Poverty Alleviation and the Access and Utilization of Information and Communication Technology (ICT) among Select Sectors in Bukidnon

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Abstract

This study investigated the role of ICT on the social, economic and political aspects of selected upland farmers, lowland farmers, and senior citizens. Specifically, it determined how respondents in the said sectors access and utilize information and communication using ICT; and related the influence of ICT in an effort to alleviate their social, economic and political conditions.

The findings of the study revealed that both the old and new forms of ICT resources were accessed and utilized by the three sectors. Most respondents from the upland and lowland farmers, and senior citizens that have improved income in the past ten years use/access ICT. The presence of ICT and the consequent use of said respondents explained the increase in the income in 89.6 percent of the cases. The findings showed that the use of ICT resources contributes in alleviating poverty among the respondents.

Keywords: information and communication technology (ICT), poverty alleviation

Introduction

The efforts to end poverty in the Philippines have been decades-long struggle. Despite the Philippines’ commitment to the Millennium Development Goal of reducing the incidence of poverty in half by the year 2015, the incidence of poverty is still growing. This trend is even more apparent in rural agricultural provinces like Bukidnon. Under the presidency of Hon. Benigno Simeon C. Aquino III, the urgency to end poverty is given an utmost priority.

Bukidnon is an agricultural province in the heart of Mindanao composing of 20 municipalities and 2 cities. According to the NSCB, in 2009 Bukidnon’s percentage of severity of poverty stood at 4.0% which is twice the national average of 2.0%. Poverty incidence in the province is often concentrated in the marginalized sectors like the upland farmers, lowland farmers, indigenous people, senior citizens and the youth.

The study of Echavez and Burton (2007) described the poverty in Bukidnon as “endemic and chronic” due to dependence to traditional agriculture. Echavez and Burton further cited poverty incidence in 1991 and 1994 at more than 50% of the population. This situation necessitates a heightened concern for poverty alleviation measures to be implemented in the province. There is now a concerted effort to address this problem.

1Study 1: Access and Utilization of ICT among Select Senior Citizens in Bukidnon
2Study 2: Access and Utilization of ICT among Select Upland Farmers in Bukidnon
3Study 3: Access and Utilization of ICT among Select Lowland Farmers in Bukidnon
thoroughly. Although Echavez and Burton have identified the importance of education, landholding, and other factors in the moving out of poverty of the respondents, their study did not focus on the role of ICT. In this study, the role of ICT in relation to the alleviation of poverty was the focus.

Advances in information and communication technology (ICT) have brought about unprecedented growth and changes in the socio-economic and political spheres not just in the global arena but also in developing countries like the Philippines. Products, services, people and cultures can now be brought together easily using these technological innovations.

Bukidnon has embraced the use of ICT since it became available. Radios, television sets, cellular phones, and computers used to be luxury items available and accessible only to those who have the means in recent years are now available to most sectors in Bukidnon including the mentioned three sectors. As observed, there is now the recognition of the importance of ICT for information, communication, mobilization and delivery of products and services. It is a reliable technology in getting assessment and feedback especially with the proliferation of internet cafes, wifi zones, and wireless broadbands offered by telecommunications companies. With internet connection in its cities and municipalities, social networking using cellular phones and Facebook is ever increasing. Nowadays, it can be observed that many farmers, market vendors, indigenous peoples, and senior citizens are very much equipped with basic cellular phones and other connectivity. This phenomenon of the use of ICT made the researchers to look into how the use and access of ICT may have impacted on the lives of people in the selected sectors as pertaining to the efforts to move out of poverty.

The present paper is based on three sub-studies: Access and Utilization of ICT among Select Senior Citizens in Bukidnon, Access and Utilization of ICT among Select Upland Farmers in Bukidnon, and Access and Utilization of ICT among Select Lowland Farmers in Bukidnon.

It explored the use of information and communications technology in alleviating their lives in terms of their income and capability. It is hoped that findings of the study may shed light on the effect of ICT on the respondents of the mentioned sectors.

**Conceptual Framework**

This study is anchored on the concept that the onset, access and utilization of information and communications technology (ICT) is inevitable and that ICT can be a means in bringing about poverty alleviation among people of challenged communities/sectors. As shown in Figure 1, when respondents are provided with access and use of traditional and new forms of ICT, it may contribute to their having improved income and capability. This concept is based on the United Nations Millennium Declaration that sets the Millennium Development Goals (MDG) for 2015. The eighth goal of the MDG is “To develop strong partnerships with the private sector and with civil society/organizations in pursuit of development and poverty eradication.” In the 2000 UN General Assembly, it puts emphasis on the use of Information and Communication Technology (ICT) as a means whereby global, national and local partnerships can be established to help reduce poverty in the local communities. Figure 1 shows the schema in which ICT improves the lives of people as to their income and capabilities.

