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Digital Literacy Enhancement of Rural Women in Luna, Apayao, Philippines

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The study determined how women in Luna, Apayao who attended the digital literacy training at the Community e-Center from 2011 to 2013 applied what they learned to themselves, their families, and their communities. Data were gathered from 50 rural women from May 19 to June 1, 2014 using a self-administered questionnaire, key informant interviews, and secondary documents. The research was guided by the Technological Determinism Theory of Marshall McLuhan (1962).

All of the trainees were married, with mean age of 42 years and college or postgraduate holders. Majority had jobs, mainly teachers, and were members of organizations such as the Parents–Teachers Association. To gain access to the Internet, they used portable broadband/DSL or visited the e-Center. Half of them used the Internet for only 1 to 2 hours per week. Majority gained knowledge on ICT operations such as how to use MS Word, MS PowerPoint, Facebook, email, and MS Excel.

The women gained self-confidence as this was their first exposure to ICT. The advantages to their families included facilitating academic assistance to their children and getting connected with their family members abroad, some of whom were OFWs. Lastly, they applied their training in community activities and projects, specifically in education, health and nutrition, entrepreneurship and livelihood, and safety and security. Only one mentioned agriculture, sustainable development, climate change and disaster risk management, youth empowerment, and governance.

Keywords: women and the Internet, digital literacy, local governance, ICT4D, digital divide, women empowerment, gender and ICT

BACKGROUND AND RATIONALE

“With the ‘information’ or ‘knowledge’ society, development strategists now see the need for developing countries to adapt ICTs as a potential force not only for creating new economic growth opportunities but also for enhancing political participation of citizens and strengthening of democratic processes” (Ramilo, 2002). Information Communication Technologies (ICTs) “have great promise to reduce poverty, increase productivity, boost economic growth, and improve accountability, and governance” (World Bank, 2012).

For women in the rural areas, especially, ICTs offer immense possibilities for reducing poverty by providing income-generating opportunities, overcoming women’s isolation, giving women a voice, improving governance, and advancing gender equality (Kuga Thas et al., 2007). There is a need to empower women as they constitute about half of the total population in the world, yet 70% of the world’s disadvantaged are women (Action Aid, 2006 in Sudweeks et al., 2010).

As early as 1995, the Beijing Declaration and Platform for Action adopted at the Fourth World Conference on Women in 1995 called for the empowerment of women through enhancing their skills, knowledge, and access to and use of information technologies. It also included a strategic objective: increase the participation and access of women to expression and decision-making in and through the media and new technologies of communication.

Hence, during its 47th session in 2003, the Commission on the Status of Women for the first time directly focused on the issue of ICT and the empowerment of women. That same year, in 2003, no less than the United Nations Secretary-General, Kofi Annan gave a statement to the World Summit on the Information Society, Geneva, 10 December on the need to empower women by their inclusion in ICT programs (UNDAW, 2005).

The World Summit on the Information Society (WSIS, 2003) stressed: “We are committed to ensuring that the Information Society enables women’s empowerment and their full participation on the basis of equality in all spheres of society and in all decision-making processes. To this end,

we should mainstream a gender equality perspective and use ICTs as a tool to that end.”

Since then, a range of ICT models and systems has been used to support the empowerment of women all over the world. Evidences are showing that ICTs have improved women’s access to information, provided new employment, created new class of women entrepreneurs, and improved their access to government (Nath, 2001; FAO, IFAD, and World Bank, 2008). In Asia and Africa, ICTs have also helped women in agriculture (Pade et al., 2006); empowered Indian rural women by enhancing their knowledge on agriculture, health, and nutrition (Sulaiman et al., 2011); created significant difference in marginalized women’s survival through freedom of information, communication, and mobility in the Thailand–Burma border (Ferenil, 2010); improved productivity, health, business, access to education, and the valuation of women labor in Zimbabwe (Matangi et al., 2013); and helped women gain more confidence level, more self-esteem, self-awareness, and dignity in Bangladesh (Laizu et al., 2010).

STATEMENT OF THE PROBLEM

In the Philippines, the Medium-Term Philippine Development Plan (MTPDP) 2001–2004 (NEDA, 2001) states that “technology is the foundation of the Philippine’s future economic development and the Philippines shall use ICTs to leapfrog into the new economy.” The Internet in the Philippines was first made available in 1994. As of September 30, 2011, more than 30,000,000 people use the Internet in the country accounting for 33% of the total population (Internet in the Philippines, 2013).

To connect women in rural areas with the ‘global village’, former Mayor Betty C. Verzola^[1], the first lady mayor of Luna, Apayao advocated for the establishment of the Community e-Center as a pilot project in the town in 2004.

