BRIDGING THE LOCAL DIGITAL DIVIDE OF LGU CABANGLASAN TOWARDS AN ICT-ENABLED COMMUNITY: ITS EFFECTIVENESS

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ABSTRACT: *Bridging the Local Digital Divide of Local Government Unit Cabanglasan towards an Information and Communications Technology-Enabled Community is an extension project of the BukSU-Information Technology Department. The study aimed to assess and investigate the effectiveness of the ICT training conducted on the 97 participants that include barangay secretaries, other officials, DepED teachers, and selected employees. The descriptive research method was used to assess the effectiveness of the training. The ICT literacy level of the participants was assessed before the start of the training. The results revealed that most of the participants has a poor to satisfactory rating in terms of computer basics, word processing software, electronic spreadsheet, multimedia presentation, and Internet and e-mail. This indicates that most of the participants do not have comprehensive knowledge of the use of ICT. After the training, the participants evaluated the 1) relevance of the training; 2) information/skills acquired; 3) design of the activity; 4) class interaction; 5) sensitivity and assistance provided by department staff; and 6) general training design. The results showed that the average rating in all six areas is 4.56 with an adjectival rating of very good. This indicates that the IT extension project has a significant impact on its ICT literacy level as shown by its positive rating. The LGU Cabanglasan workers primarily benefited from the outcomes of the IT department extension project as the activities were fully and highly implemented as planned and scheduled. Faculty members, together with the IT students who served as extensionists and junior extensionists, we're committed to the implementation of all extension activities. Phase 2 of the bridging the digital divide extension project was implemented to address the ICT literacy problems of LGU Cabanglasan. A number of participants were identified for the training of trainers (ToT). These ToT session aims to expand the workforce of local community educators in its aim to have an ICT-*

1. 0 INTRODUCTION

Bridging the Local Digital Divide of Local Government Unit (LGU) Cabanglasan towards an Information and Communications Technology (ICT)-Enabled Community is an extension project of the Information Technology (IT) Department in 2015 which aims to strengthen the skills of LGU workers by utilizing ICT to improve the delivery of services to the people of Cabanglasan. The participants include barangay secretaries, barangay treasurers, municipal staff from different offices, DepEd teachers and other barangay officials from different barangays of the Municipality of Cabanglasan. Cabanglasan is a 3rd class municipality in the province of Bukidnon with 15 barangays, 5 of which are situated within timberland. According to a survey by Philippine Statistics Authority in 2012, Cabanglasan has a poverty incidence of 59.3%.

The passage of the E-commerce Act of 2000 has put pressure on organizations, especially government units, to computerize their systems and provide more electronic services to their clients and constituents. Furthermore, with globalization, economies are becoming more knowledge-based and information-driven. To survive and be competitive world, access to information and communication technologies (ICTs), whether primary or advanced, is crucial.

As we enter the 4th industrial revolution, the emerging features of the “new economy” is now seen everywhere. At the heart of these changes are the innovations made possible by ICT. The importance of ICT to both economic and social development explains the priority of bridging what has come to be known as the “digital divide”- the gaps that separate segments of society as well as whole nations into those who are able to take advantage of the new ICT opportunities and those who are not.

Digital technology is of particular importance when information is to be gathered, stored, retrieved, and evaluated [1-6]. In order to bridge the gap that exists between traditional and modern methods of information storage, retrieval, and provision in the digital age, the use of ICT in local government units (LGU) operations must be seriously emphasized. Ideally, ICT is expected to have a major impact on the management, structure, and work activities of the LGU. The first step to bridging the gap, LGU must accept one basic fact, which is, ICTs are enablers of innovation in the managerial and operational processes. It is expected that all technologies that process, store, and communicate data and information should be managed and used as access tools for the LGU resources. This confirms the assertion that, in the era of information technology, "we will have everything connected to everything", which is internet-based [7]. Technology has brought about a completely different way of providing LGU services resulting in the development of new services [2]. The Internet is now the dominant mode of information exchange in LGUs in the digital age; and then, it is no longer a luxury but a necessity to the LGUs must accept and adopt to close the digital gap.