**Statement of Objectives**

This study explored how upland
farmers, lowland farmers, and senior citizens are accessing and utilizing the ICTs (old and new). Specifically, the objectives were:

1. To determine how upland and lowland farmers and senior citizens access and utilize ICT for social, economic and political concerns;
2. To determine the frequency of utilization of ICT resources; and
3. To relate the influence of the use of ICT in poverty alleviation/reduction of the respondents.

Review of Literature

Poverty and Poverty Alleviation

The United Nations in 2001 defined poverty as ‘a human condition characterized by the sustained or chronic deprivation of the resources, capabilities, choices, security and power necessary for the employment of an adequate standard of living and other civil, cultural, economic, political and social rights’ (Barber, 2008). In this definition, a multidimensional picture of the human condition with due recognition not just to resources but also his ‘capabilities, choices, security and power’ are equally considered in gauging poverty. In Bukidnon, income is often seen as a basis in determining poverty. Recent studies in poverty, however, recognize not just the income but also the capability of people as a multidimensional view of poverty. By capability, it means that the socio-political opportunity, training, education and the like are afforded to the people as a way of empowering them.

Echavez and Burton (2007) made a study on the lives of select respondents of Bukidnon on how selected people in Bukidnon move out of poverty. The study was done by retracing the life histories of respondents for the past 10 years. The result of the study showed that factors like education, number of children in the family, landholding, and others played significant factors in overcoming poverty. The study however, did not take into consideration how the respondents made use of ICT in improving their situation. The intention of the current study is to look at how ICT is utilized by select people and to explain how this may have been used to address their poverty issues and concerns.

Information and Communication Technology (ICT)

Information and Communication
Technology (ICT) refers to “an umbrella term that includes any communication device or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning” (ICT, 2003). Based on this definition, ICT may be categorized into two kinds: old ICT and new ICT. Old ICT encompasses radio, television, and landline telephone; new ICT refers to cellular phones, computers, wifi, cable television, laptop, and other technologies (software and hardware) using internet or other forms of connectivity.

In the Philippines, the Department of Science and Technology (DOST) had endorsed and pursued the creation of a broadband infrastructure for the government service. Considering that the Philippines is an archipelago, with the people separated by geographical location, the need for fast, reliable and efficient communication and information makes it a necessary project for the government to reach the farthest and the remotest part of the country. Conversely, citizens will be able to reach out to the government for their concerns and issues thereby, reducing the perennial issue of perceived government neglect especially in the far-flung areas. Furthermore, it can bring people to participate not just in social and political activity with the rest of the country, it can also engage in a productive economic endeavor to widen possible market for goods and services to increase income and capability. It is within this area that the importance of ICT can be directly and indirectly assessed.

**ICT and the Farmers and Senior Citizens**

The Philippine government has its own ICT Roadmap that is “committed to ensuring universal access to ICT and will prioritize programs to benefit marginalized sectors and underserved areas (Philippine ICT Roadmap, 2006). The sectors are to be served under the so-called Community e-center Program that will establish a) internet in schools, b) e-care centers, c) eLGUeCs, and d) regional ICT centers. The regional ICT centers will include ICT in education, commerce and governance and spearhead the building of local e-marketplaces or one-stop-shops for ecommerce, e-learning and e-government services.

The farmers are one of those considered as a marginalized sector and are located in underserved areas. Senator E. Angara, in June 2012 reiterated the importance of more information and communication technology (ICT) applications in enhancing the agriculture sector. Angara said that “the country must capitalize on the opportunities opened up by ICT to increase crop yields and make them more disaster-resilient especially amid a growing population and an erratic climate.”

Angara’s statement was based on the growing success of the K-Agrinet ICT (https://www.dap.edu.ph/k-agrinet/) caravan in empowering the farmers and subsequently having improved income. He supports the program of the Knowledge Networking towards Enterprising Agricultural Communities (K-Agrinet) information and communications technology (ICT) that promotes its ICT services to the farmers and other stakeholders in the agriculture sector.

Likewise, the Department of Agriculture in partnership with other institutions like the University of Southern Mindanao has established an online academy for the purpose of making available the latest technology in agriculture. Access to this site can provide farming techniques and technologies to maximize profits and minimize losses, thereby improving the lot of the poor farmers.
In the province of Bukidnon, Central Mindanao University located in the municipality of Maramag, also provides research and extension expertise/services in improving the lives of the farming sector. But because of the distance, many farmers have difficulty accessing the services of the experts. Fortunately, with the advent of ICTs (radio, television, cellular phone, etc.) farmers are getting more information and are making better decisions relating not just to economic but social and political concerns.