Luna was formerly a 6th class town torn by problems of insurgency and violence and which was the literal battleground for the National People’s Army (NPA) and the military for decades. It is in this municipality where Marag Valley is located, once dubbed as “No Man’s Land” because of three barangays cradling insurgents.

1 Betty was mayor from 1998 to 2007, interspersed with her husband from 2007 to 2008 and again from 2010 to 2013. She died in a car accident in 2013, but the project is continuing under former Vice Mayor Josephine Bangsil, who survived the car crash. These excerpts were interviews with her from 2010 to 2012 when she was still alive.

Being strategically located, Mayor Betty realized that Luna had the potential to become the center for government services and business in the province of Apayao. Her vision was for the Luna e-Center to serve as a competent provider of modern ICT services that would contribute to the betterment of the quality of life of the townsfolk of Luna and Lower Apayao and as part of the local government unit's eGovernance Program.

She bought one computer unit in the mid-1990s where her staff learned the basics of computer procedures and operations.

During one of the meetings called by the National Computer Center (NCC), which she attended, she learned of their project in establishing community e-Centers to pilot municipalities which were willing to put up counterpart funds and facilities. Believing that an e-Center would be beneficial to the people of Luna, the mayor lobbied with the NCC that Luna was an ideal site for one e-Barangay. In 2004, the municipality of Luna, Apayao was identified by the NCC as a recipient of the eLGU or Jumpstarting Electronic Governance in the Local Government Units mandated under the eCommerce Act of 2000. The municipal office received four units of personal computers, 3-in-1 printers, and web cameras.

In October 2004, the Luna Community e-Center was established at the Municipal Library located at the second floor of the municipal hall. There were yet no telecommunication land lines to support the e-Center. Hence, Luna's LGU subscribed to satellite Internet connection from a private ISP.

To promote the e-Center's use by the public that had no prior exposure to computer facilities before, the mayor's office offered Internet services, encoding, research works, and printing to the public for free.

On August 8–9, 2005, the Computer e-Center Orientation and Participatory Rapid Field Appraisal was participated by representatives from all sectors of the community. The Community e-Center was formally launched on 17 October 2005, and a Business Planning workshop was held on 20–23 February 2006.

The formal launching of the center was celebrated on October 17, 2009 on the occasion of the 76th Luna Founding Anniversary with no less than the Executive Director of the League of Municipalities of the Philippines and officials of the NCC as guests (former Mayor Betty remained as political adviser from 2008–2010).

Mayor Betty pushed for the opening up of opportunities for women empowerment by again lobbying that Luna should be included in the

NCC's program on the Philippine Digital Literacy for Women Program (PDLWC). She firmly believed that "women can help transform and develop communities." She committed to train 100 women of Luna, Apayao for empowerment. She herself became a trainee.

She also provided an initial funding of PhP50,000.00 appropriated from the Gender and Development Fund (GAD) in 2011 Supplemental Budget. After that, Mayor Betty gave the center the appropriations in its annual budget totaling PhP 1,802,100 in 2010 and PhP 425,590 in 2011. As the e-Center has the motto of "Service Above Profit," it generated only a third of the budget as income.

Further, Mayor Betty housed the e-Center at the ground floor of the Luna municipal hall just adjacent the Municipal Planning and Development Office (MPDO). The e-Center is equipped with 16 computer units and is manned by an engineer, the Information Technology Officer, and technical assistants such as computer graduates of the Apayao State College (ASC). Serving as trainers/coaches are the Information Technology Officer and eight personnel of the Municipal Planning and Development Office (MPDO) (Agustin, personal communication, 2014).

Trainings are usually held at the e-Center every Friday. With the limited number of computers, however, the training is conducted in batches with nine participants per batch. The first wave of training was conducted on September 27–30, 2011 where participants were mostly OFWs and members of the Luna Women Welfare Federation (LWWF). To date, eight batches of trainings have been conducted, producing digitally literate 101 women and 8 men.

Despite the e-Center having been operational for years, this study is the first formal documentation on the project since its implementation. Hence, it is also the first research on the effects of the digital literacy training or its benefits on the women participants and on community development in Luna, Apayao.

Findings on the operation and accomplishments of a pilot e-Center can be used as input into how to manage the project more effectively and efficiently as well as guide other similar future e-Centers in the country, especially those managed by local governments.

OBJECTIVES OF THE STUDY

The study was conducted to determine how the women in Luna, Apayao who attended the digital literacy training at the Community e-Center applied what they learned to themselves, their families, and their communities.