The effective use of technology is an intricate process that requires time [3], equipment, institutional support [4], and positive attitudes toward them [3; 6]. Besides, it is also important for LGU workers to interiorize their technological skills and scurry from low-level ICT knowledge to high-level technological knowledge [8].

This study aimed to assess and investigate the effectiveness of the ICT training conducted on the 97 participants from LGU Cabanglasan which includes barangay secretaries and other officials, DepED teachers, and selected employees of the said municipality.

2.0 CONCEPTUAL FRAMEWORK

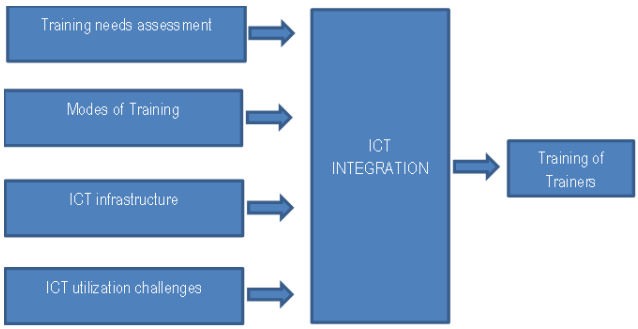

Fig. 1. Conceptual framework of the study

The conceptual framework is anchored on the study of others [9, 10]. The IT Department has conceptualized the training with the aim of helping the LGU workers to improve their ICT performance. This entails an assessment of LGU workers' ICT training needs, training programs designed based on need, modes of training selected according to needs, the right ICT infrastructure provided at the training level and after the training, and ICT integration challenges identified and solved amicably.

Training is the use of systematic and planned instruction activities to promote learning. It is a learning activity that is directed toward the acquisition of specific knowledge and skills occupation is designed to maintain or improve current job performance. In this study, the focus is on LGU workers' ICT training which can be defined as a process through which the LGU workers acquire knowledge and skills to use ICT in performing their duty as a government workers. Training is required when there is poor performance or changes have occurred in the job, and therefore, employees need new skills to do the job.

The emphasis of the mode of training is more on the organization of specific knowledge in actual situations using the BukSU facility. Tailor-made ICT courses are offered to LGU workers at their workstations; these are geared to address particular ICT challenges that are faced by LGU workers.

ICT infrastructure includes computers, a projector, an internet connection, video conferencing facilities, websites, and ICT software relevant to training. In today's world where technology is changing rapidly, there is a need for every LGU worker to be equipped with computers in the workplace and be connected to the internet. ICT integration in this paper is broadly defined as using any ICT (including information resources on the web, multimedia programs, learning objects, or other tools) to enhance work performance.

Research has shown that the use of ICT can make learning more interactive and hence can support new instructional approaches and make hard-to-implement instructional methods such as simulation or cooperative learning more feasible as presented elsewhere [11]. Although training conducted by the IT department can assist in the integration of ICT in the workplace until the LGU systems and policies are changed to be more accommodating of ICT. Others [10] proposed a conceptual framework (TRAIN) for ToT interventions to help inform practice and project evaluation. Using Sen's Capability Approach (CA), the authors conceptualized an evaluative framework that integrates the evidence derived from the content study, together with organizational knowledge, key informant interviews, and the analysis of the literature. The CA represents a suitable conceptual tool to articulate a framework that helps the researchers evaluate the extent to which ToT interventions help expand workers' capacity beyond a unidimensional focus on skills training. A trainer without professional experience ("hard skills") has nothing to teach, and this is often considered the main attribute of a good trainer. However, equally important is to have a clear conceptual understanding of their practice and the ability to transfer this knowledge to others ("soft skills"). Though individuals can be taught teaching techniques, not everyone is able to teach. The IT department, together with LGU Cabanglasan, identified several participants to be trained as trainers [12, 13].