In this era of Information and Communication Technologies (ICTs), the senior citizens are also given attention particularly in meeting their needs. Policies are formulated for instance as in the European Union to support active and successful ageing. Several of these policies as enumerated by Martin (2009) are the support of the local communities in providing suitable facilities for the senior citizens and encouraging ICT-based networking to involve older people in communities, and promoting ICT-related learning opportunities.

In the Philippines, Republic Act No. 7876 establishes a senior citizens’ center that identifies the needs, trainings, and opportunities of senior citizens in the cities and municipalities. The Act also provides that the center will initiate, develop and implement productive activities and work schemes for senior citizens in order to provide income or otherwise supplement their earnings in the local community. The Philippine government likewise provides ICT programs for the senior citizens such as the SHEEP. This gives an opportunity for the senior citizens to learn about basic computer use for social networking. But in Bukidnon, most of the middle poor senior citizens use cellular phones, television and radio. It is in this context that this study looks into how ICT influences the increase of income of the middle poor senior citizens.

**Methodology**

The study has the following cities and municipalities of Bukidnon as research locales: Libona and Impasug-ong in the north, Malaybalay and Valencia at the center, and Quezon and Kalilangan in the south.

The respondents of the study were the 124 upland farmers, 135 lowland farmers, and 105 senior citizens who belonged to the middle poor household. The middle poor households were purposively chosen. The middle poor household in this study is defined as a household that has the ability and opportunity to move upwards economically. These households have the chance to move up the ladder of the upper poor or even to the lower middle class.

A researcher-made questionnaire, interview schedule, focus group discussion and observation were used in gathering the data for this study. For content validity, the questionnaire was examined by three social science experts. The questionnaire was translated into Cebuano for easy understanding and was pretested to a set of respondents from the sectors involved.

The questionnaire was conducted to identify the ICT resources used by the respondents and determine the extent of the use of the ICT resources. The questionnaire was also used to determine the influence of ICT to poverty reduction. Focus Group Discussion (FGD), interview and observation were employed to validate the data obtained from the questionnaire.

Frequency count and percentages were employed to determine how the respondents from the three sectors access and utilize ICT. In relating the influence of ICT to poverty alleviation, frequency count was also used. Frequency count was also used to compare the respondents with improved income as to their use or non-use of ICT.
Results and Discussion

The upland farmers are those that are located in the central and southern part of Bukidnon. The area they are residing in is more suited to upland farming like corn, bananas and sugarcane. The lowland farmers are generally located near the poblaciones or towns and cities where most of them are engaged in planting palay and corn.

Comparison on the Access and Utilization of ICTs

Table 1 indicates that both the old and new ICT resources are accessed and utilized by the upland and lowland farmers. The table further reveals that the old ICT (TV and radio) are still the most widely used by the two subsectors.

| ICT                  | UPLAND (n=124) | LOWLAND (n=135) |
|----------------------|----------------|-----------------|
| 1. Radyo/Transistor  | 76             | 50              |
| 2. Television (TV)   | 92             | 109             |
| 3. Telephone         | 4              | 5               |
| 4. Videoke/Karaoke   | 31             | 34              |
| 5. Cassette player   | 26             | 6               |
| 6. Cellphone with camera | 57         | 61              |
| 7. Cellphone without camera | 44        | 29              |
| 8. Cellphone with camera and radio | 22    | 18              |
| 9. Fax machine       | 0              | 1               |
| 10. Cable TV         | 1              | 8               |
| 11. Computer         | 6              | 6               |
| 12. Computer with internet | 1        | 3               |
| 13. Laptop computer  | 6              | 5               |
| 14. Laptop with internet | 1          | 1               |
| 15. Satellite TV     | 1              | 1               |

Table 1: Access to ICT of Upland and Lowland Farmers Based on Purchased ICT from 1980-2011.

Upland Farmers

The upland farmers prefer to use television, radio, and cellular phone as a means of communication and of getting information on the socio-economic and political developments both in the local and international fronts. Table 1 shows that 74% of the upland farmers have access to television, 61% to radio and 46% to cellular phones. Many of the upland farmers acquired most of the ICT resources within the past six years.

The new ICTs like the fax machine, laptops, and computers are of limited use by the upland farmers. The upland farmers consider these ICT resources as expensive and difficult to manipulate. Besides, the upland farmers find the television and radio...
to be more informative (on new agricultural technology) and more entertaining.

**Lowland Farmers**

Alampay (2006) stated “it is expected that ICTs will be more accessible in urban areas and locations closer to the centre of development; it will see people having greater access and use for ICTs.” This explains the high percentage of the lowland farmers’ access to television (81%), cellular phones (45%), radios (35%) and videoké (25%) being located near the towns and/or cities. The television and cellular phones were mostly acquired within the past six years while the radios were acquired much earlier.