Specifically, the study aimed to 1) describe their ownership, access, and use of ICT; 2) discuss the knowledge they gained from the digital literacy training; and 3) discuss some applications of their digital literacy training.

THEORETICAL FRAMEWORK OF THE STUDY

The research was guided by the Technological Determinism Theory of Marshall McLuhan, which he first proposed in 1962 (McLuhan, 1964). In essence, Technological Determinism Theory states that media technology shapes how we as individuals in a society think, feel, and act and how our society operates as we move from one technological age to another (from tribal to literate to print and to electronic).

Because of such changes, technology can drive human interaction and create social change. The ICTs can bring transformative shifts in society. This concept focuses on the effects and/or impacts that ICTs have on users, organizations, and society (Ccit205, 2014). A basic precept is that all technology is communication, an extension of ourselves that allows us to reach further through time and/or space; hence, technology can empower.

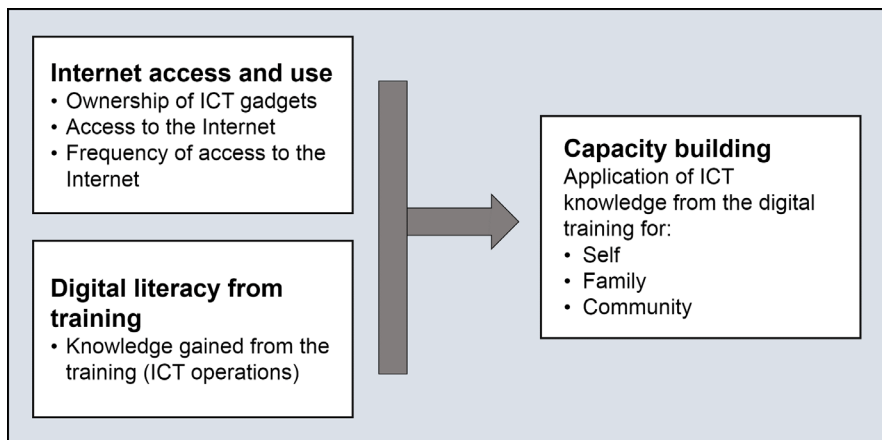
CONCEPTUAL FRAMEWORK OF THE STUDY

Through ICT, women's capacities can be 'extended,' and technology would shape them into newly 'empowered' women with more capabilities. Figure 1 shows the variables studied to prove such premise of the Technological Determinism Theory.

The independent variables are Internet access and use (ownership, access, and frequency of access) and the women's enhanced digital literacy from the training at the Luna e-Center. Digital literacy could be gauged by the women's enhanced knowledge about ICT. The intervening variables are the women's sociodemographic characteristics (age, gender, education, income, training, organization, etc.).

The aim of the digital literacy project is to 'capacitate' the digital literacy

of the rural women and see how this is applied to themselves, their families, or their communities.



METHOD

A survey was done to “collect quantitative information about items in a population from at least a part of the population as basis for assessing the incidence, distribution, and interrelations of phenomena as they occur in the lives of people” (Librero, 2009).

LOCALE AND TIME OF STUDY

Data were gathered from the women trainees from May 19 to June 1, 2014 in Luna, Apayao. Apayao belongs to the Cordillera Administrative Region (CAR). Luna is geographically situated in the northern part of the province of Apayao. It is approximately 1475 km direct distance from Pamplona, Cagayan in the northwest. It is bounded by the Abulug River on the south, by the provincial boundary on the north, and by the unknown creeks below the steep side of Cordillera on the west (Figure 2).

The municipality covers 60,604 hectares with 22 barangays. Of the 22 barangays of Luna, 20 barangays were classified as rural as of 2006. Luna itself, had been a 6th class municipality until 2008 when the government leadership under the Verzolas transformed it into a second class municipality (NSCB, 2015).

The respondents came from 13 barangays of Luna: Bacsay, Bucao, Cagandungan, Capagaypayan, Calabigan, Dagupan, Lappa, Poblacion,

Quirino, San Isidro Norte, San Isidro Sur, San Sebastian, and Turod. Hence, almost all the barangays of Luna were represented. Except for Poblacion, where the municipality of Luna is located, and San Isidro Sur, which was considered urban in 2006, all the 11 other barangays were classified as rural (Figure 3).



Figure 2. Map of the Philippines showing the location of Apayao.