3.0 METHODOLOGY

The study used a descriptive research method to assess the effectiveness of the training conducted on the 97 participants from LGU Cabanglasan, which includes barangay secretaries and other officials, selected DepED teachers, and designated employees of the said municipality. Descriptive research is defined as involving a collection of data in order to test hypotheses or to answer questions concerning the current status of the subject of the study and, determine and report the way things are. Some [14], elaborated on the use of the descriptive method in the extension programs and projects conducted by the faculty and students of Bukidnon State University. The result of the Pre-test in every module of the training was used. The result of the evaluation of the training on the 1) relevance of the training; 2) information/skills acquired; 3) design of the activity; 4) class interaction; 5) sensitivity and assistance provided by department staff; and 6) in general, how would the participant rate the project was also used. Observations and feedback were also used as a tool for data collection.

4.0 RESULTS AND DISCUSSIONS

The participants were evaluated based on their digital competence level in six different ICT modules, namely Computer Basics, Word processing, Electronic Spreadsheets, Presentation software, and Internet and e-mail, using the following rating scale with the scoring procedure.

1 I am fully competent with this function/operation and could confidently explain it to others.
2 I am a regular and confident user of this function/operation.
3 I have used/done this function/operation occasionally but need further practice to be confident.
4 I am aware of this function/operation but have not experienced using it.
5 I am unaware of / have not tried this function/operation/tool.

Scale Value	Interpretation
4.3 – 5 or 5	Very Good
3.5 – 4.2 or 4	Good
2.7 – 3.4 or 3	Satisfactory
1.9 – 2.6 or 2	Poor
1 – 1.8 or 1	Very poor

Table. 1. Assessment of the ICT literacy level on Computer Basics

Indicators: Computer Basics	Mean	Standard Deviation
Explain the terms Information Technology & Communications Technology	2.33	1.04
Identify the different hardware and software components of a computer and how they work together	2.19	0.99
Differentiate the different types of software	2.16	0.99
Discuss Networking / Communications Technology	2.18	0.97
Operate a computer	2.67	1.16
Arrange and customize the desktop	2.46	1.21
Manage Applications	2.46	1.25
Manage files	2.54	1.22
Manage a printer	2.61	1.15
Troubleshoot the computer	2.06	1.13

The table shows the ICT literacy level of the 97 participants before the start of the training. Most of the participants have a poor to satisfactory rating in terms of computer basics. This indicates that most of the participants have a common understanding of computer basics.

Table. 2. Assessment of the ICT literacy level on Word processing

Indicators: Word processing	Mean	Standard Deviation
Manage documents	2.87	1.27
Format text	2.85	1.28
Format paragraph	2.70	1.29
Format document	2.67	1.16
Move, copy, insert and delete text	2.78	1.24
Insert tables	2.49	1.17
Insert pictures and images	2.49	1.25
Create letters using Mail Merge	2.25	1.06
Preview a document	2.54	1.25
Print a document	2.61	1.28

Table 2 shows that most of the participants have a poor to satisfactory rating in terms of word processing software before the start of the training. The participants do not have comprehensive knowledge of the use of word-processing software.

Table. 3. Assessment of the ICT literacy level on Electronic Spreadsheet

Indicators: Electronic Spreadsheet	Mean	Standard Deviation
Manage workbooks	2.10	1.03
Select cells, enter data, insert and delete cells, rows, and columns	2.25	1.03
Handle worksheets	2.15	1.00
Format data	2.21	1.12
Format cells	2.16	1.07
Format worksheet	2.21	1.09
Create formulas and functions	2.01	1.11
Create and format charts/graphs	2.10	1.09
Preview and print a worksheet	2.24	1.17

Table 3 shows that most of the participants have a poor rating in terms of Electronic spreadsheet software before the start of the training. The participants are not familiar with the MS Excel features, commands, and buttons.