The lowland farmers use the popular videoké. This indicates that the lowland farmers have other means of entertainment and relaxation compared to the upland farmers. The use of videoké among lowland farmers also indicates their purchasing capability considering the fact that the ICT resources have become more affordable.

When compared, the lowland farmers have more access to television but the upland farmers access the radio and the cellular phone more. The lowland farmers acquired their televisions and cellular phones within the past six years while their radios are mostly acquired much earlier. Lowland and upland farmers have similar access to cellular phones but the lowlanders have more access to videoké machines for entertainment.

**Comparison on the Utilization of ICT**

The daily utilization of ICT resources by the upland and lowland farmers differs as shown in Table 2. The upland farmers spend more time listening to the radio while the lowland farmers utilize more time using cellular phones.

| ICT                        | UPLAND | LOWLAND |
|---------------------------|--------|---------|
| n=124                     | %      | n=135   | %      |
| 1. Radyo/Transistor       | 60     | 48.4    | 48     | 35.6    |
| 2. Television (TV)        | 40     | 32.3    | 24     | 17.8    |
| 3. Telephone              | 3      | 2.4     | 4      | 3.0     |
| 4. Videoké/Karaoke        | 24     | 19.4    | 29     | 21.5    |
| 5. Cassette player        | 15     | 12.1    | 8      | 5.9     |
| 6. Cellphone with camera  | 45     | 36.3    | 55     | 40.7    |
| 7. Cellphone without camera | 34  | 27.4    | 24     | 17.8    |
| 8. Cellphone with camera and radio | 15  | 12.1    | 17     | 12.6    |
| 9. Fax machine            | 0      | 0.0     | 1      | 0.7     |
| 10. Cable TV              | 1      | 0.8     | 6      | 4.4     |
| 11. Computer              | 5      | 4.0     | 6      | 4.4     |
| 12. Computer with internet| 0      | 0.0     | 5      | 3.7     |
| 13. Laptop computer       | 0      | 0.0     | 5      | 3.7     |
| 14. Laptop with internet  | 0      | 0.0     | 1      | 0.7     |
| 15. Satellite TV          | 0      | 0.0     | 0      | 0.0     |
Upland Farmers

Upland farmers spend more time listening to the radio than the other ICT resources. This is because aside from far location of the upland farmers from the urban areas, radio is the most affordable. It is one of the cheapest ICT resources and the easiest to manipulate. This concurs with the concept of the MIP project of the Chilean government that set a community radio station to reach the farming sector located in what it calls as a difficult environment. The farmers are updated on farming and agricultural issues. The upland farmers also use the radio for updates on agricultural issues as well as political and social issues.

However, the upland farmers prefer to view the socio-economic and political programs in the television for updates and information. This is because they could see the actual demonstration of modern technology particularly in farming. The television programs like the Swak na Swak na Pangkabuhayan provide actual demonstrations of modern technology on more effective ways of farming. Radio and television programs also regularly feature weather situation that help the upland farmers make decisions on their farming activities.

In the interviews conducted, the upland farmers reveal that they also use the cellular or mobile phones but they still prefer the radio and television especially in learning new farming technology and updates on socio-economic and political issues. The upland farmers would rather use cellular phones without a camera because what is important for them is that they have a tool to communicate or contact in the fastest way their suppliers and clients/customers. In considering the distance, the upland farmers find it easier to do their economic transactions (such as buy farm supplies and/or contact buyers of their farm products) through the mobile or cellular phones. The upland farmers, thus, use cellular phones to facilitate their agricultural activities.

Lowland Farmers

Lowland farmers spend more time using the cellular phones than radio and television. Radio is second and television third. One of the reasons for the lowland farmers spending more time on cellular phones is for socio-economic networking.

When asked why the lowland farmers spend more time on the use of cellular phones, the lowland farmers stated that it is a source of economic and social information. This is a common answer given among farmers in other countries such as in Peru, Chile and Africa as observed by Gakuru, Winters, and Stepman (2009) and Tulip (2010).

The lowland farmers use the cellular phone for contacting their buyers/clients or for inquiring on available farm needs such as fertilizers and seedlings. This would save them time, effort and cash expenditures. The lowland farmers who do not own farmlands use the cellular phone for contacting their friends, former employers and agencies about possible work. Work may mean manual labor such as a person who sprays pesticide, fertilizes plant crops, harvests and/or acts as porter of farm products. The lowland farmers would often call or text their contacts especially when the other farmlands have finished planting or are in the process of harvesting.