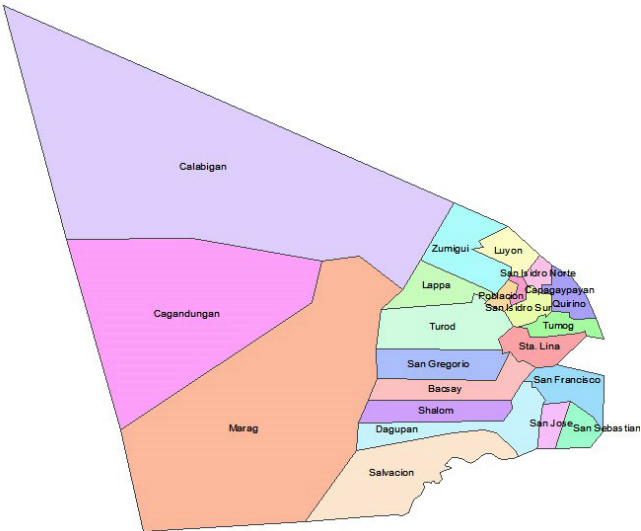


Figure 3. Map of Luna, Apayao showing the barangays.

Source: www.lunaapayao.gov.ph

RESPONDENTS AND SAMPLING

A survey was done among 50 purposively sampled women who attended the Digital Literacy Training at the Luna Community e-Center from 2011 to 2013. The complete list of 101 trainees was secured from the Head of the Office of the Municipal Planning and Development Office (MPDO) of Luna, Apayao. Only those contacted by cellular phone (if available) who signified that they were willing to participate in the research as well as share their experiences were included.

Key informant interviews were chosen for a more in-depth interview: two teachers; a senior citizen; Luna e-Center's coordinator, training staff, and technician; and the Luna, Apayao's mayors (past and present).

DATA GATHERING

Data were gathered from May 19 to June 1, 2014 using a self-administered questionnaire and key informant interviews. For some questions, they were asked to rate their perceived digital literacy on a Likert-like scale of 1 to 5 with 5 as the highest.

The interviews cited here with Mayor Verzola at various dates from 2010 to 2012 happened before she died during the times the researchers' family visited Luna, Apayao and her office. Back then, she was already sharing stories and pictures of her lobbying efforts and milestones with the e-Center in Luna and how women 'used and became empowered' by ICT.

To document the experience of the Luna Community e-Center, secondary documents were secured from the Luna e-Center.

DATA ANALYSIS

The survey answers were presented using descriptive statistics such as means, frequencies, and percentages. The interviews with some of the women trainees and other project stakeholders such as those in charge of the community e-Center and the past and present mayors supplemented the quantitative data with explanations and discussions.

RESULTS AND DISCUSSION

Socioeconomic Profile of the Women Trainees

All of the 50 trainees were married and with mean age of 42 years. Majority have finished college education (36) and postgraduate degrees, with most of them finishing education. About a third of the women have work, with majority of them working either as teachers in elementary or in high school. Majority also have organizations (42), mainly the Parents–Teachers Association (Table 1).

Table 1. Summary of the profile of the women trainees.

PROFILE	NUMBER (n = 50)
Civil status	
Married	42
Single/separated/widow/er	8
Age	
Range: 31–75	
Mean: 42.08	
Education	
High school	9
Vocational/Associate	3
College undergraduate	2
College graduate	36
BSc/AB	26
MS/MA	9
PhD	1
Membership in organization	
Member	42
Top organizations	
Parent–Teachers Association	14
Barangay LGU	9
Mothers Association	5
Women's Welfare Club	4

ICT Ownership and Access of Women to the Internet

The 50 women trainees owned cellular phones (49), laptops (23), or desktops (7). Almost half of them (20) had their own broadband to connect to the Internet (Table 2).

To gain access to the Internet, majority of the respondents used broadband/DSL (28), or they visited the e-Center in the municipality of Luna (14). However, almost a quarter (11) still had no access to the Internet. So far, only three used their cellular phones (android or smart phones) to gain access to the Internet.

As to the frequency of accessing the Internet, half of them (25) used the Internet for only 1 to 2 hours per week, while only about a quarter (13) used the Internet for 3 to 4 hours per week. This is actually a low figure compared with the 4 hours and 25 minutes spent by the average Internet user each day or the more than 6 hours spent on the World Wide Web by Filipino Internet users (WeAreSocial report cited by Dizon, 2015).

This is understandable as prepaid broadband are also expensive to the average wage earner. As they were working, they also could not always go to the e-Center that offered cheaper rental per hour. In the e-Center, the charge was PhP 15 per hour, while the only other computer shop with only two computers in the town charged PhP 25 per hour. Nevertheless, some of them said that this was much better than in the past where they had no access to the Internet at all and had to use snail mail, or they had to visit other offices personally in the other towns.

Table 2. ICT Ownership and Access of Women to the Internet.

