basic Education Congress. Foundation for Information Technology Education and Development, Inc. Lahug, Cebu City.

Makrakis, V. (2012). Reorienting Teacher Education to Address Sustainable Development Through WikiQuESD. In *Research on e-Learning and ICT in Education* (pp. 83-94). Springer New York.

Maki, C. (2008). Information and Communication Technology for Administration and Management for secondary schools in Cyprus. *Journal of Online Learning and Teaching*, *4*(3), 18-20.

Mathur, M. (2012). A Study on the ICT Awareness of M. Ed. Trainees. *International Journal of Business Management & Economic Research*, *3*(4).

Muslim, M. A. (2016, February). Internationalizing as it Strives for Greater Excellence, Relevance and Inclusiveness for Mindanao and the Filipino Nation. Speech presented at the Academics World 19th International Conference on Environmental Science and Development (ICESD). Istanbul, Turkey.

Pelgrum, W. J., & Law, N. W. Y. (2003). ICT in education around the world: Trends, problems and prospects.

Rastogi, A., & Malhotra, S. (2013). ICT skills and attitude as determinants of ICT pedagogy integration. *European Academic Research*, *1*(3), 316-317.

Ronda, R. A. (July 26, 2012). DepEd to use ICT to enhance K to 12 basic curriculum. Philstar. Retrieved from http://www.philstar.com/education-and-home/2012/07/26/831518/deped-use-ict-enhance-k-12-basic-curriculum

Smeets, E. (2005). Does ICT contribute to powerful learning environments in primary education? *Computers & Education*, *44*(3), 343-355.

Yee, D. L. (2000). Images of school principals' information and communications technology leadership. *Journal of Information Technology for Teacher Education*, *9*(3), 287-302.http://dx.doi.org/10.1080/1475939000200099

DepEd Order No. 57 s. 2002. Intel Tech to the Future Program.

DepEd Order No. 1 s. 2007. Strengthening the Information and Communication Governance of the Department Plan 2004-2010.

The Official Website of Mindanao State University Main Campus (2012). Retrieved from http://www.msumain.edu.ph/cit/index.php/ict-center/ict-overview