For socio-economic and political information/activities, the television is preferred by the lowland farmers. The television serves as a source of socio-economic and political information and as a form of entertainment and relaxation. Thus, television is used early in the morning for news reports and late in the
afternoon for further socio-economic and political updates and entertainment.

The lowland farmers however, prefer the radio for economic and political information/activities. The lowland farmers would often listen to radio programs that discuss matters on agricultural development or activities. One of the programs of a local radio station for instance, discusses about issues in agriculture like how to control proliferation of pests in the farm. The radio is also a source of political information that disseminates updates on the local, national and international scenes. The radio is also used for informing the public about a coming local meeting or program.

When compared, on one hand, the upland farmers utilize more time for radio than television per day (please refer to table 2). Their use of cellular phones and television comes in second and third, respectively. As for socio-economic and political information/activities, the upland farmers mostly prefer television. Radio and cellular phones come in second and third preferences, respectively. On the other hand, the lowland farmers spend more time using cellular phones than radio and television (Table 2). Radio comes in second and television comes in third. As for socio-economic and political information/activities, lowland farmers mostly prefer the television. Their second preference for economic and political information/activities is the radio and the third preference is the cellular phone. The second preference for social information/activities is the cellular phone and radio is the third preference.

Relating Use of ICTs over Income among the Upland and Lowland Farmers

The two subsectors use both the old and new ICT resources for economic, political and social activities. In relation to use and access of both the old and new ICTs, table 3 illustrates the improved income of the upland and lowland respondents.

Upland Farmers

Table 3 shows the economic influence of the use of ICT based on the improved income of the upland farmers as compared to their income 10 years ago. The use of ICT facilitated the upgrading of new technological knowledge particularly in agriculture and entrepreneurship of the farmers. The new technological knowledge

| Income of Respondents 10 Years Ago and Income at Present | Upland Farmers | Lowland Farmers |
|--------------------------------------------------------|----------------|-----------------|
|                                                        | 10 Years Ago   | At Present      | 10 Years Ago   | At Present |
| No Income                                              | 12             | 7               | 13             | 5          |
| Unstable/Seasonal Income                                | 48             | 47              | 38             | 43         |
| Less than 10,000 Pesos                                 | 26             | 34              | 49             | 58         |
| 10,000 To 15,000 Pesos                                 | 13             | 17              | 15             | 16         |
| 15,000 To 20,000 Pesos                                 | 6              | 10              | 8              | 10         |
| Above 20,000 Pesos                                     | 11             | 2               | 9              | 2          |
| Total Responses                                        | 116            | 117             | 132            | 134        |
| No Responses                                           | 8              | 7               | 3              | 1          |
helped the upland farmers to increase their farm production that subsequently led to better income.

As Wirekoon (2011) believes, information technology has great potential for improving decision making in agriculture. Decision making in agriculture may include when to plant, how to plant, what kind of fertilizer is best suited for the plant, and when to harvest. Financial losses accordingly may be avoided or minimized if the farmer makes the right decisions based on the advisories he gets from ICT resources like a weather forecast from the radio or television and/or the current prices of the farmer’s agricultural products.

The middle poor upland farmers when interviewed confirm the fact that because of ICT resources, most of them were able to make the right decisions and because of this were able to avoid financial losses. One upland farmer for example, narrated that before he would sell his corn product, he would watch the television or listen to the radio for price updates. Those who have cellular phones or whose one member of the family owns one, would request the owner to call or text a friend in the market as to the price/s of farm products. According to the upland farmers, it would save them time, effort and most especially money by not going to the market area or buyer if the price is not right.

An upland farmer in the municipality of Quezon for instance narrated that 10 or eight years ago, he would plant and harvest twice a year only. But by viewing the television program on alternative farming, he learned to plant legumes to prevent erosion of his farm lot and at the same time earn extra income from selling the legumes.

Another upland farmer in the municipality of Impasug-ong learned how to control pests in the farm by listening to radio programs that discuss issues in farming like how to control pests in the farm or what kind of fertilizers to use to increase farm production. Increased production naturally would mean increase in income. These radio programs with agricultural advocacies were not frequently available 10 or even eight years ago. What was popular then in the air were soap operas, pop music and product advertisements.

For the new ICT, the cellular phones without a camera are popular among the upland farmers because of its affordability. Due to the fast upgrading of technology, the old models of the cellular phones can now be sold cheaply at Php500 that is affordable to the middle poor upland farmer.