ITEMS	FREQUENCY (n = 50)
Ownership of ICT gadget	
Cellular phone	49
Laptop	23
Broadband/DSL	20
Desktop	7
Access to the Internet	
Broadband/DSL	28
e-Center	14
Cellular phone	3
No access	11

Frequency access to the Internet (hour/week)	
1–2	25
3–4	13
5 hours or above	9
Cannot determine	3

Note: Multiple answers.

Knowledge Gained from the Digital Literacy Training at the e-Center

The training course covered five modules, with self-practice activities conducted after every module. These modules included Module 1: Introducing Computers and Operating Systems; Module 2: Introducing Internet and Email; Module 3: Introducing Word Processing; Module 4: Introducing Spreadsheets; and Module 5: Introducing Multimedia.

The knowledge gained from the training at the e-Center in Luna, Apayao involved learning ICT operation skills such as the following: 1) MS Word (40); 2) MS PowerPoint (34); 3) Facebook (33); 4) email (27); and 5) MS Excel (25). These were needed to enhance their roles as educators especially in improving their lessons and teaching and even preparing their reports and publications. For the LGU participants, the basics of word processing was needed whenever they drafted barangay ordinances, resolutions, letters, development and investment plans, and other documents.

Many of the respondents also learned how to use PowerPoint and Excel because as teachers, they sometimes had to present their lessons using PowerPoint in class. Some schools without LCD projectors often just used their laptops or desktops to present PowerPoint to their students. They also learned how to use Excel to help them in the computation of their grades in class.

The women also learned how to do basic computer operation such as printing (24) and scanning (12). For specialized software, many of the women (12) also learned how to do basic layout. Some of these layouts were in Word, and these were usual handouts for students (Table 3).

As for social media, majority of the respondents gained knowledge in using Facebook. According to them, they used Facebook to connect with their colleagues in other offices. Most often though, they used Facebook to socialize with friends and connect with their relatives abroad. Most of the

citizens in Luna, Apayao have one or two relatives working or living abroad, especially in Hawaii, where the first Ilocano migrants went as farm laborers. Only one, however, was using Instagram or Twitter.

Table 3. ICT operation learned from the digital training at the e-Center.

ICT OPERATION	FREQUENCY (n = 50)
MS Word	40
MS PowerPoint	34
Facebook	33
Email	27
MS Excel	25
Print	24
Scan	12
Lay-outing	12
Web browsing/surfing	11
Adobe Photoshop	7
Video maker	7
Chat	1
Skype	1
Instagram	1
Twitter	1

Note: Multiple response

Other Sources of Knowledge on Digital Literacy

As for their other sources of knowledge or computer literacy, an equal number mentioned friends (19) and self-study (19). This was followed by the e-Center (17), family members (12), and work colleagues (5) (Table 4).

Some of the friends were actually colleagues also in school or at work who patiently guided them step-by-step on the procedures of how to operate some of the computer programs. Family members also helped them learn these programs, especially their teenage children who were in high school or college.

Nevertheless, the trainers as well as the technicians (usually engineers) at the e-Center still played a big role in enhancing the learning process of the women. Hence, the e-Center was mentioned by 17 of the women learners. Family members also helped them learn these programs, especially their teenage children who were in high school or college. In fact, some of the

women teachers admitted that it was their teenage children who used to prepare their PowerPoint and other presentations until they learned to prepare these themselves. If they were rushing though, they confessed that they still asked their children to help them accomplish the presentations since the latter were more adept and faster in producing these materials.

Some of them also mentioned work colleagues as these were the people they worked with everyday and could ask from time to time about some of the computer procedures which they may have forgotten from the training at the e-Center.

Table 4. Other sources of knowledge on digital literacy.

TRAINERS	FREQUENCY (n = 50)
Friends	19
Self-study	19
e-Center	17
Family members	12
Work colleagues	5

Note: Multiple responses.

Application of the Knowledge from the Luna e-Center

Majority (26) said that they were able to apply what they have learned from the e-Center digital literacy training, while 18 answered 'sometimes'.

As to the application, almost everyone cited the application to themselves (36), to families (20), and to their communities (24) (Table 5).

Table 5. Application of ICT learning by the women trainees.

ITEMS	FREQUENCY
Applied what was leaned	
Yes	26
Sometimes	18
No	6
Application	n = 44
Improve myself	36
Improve community	24
Improve family	20

Note: Multiple responses.

IMPROVE THEMSELVES

The perceived improvement of self is understandable if we consider that this may be their first exposure to ICT. As the trainers said:

The training, indeed, is a venue of introducing the technology to those who have zero knowledge of computer operation and of familiarizing those who have very little know-how. With the training, we were able to sense the eagerness of the ‘technophobics’ or the so called ‘computer illiterates’.