Table. 4. Assessment of the ICT literacy level in Multimedia Presentation

Indicators: Multimedia presentation	Mean	Standard Deviation
Discuss basic presentation skills	2.06	1.07
Apply appropriate visuals and design considerations	2.07	1.05
Manage presentations using a presentation tool	2.13	1.07
Create slides and use different slide views	2.16	1.12
Apply slide layouts and templates	1.60	1.03
Format text	2.24	1.18
Insert pictures and images	2.19	1.16
Insert drawn objects	2.19	1.09
Create charts/graphs	2.12	1.08
Create a slide show and apply slide show effects	2.10	1.10
Prepare outputs	2.07	1.02
Print slides	2.17	1.13

Table 4 shows that most of the participants have a very poor to poor rating in terms of multimedia presentation before the start of the training. The participants are unfamiliar with the slide layouts and templates of MS PowerPoint. They also have no experience with visuals and designs of the said software.

Table. 5. Assessment of the ICT literacy level on the Internet and Email

Indicators: Internet and e-mail	Mean	Standard Deviation
Discuss the Internet and the World Wide Web	2.16	1.08
Access the Web	2.30	1.17
Use Bookmarks	2.18	1.15
Search the Web	2.23	1.15

Download web pages	2.22	1.17
Send and receive email	2.42	1.21
Create an Address Book	2.13	1.00
Organize messages	2.25	1.05
Print messages	2.34	1.11

Table 5 shows that most of the participants have a poor rating in terms of internet and email before the start of the training. The participants have little knowledge of the world wide web (WWW) but have experienced sending and receiving emails. The overall standard deviation is 1.15 which means that the participants have the same level of knowledge in terms of ICT literacy.

Table. 6. Overall Result of the Training Evaluation

Indicators: Evaluation	**Mean**	**Standard Deviation**
1. Relevance of the training		
(a) Relevance to your current work	4.64706	0.40
(b) Relevance to your future/desired work	4.64706	0.46
(c) Relevance to your institution's needs	4.23529	0.41
2. Information/Skills Acquired		
(a) Amount of information covered in the activity	4.52941	0.65
(b) Extend to which you gained new ideas useful to your work	4.52941	0.46
(c) Extend to which you have acquired new skills	4.64706	0.53
(d) Extend that his activity achieved its objectives	4.35294	0.52
3. Design of the Activity		
(a) Effectiveness of the activity in maintaining your interest from start to finish	4.52941	0.47
(b) Effectiveness of the visual aids in reinforcing the lessons.	4.35294	0.45
(c) Adequacy of time allotted to each topics	4.35294	0.56
(d) Logic in the progression or sequence of topics	4.35294	0.58
(e) Time allotted for discussions and Q&A	4.35294	0.69
(f) Variety of the training methods used (lecture, exercises, discussions)	4.46667	0.53
4. Class Interaction		
(a) Effectiveness of the instructors in training you to use and appreciate the application	4.81081	0.43
(b) Responsiveness of the instructors in answering participant's questions	4.82432	0.42
(c) Interaction between participants and resource persons	4.82192	0.39
5. Sensitivity and assistance provided by department staff	4.76889	0.49
6. In general, how would you rate this project?	4.82813	0.38
Average	**4.56**	**0.49**

The table shows the overall summary of the training evaluation. The average rating in all six areas is 4.56, with an adjectival rating of very good. In general, the IT extension project has been significantly and positively rated.

Before the training was conducted, most of the participants were not aware of the tools and functions of MS Office applications or had not tried using them. After the training, the information and skills they acquired ranged from 4.35-4.52, which is excellent. The participants are already confident in using the MS Office functions and operations.

5.0 CONCLUSION

The LGU Cabanglasan workers mostly benefited from the outcomes of the IT department extension project as the activities were fully and highly implemented as planned and scheduled by the department. Faculty members together with the IT students who served as extensionists and junior extensionists were committed to the implementation of all extension activities. Phase 2 of the bridging the digital divide extension project has been implemented to address the ICT literacy problems of LGU Cabanglasan. A number of participants were also identified for the training of trainers.

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