As observed however, most of the upland farmers give or loan their cellular phones to a child who is studying either in high school or college. The farmers’ reason is simple and logical. Most of the farmers do not know how to use the cellular phone but their children know how to use it. The farmers would then require their children to make contacts with sellers of farm materials and buyers of their products. The farmers also get agricultural updates from their children through the cellular phone that would help increase their income. An example of this is a father in the municipality of Quezon who said that he would often request his son to contact buyers of his farm product and find out who gives the highest price. In this way, he said *dili maalkansi ang byahe menos gastos* (I won’t be wasting fare expenses) and of course he would be earning more if he knows where to sell his product with the highest price.

**Lowland Farmers**

Table 3 revealed that most of the lowland farmer respondents use both old and new ICT resources and have increased income compared to their income 10 years ago.
ago. The lowland farmers use the cellular phone mostly for fast and easy contacts and communication, and the radio and television for updates on new economic and political developments.

Compared to the upland farmers, the lowland farmers are more updated on the model of their cellular phones. This is because of their geographical nearness to the towns or urban areas. Their geographical location is also of advantage to them because the cellular signal or coverage is stronger and therefore, it is easier and faster to contact business persons or agricultural agencies.

To save time, effort and money, the lowland farmers use the cellular phones. The lowland farmers make business by using the cellular phones such as contacting their suppliers and consumers. In most cases, the lowland farmers do not need to go to the nearest commercial center to buy their farm needs. All they have to do is contact their suppliers and the needed materials will be delivered to their area at a very minimal cost. This would be to the advantage of the lowland farmers since according to them they could save time and money from not spending for a round trip bus or jeepney fare. The lowland farmers also do not need to spend for the distribution of their farm products because they can just text their clients/consumers of the availability of their farm products and the clients/consumers are the ones who would go to the farmer’s area to buy the products.

The cellular phone can also be used as an advisory tool. A lowland farmer for instance in Dalwangan was busy putting the harvested tomatoes on a wooden box while talking to a friend on the cellular phone as to the current price of tomatoes and whether it is raining in the city or not. In this way, he would know if he is going to deliver the tomatoes or not to a prospective buyer. The farmer said that having a cellular phone is a big help for he can make decisions that minimize losses. He said 10 years ago, it would have been banabana lang unya usahay masipyat, lugi (it’s more of an estimate or guessing the situation and price and if the estimate is incorrect, we incur losses). He further said that “unlike today when one can have all the market information needed so as not to incur losses from a simple touch of the cellular phone”.

The lowland farmers use the cellular phone to contact friends, relatives, former employers, and/or agencies to inquire for possible farm work. In the past, job seekers would spend time, effort, and money by going to several places to look for work. A non-land farm owner farmer in Libona for example said that he does not go around looking for farm jobs. He uses the cellular phone to contact possible employers or his past employers for job openings. Meanwhile that he is not working in the farm, he does carpentry work in the neighborhood.

The lowland farmers also use the radio and television to increase their knowledge on modern technology in farming. They believe that applying modern techniques in farming and other agriculturally related activities would increase their production and distribution of farm products that ultimately results to increased income. The radio and television further provide updates on current social and political developments that may influence the lowland farmers’ response to socio-economic or political issues. One of the issues for instance is the use of organic fertilizers versus the chemical-based fertilizer. Many lowland farmers learn about the advantages of organic fertilizer through radio and television programs. Unfortunately, the lowland farmers would still use the chemical fertilizer because it entails a shorter time for preparation and application.
Table 4  
*Upland and Lowland Farmers with Improved Income and Their Use/Non-use of ICT*

| Sector   | With ICT | Without ICT | Total |
|----------|----------|-------------|-------|
| Upland   | 28       | 2           | 30    |
| Lowland  | 43       | 0           | 43    |
| Total    | 71       | 2           | 73    |

*Influence of ICT over Improved Income among Upland and Lowland Farmers*

To finally determine the influence of ICT over improved income among upland and lowland farmers, Table 4 shows the farmer respondents who have improved income in the past 10 years with reference to their use/non-use of ICT. Table 4 shows 71 out of 73 respondents with improved income used ICT resources. Only 2 out of 73 have improved income without using ICTs. This showed the improvement in income is closely associated with ICT use. This affirms the enabling role of ICT in expanding the network of respondents in terms of economic, political and social opportunities. With better information and opportunities, the farmers are able to make better decisions that also result in them having improved income and capabilities.

*Conclusions*

Upland and lowland farmers may have differences in the frequency of access and use of ICTs but it is apparent that the farmers realize the importance of the use of ICTs not just in their farm but also in their social, economic and political activities. The proliferation of cheap and efficient ICT tools has made possible the gradual acceptance and use of the farmers of these ICT tools. It is thus a foregone conclusion that ICTs will be an important fixture in farming and are important tools for better and increased farm production leading to increased income and capability.