In fact, since the e-Center was a new concept and a new facility being offered by the LGU, the staff could explain it best as being an Internet café, which was more popular in urban areas such as Tuguegarao, Cagayan. Hence to attract the first users, the e-Center offered initially free Internet services, encoding, research works, and printing to the public. Perhaps, the fact that it was the only Internet and information facility in the locality also attracted subsequent users.

Hence, training enhanced the women’s self-confidence and gave them that ‘wonder of new discovery.’ A retired stenographer confessed that she was hesitant to attend the training for senior women at first because she was ‘wondering what did that machine have to do with her?’ After the training, however, she realized that the computer actually made stenography much easier for her typing. Hence, she became convinced that “we must keep up with modern technology.”

Aside from self-confidence, there were practical benefits. One said that she used to “travel at least two hours to reach the nearest Internet café and spend not less than 300 pesos just to send reports or documents through email.” Now, she could do it with less effort and money without travelling.

IMPROVE THEIR FAMILIES

Many of the respondents (30) also cited advantages of learning ICT to their families. For instance, they were relieved a bit of the burden as they could help their children in making researches, term papers, and assignments. The Internet facilitated this work for their family.

The e-Center also connected families, especially those with OFW

members. Before, a relative of an OFW had to travel for a day going to an Internet café and can only spend an hour or so talking to her spouse through VOIP. Hence, the e-Center provided a more convenient and ready venue for contacting loved ones and family members. The MPDO even shared that “many friendships and reunions have also been made at the e-Center” such as Facebook pals and online dates.

The senior women also felt loved and cared for because they get connected with their families. An account in the journals of the e-Center read thus:

Dr. Salud Barroga, 75 years old, used to come to the e-Center almost every day to seek assistance from the center staff. Her children had given her a laptop, but she doesn’t know how to use it. ‘Hindi na ako nalulungkot mag-isa dahil mayroon akong ka-Facebook. I can communicate with my children who reside in the USA, Japan, and Australia — anytime, anyplace, and anywhere.’”

IMPROVE THEIR COMMUNITIES

Of the 24 who said that they have applied their training in community activities and projects, they cited the fields of education (8), health and nutrition (5), entrepreneurship and livelihood (2), and safety and security (2). Only one mentioned agriculture, sustainable development, climate change and disaster risk management, youth empowerment, and governance (Table 6).

Education. As expected from a majority of teacher-respondents, 8 were able to apply what they learned in their profession. Many of them used the word processing software Microsoft Word to type their lessons or letters and other documents. For the LGU participants, they were taught the basics of word processing since this is widely used especially in the drafting of barangay ordinances, resolutions, letters, development and investment plans, and other documents.

Many of the respondents also used PowerPoint and Excel to prepare and present their lessons. They also used Excel to help them in the computation of their grades in class. Hence, the processes in academic procedures became streamlined, more efficient, and hopefully, also fairer.

The Community e-Center also became “a major hangout among students and professionals doing researches in the absence of a library

equipped with up-to-date reference materials.” Hence, the physical distance of Luna, Apayao and relative remoteness were transcended by the Internet and access to modern learning resources that could not be bought or brought to the town.

As there were also LGU employees, the Basic Computer Literacy Training for LGU employees, conducted in partnership with the Apayao State College — IT Department, enhanced their computer application skills for office productivity and efficiency. This was part of the outreach program of the e-Center that taught ICT literacy to government employees from both local and national government agencies. Mayor Verzola aimed for a 100% computer literate workforce to enhance the delivery of basic services. Hence, every employee became equipped to deal with transactions even outside Luna, Apayao in the digital age.

Some benefits accrued to the staff of the e-Center, too. Because of the good evaluation of their performance, some of them were granted scholarship grants to e-Center Academy, equipment grants, and participation to the exchange program. Hence, the incentives and continuous trainings also helped professionalize these IT personnel as partners in the educational sector of the town.

Most important, probably, is that they gained the foundation or a stepping stone to higher academic ambitions. With the confidence of gaining skills in the use of the computer and the Internet, some of the teachers ‘dared’ to enroll at the Open Universities for Distance Learning. They believed that the e-Center could provide them that venue for their online studies. As the trainers said: “Communication here and abroad was made easier and faster—for the employees, students, farmers, businessmen, religious leaders, and relatives of OFWs.” Such could potentially improve the educational competence of the educators in the town and enhance their professionalism as a vital sector in community development.

Health and nutrition. Five of the women mentioned using what they learned from the ICT training for proper health and nutrition.

As many of them were teachers and mothers at the same time or they belonged to the Mothers Association, Women’s Welfare Club, Barangay Health Workers, or Barangay Nutrition Scholars, they researched about certain topics from the Internet. They learned about healthy foods, alternative foods, and recipes as well as preparation of nutritious but low-cost foods. They used these ideas for their own families. Most importantly, they shared

these ideas to their fellow mothers or women clubbers in the community during meetings.

Also, as there was only one hospital in town and it was located quite far from the barangays, some of the women researched on some practical medications or the scientific basis of some sicknesses or diseases from the Internet. This way, they did not have to travel far to get some opinions from the doctors or medical practitioners.

Entrepreneurship and livelihood. Two of the women cited entrepreneurship and livelihood. The concept of the operation of the e-Center itself was a good example of entrepreneurship with service. In fact, the motto of the e-Center was 'Service Before Profits.' Nevertheless, from 2007 to 2009, the e-Center generated PhP517,443 or almost half a million pesos from the use of various clientele.

The MPDO staff also mentioned a related benefit that may be considered under livelihood. They related that, during the time when the GSIS e-card for government employees was being implemented, employees from municipalities of Lower Apayao and those from Cagayan and neighboring provinces had to come to the e-Center to activate their membership and loans. Hence, it was during that time, they said, when almost everyone realized the importance of having a community e-Center in town.

The MPDO staff also mentioned that the e-Center has become a hangout of visiting tourists in Luna. They said: "Sometimes, many visitors hardly believe the existence of such facilities in a place on this part of Cordillera. Amidst high mountains, our community is connected to the world."

The women learners with family members who were OFWs also benefited. The e-Center served as the access point for their communicating with their employers abroad or with potential employers. For the teachers, they used the e-Center as access point to search for potential opportunities for capacity building such as scholarships or trainings outside Luna, Apayao.

Such was the impact of the e-Center on the community's potential livelihood that Mayor Verzola (a trainee herself) had been invited to share Luna's best practices on LGU Economic Enterprise showcasing the management/operation of the Luna e-Center as a local enterprise on July 26, 2011 at the National College of Public Administration and Governance (NCPAG), UP Diliman. This gave honor to the town, improved its image and representation, and increased its chances to win other awards as a town in the future.

Safety and security. Two women learners also mentioned the safety and security effects on their children and on some of the e-Center staff who happened to be their relatives albeit twice removed. One mother said that her children no longer needed to go outside the town and spend so much money to access the Internet, do research work, or scan and print. She just advised her children to go to the e-Center, and she assisted them to accomplish these works. Hence, she felt that this ensured the safety of her family members.

Putting this in the context of the community, more community members no longer had to go out of town, but they did their business right in the town, hence ensuring their safety.

Another relative of the e-Center staff said that, because of the e-Center, the staff of the IT Unit/Center was able to get plantilla positions in the Municipal Office. The LGU created a plantilla position of IT Officer I who manned the IT Unit/e-Center. Hence, this enabled the career growth of the e-Center personnel and the IT profession in the town. This also opened up the recognition of the IT profession in a predominantly agricultural town that esteemed doctors and lawyers as having the highest positions.

Governance. While only one respondent mentioned improved governance, the researchers would include other inputs from the key informants from the e-Center.

Digital literacy revolutionized government service delivery, according to Mayor Verzola. "Electronic copies of government reports of NGAs in the locality are sent through the e-Center which is located few steps away from their offices, thus beating submission deadlines is no longer a problem for these NGAs."

Reporting and communication to higher offices became faster for the national agencies and offices located in Luna. There was also a closer coordination with various national agencies and other institutions, most particularly with the philcecnnet.

Luna e-Center has trained interested individuals from various sectors of the community. At the time of the survey, it has trained 110 barangay officials (Punong Barangays, Secretaries, Kagawads), 115 LGU employees, 35 farmers, 40 OSYs, 15 women, 20 religious workers, and 15 teachers. It had also conducted a series of training workshops on basic computer operations to barangay officials particularly the Punong Barangay secretary and treasurer and other interested barangay officials. The training aims to equip and capacitate barangay officials with basic computer knowledge and

operations essential in office functions and records management.

In one Internet Applications Training for Municipal officials, the most senior SB Member was amazed how ICT could help them in their legislative functions, said one e-Center staff.

As the MPDO attested: “The e-Center, which is now at the ground floor of the municipal building, continues to provide ICT services vital to the public and has become a tool in promoting good local governance.”

Agriculture. One respondent mentioned applying what she learned from the e-Center in agriculture development for the community.