*Access and Utilization of ICTs among Select Senior Citizens in Bukidnon*

*Results and Discussions*

In this colorful era of Information and Communication Technologies (ICTs), the senior citizens have taken center stage. Never before has the senior citizens enjoyed such attention particularly in meeting their needs in this ICT generation. Several agencies and institutions all over the world are cognizant of the significance of the use of ICT in meeting the needs of the senior citizens and thus, have taken steps in including them in the formulation of policies that concerns ICT. This study, thus intended to find out how the middle poor senior citizens fare as far as the access and use of ICT is concerned in relation to poverty alleviation/reduction. It also examined how the access and use of ICT influenced the everyday socio-economic and political affairs/activities of the senior citizens.
ICT Resources Accessed and Utilized by the Senior Citizens

Table 5 indicates that both the old and new ICT resources are accessed and utilized by the senior citizens. The table further reveals that the old ICT (TV and radio) are still the most widely used by the senior citizens.

The senior members of both the upland and lowland farmer households are found to be users of ICT resources too. Seventy eight percent (78%) of the senior citizens view the television programs, 32% listen to radios and 26% use the cellular phones. As with the upland and lowland farmers, the most popular ICT resource used and accessed by the senior citizens is the television. This is followed by the radio and the cellular phone.

It is common perception that senior citizens especially those who belong to the middle poor do not use cellular phones. The assumption is that the senior citizens would find the cellular phone expensive and difficult to operate or manipulate. It was therefore a pleasant surprise for the researchers when they found that the senior citizens access and use cellular phones for communication with close members and relatives and for social networking purposes. This finding compounds with the study of Wareham et al. (2004) which state that with respect to the use of the mobile phone, “age did not appear to be a significant predictor, even though with respect to the Internet, a clear age threshold existed whereby inclusion fails after the age of 55.”

The access and utilization of ICT resources by the senior citizens is shown in Table 6. The senior citizens spend more time listening to the radio, although in Table 8, 78% of the senior citizens have televisions.

Table 5
Access to ICT of Senior Citizens Based on Purchased ICT from 1980-2011

| ICT                                | SENIOR ( n=105) | Responses | %  |
|------------------------------------|-----------------|-----------|----|
| 1. Radyo/Transistor                |                 | 34        | 32.4 |
| 2. Television (TV)                 |                 | 82        | 78.1 |
| 3. Telephone                       |                 | 1         | 1.0  |
| 4. Videoke/Karaoke                 |                 | 9         | 8.6  |
| 5. Cassette player                 |                 | 7         | 6.7  |
| 6. Cellphone with camera           |                 | 24        | 22.9 |
| 7. Cellphone without camera        |                 | 13        | 12.4 |
| 8. Cellphone with camera and radio |                 | 6         | 5.7  |
| 9. Fax machine                     |                 | 0         | 0.0  |
| 10. Cable TV                       |                 | 0         | 0.0  |
| 11. Computer                       |                 | 0         | 0.0  |
| 12. Computer with internet         |                 | 1         | 1.0  |
| 13. Laptop computer                |                 | 1         | 1.0  |
| 14. Laptop with internet           |                 | 0         | 0.0  |
| 15. Satellite TV                   |                 | 0         | 0.0  |
The senior citizens spend more time using the radio than television and cellular phones. Cellular phones and TV come in second and third, respectively. As shown in the table, of the 105 senior citizen respondents, only one uses laptop. It should be noted that these senior citizens come from a generation of radio and cassette players, hence their preference for the old ICT. The cellular phone and television, especially among the middle poor senior citizens were introduced when they were in their late 50s, and so they are not as enthusiastic as when they were younger. Although as observed by Martin (2009), senior citizens can readily learn how to manipulate new ICTs like the computer.

However, the senior citizens prefer television for entertainment and for eco-political information/activities. Most of the senior citizen respondents would turn to television if they want to be entertained or be updated on economic and political affairs. Their viewing time is mostly early in the morning and afternoon for news reports and early evening for entertainment.

The second preference for social information/activities among the senior citizens is the cellular phones. This is the fastest way to connect/communicate especially with their children, relatives and friends. It is possible that a cellular phone is also preferred to the landline telephone because it is more convenient in connecting to whoever they would like to communicate with, although most of the time the senior citizens would rather call from their cellular phones rather than text because they find it cumbersome and confusing to text. The senior citizens who do not own cellular phones rely on their children or relatives who have cellular phones and are living with them for contacts with other members of the family or friends. The same is true with the one who owns a laptop. She relies on her child to do the networking for her.