The e-Center has launched a program: the establishment of the Farmers’ Assistance Corner (FAC). This program was an offshoot of the recently conducted series of Farmers’ Class in the 22 barangays of Luna, spearheaded by the Municipal Agriculture Office.

The conduct of classes started immediately upon the end of the cropping season, the most convenient time for farmers for such activity. During the said farmers’ classes, the role of ICT in agricultural production and development was explained by the Community e-Center Manager and the Municipal Agriculturist, giving emphasis on farmers ICT resources, production technologies, technical advisory services on farming technologies, and marketing services.

Recognizing the vital role of farmers in the economic and social development of the community, Mayor Verzola supported the establishment of a Farmers’ Assistance Corner (FAC) at the Luna Community e-Center. The FAC serves as the help desk for all farmers. An Agricultural Technologist, who is an expert in providing technical assistance in availing online services relative to agriculture, is readily available to man the FAC. Two computer units at the e-Center are devoted to be used by farmers. The center’s services can be availed of for free by farmers. The FAC may be considered a customized version of a Farmers Information and Technology Center (FITS) under the Techno Gabay Program of the DOST-PCARRD.

As Mayor Verzola said:

If farming is a way to sustain life for the people of Luna, with the advancement of ICT, farmers must not be left behind and remain confined in the rice fields for they truly serve as the backbone of the nation. May these farmers have a way to seek help and assistance in a place we call our own...the Luna e-Center.

Table 6. Application of knowledge learned from the training for community development, n=24.

COMMUNITY DEVELOPMENT	f
Education	8
Health and nutrition	5
Entrepreneurship and livelihood	2
Safety and security	2
Agriculture	1
Sustainable development	1
Climate change and disaster risk management	1
Youth empowerment	1
Governance	1
No answer	2

Note: Multiple responses.

CONCLUSION

The women trainees on digital literacy were capacitated in the sense that they were able to apply what they have learned in the digital literacy training to improve themselves, their families, and their community. The training enhanced their self-confidence and gave them that ‘wonder of new discovery’ as this was their first ICT training. The advantages to their families included facilitating academic assistance to their children and getting connected to their family members abroad, especially for the OFWs. Lastly, they were able to apply their training in community projects and activities, specifically in education, health and nutrition, entrepreneurship and livelihood, and safety and security.

The educational impact of the e-Center was the most apparent. Some of the teachers ‘dared’ to enroll at Open Universities for Distance Learning as they have gained confidence in using the Internet, and they believed that the e-Center could provide them a venue for online studies. As for health and nutrition, many of them researched on these topics from the Internet and shared it to students or friends/neighbors. For entrepreneurship and livelihood, the e-Center became a hangout for visiting tourists in Luna and an access point for the OFWs communicating with their employers abroad

or with potential employers. Lastly, they felt a sense of safety and security that their children could use the e-Center for research rather than travel to other farther places for an Internet café.

IMPLICATIONS AND RECOMMENDATIONS

1. Sustain access by hardware and software. In 2010, a satellite disk of Globe had been set up in Barangay Turod of Luna, Apayao that made signals accessible to some residents of the place. Hence, they could access from their homes as long as they were located near the disks. Hence, together with the broadbands, this can decentralize dependence on the e-Center. Private computer shops can be encouraged as competition can lower the price of services.
2. Screen well the trainers. Part of the success of the e-Center was because it had well-trained, well-educated, and credible experts (computer science graduates, engineers, etc.) as trainers. They were also very patient with the adult learners. Students in computer science can also be tapped to assist the users of the e-Center computers.
3. Continue capacity building for other stakeholders and the trainers. Family members helped the women learn these programs, especially their teenage children who were in high school or college. Hence, the children could also be participants in the trainings. The trainers can also undergo retooling and updating on their knowledge and skills to be better trainers.
4. Engage family members. Family members seem to be sources of information and ‘teachers’ themselves on the operation of some applications in the Internet. Hence, the role of family members must also be strengthened.
5. Maintain the collegial, respectful, and fun atmosphere of the training center. The staff members of the e-Center were considered to be ‘relatives’ of the women. They would say “Anak, help me with this please.” And the staff would also address them as “Uncle,” “Auntie,” or “Kabsat” (brother/sister). Hence, in a sense, there was no formal and strained trainer–trainee relationship, but it was more like family members assisting each other.
6. 6. Ensure security measures against cybercrime. The technician/s assigned in the e-Center often still had to assist the women in opening

their emails and in helping send replies. In fact, the technician knew the email passwords of some of the women. While the trust was there, it may also be timely for the LGU to ensure the privacy of the users and to ensure that the women divulging such information may not be victims of cybercrimes such as identity thefts or online thefts.

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