| ICT                              | SENIOR |
|----------------------------------|--------|
| 1. Radyo/Transistor             | 30     | 28.6 |
| 2. Television (TV)              | 21     | 20.0 |
| 3. Telephone                    | 1      | 1.0  |
| 4. Videoke/Karaoke              | 11     | 10.5 |
| 5. Cassette player              | 6      | 5.7  |
| 6. Cellphone with camera        | 23     | 21.9 |
| 7. Cellphone without camera     | 9      | 8.6  |
| 8. Cellphone with camera and radio | 6     | 5.7  |
| 9. Fax machine                  | 0      | 0.0  |
| 10. Cable TV                    | 1      | 1.0  |
| 11. Computer                    | 0      | 0.0  |
| 12. Computer with internet      | 0      | 0.0  |
| 13. Laptop computer             | 1      | 1.0  |
| 14. Laptop with internet        | 0      | 0.0  |
| 15. Satellite TV                | 0      | 0.0  |

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Influence of ICTs among the Senior Citizens in Their Economic, Political and Social Activities

Data gathered reveal that the senior citizens use both old and new ICT for economic, political and social activities. For political information, the senior citizens view the television while those who are in the field or in the farm use the radio for political information and updates. The senior citizens for example would be able to attend barangay meetings through announcements from the radio and exchange/share political and social opinions through the radio and television. Information on new or modern ways of improving farm produce for example are gathered through listening to radio programs on agricultural activities. Augmenting one’s income is also done by viewing the television programs that show different livelihood information and activities that teach the older people to be productive even if they do not go out from their houses.

The data gathered on the income of the senior citizens negated the usual expectation that senior citizens are not as economically productive as when they were in their younger years. Culturally, individuals who have reached their senior years are delegated to the background doing menial tasks and the most common task expected of them is taking care of their grandchildren. Because of this, a term apostolic (This term comes from the word apo, the Tagalog terms for grandson - thus apostolic means taking care of a grandchild) emerged as a form of a joke regarding the senior citizens’ new work assignment.

This ICT generation, however, has changed this reality into more active and financially productive senior citizens. The senior citizens are encouraged and inspired by the socio-economic programs that they view from the television or hear from the radio. A senior citizen for example from Impasug-ong stated that because of viewing the Salamat Doc TV program of ABS-CBN and listening to the Doc Alternativo radio program, she was able to increase her income by learning the uses of several local herbal plants. She gathered these herbal plants and started selling to her friends in the community. She was able to reestablish contact and communication with her old friends and acquaintances by making one of her grandchildren use the cellular phone. Clearly, the use of ICT expanded the senior citizens’ socio-economic networking that makes them active and productive members of the household.

Influence of the Use of ICT on the Income of Senior Citizens

In order to determine the influence of ICT over the income of the respondents, those with improved income were selected and their use or non-use of ICT recorded. Data gathered reveal that most senior citizen respondents use ICT. This showed that among the respondents who have improved income over a ten year period, most of them use ICT devices to advance not just social and political concerns but more importantly they use it for economic reasons.

Conclusions

The access and use of ICT resources of the senior citizen respondents show that age is not a barrier to raise one’s income. In this ICT generation, it is inevitable that the senior citizens would access and utilize ICT resources and thus continue to be economically productive members of the family and the community where they belong. It is thus, a given that the use of ICT will bring about improved income
consequently contributing to poverty alleviation/reduction. Further, the television, radio, and cellular phone empower the senior citizens to maximize their social networking that bring added income and expand their social world.

Conclusions

Across the three sectors, the access and use of old and new ICT vary depending on their social, economic and political purposes and activities. Among the respondents whose income have improved in the past 10 years, their use and access of ICT resources directly and indirectly contribute to their having improved income and capabilities.

The expansion of the respondents’ social network with the use of ICT, enabled them to link/communicate for social, economic and political purposes. It enabled them to have better information in making decisions. It allowed them to have better opportunities for finding work, establishing business, gaining better prices for their produce, access weather information, link with old and new friends, and participate in the activities in schools and the community.

In this ICT generation, it is inevitable that the three sectors would access and utilize ICT resources. With its access and use, the respondents have improved income and capability especially among the selected upland and lowland farmers and senior citizens. Their preference for television, radio, and cellular phones led them to have better income and capability.

Recommendations

It is important that the government provide poverty alleviation policies in terms of the use of ICT resources. The following poverty alleviation policies are recommended: a) In giving information regarding economic/employment opportunities, the LGUs/NGO/business sector should utilize the television, radio and the cellular phones to reach out to these sectors; b) The education institutions like CHED/DEPEd/TESDA/, and LGUs are enjoined to invest in distance learning courses using television, radio and internet to increase capabilities of people; and c) Seek the involvement of education institutions, local government units, telecommunication companies, nongovernment organizations to improve the ICT infrastructure so new technologies like the internet be available not just in the three sectors but the rest of the people of Bukidnon.

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