Mauritius Research and Innovation Council

INNOVATION FOR TECHNOLOGY

DIGITAL INCLUSION AS ONE OF THE ENABLER OF ACTIVE AGEING: EMPOWERING THE ELDERLY TO USE WHATSAPP AS AN INNOVATIVE COMMUNICATION TOOL IN MAURITIUS

Final Report

May 2019

Mauritius Research and Innovation Council

Mauritius Research Council

DIGITAL INCLUSION AS ONE OF THE ENABLER OF ACTIVE AGEING: EMPOWERING THE ELDERLY TO USE WHATSAPP AS AN INNOVATIVE COMMUNICATION TOOL IN MAURITIUS

Dr Goonesh Kumar BAHADUR, Ms Reena ITTEA & Mrs Shamim AJAHEB-BAHADOOR

UNIVERSITY OF MAURITIUS

MAY|2019

Table of Content

List of Tables

List of Figures

Acknowledgements

Executive Summary

Elderly people today constitute a large part of world population, and a substantial growth is projected to increase in the coming decades. In Mauritius, older people represent a growing section of the Mauritian society and the population of elderly has been on the increase since 1962 from 5.4% to 12.3% in 2012. With the rapid progression of technology in Mauritius, there is a significant proportion of the population that remains digitally 'excluded'; and among them are the elderly population. The lack of ICT access and technological skills has been regarded as major challenges for the ageing people who are still very much digitally excluded in many developing countries.

One of the main aims of this project, is to bridge this gap by developing an interactive learning tool to help elderly people to make use of WhatsApp, a free communication tool through their smartphones. This will contribute towards significantly improving the quality of their life and tackle loneliness through easy interaction.

The animated learning tool on 'how to use WhatsApp' has been developed using several software to include animations, use of symbols and voice over in Creole Language to cater for those who have a very low literacy level. The final product has been tested in two Community Centres in Mauritius with 44 elderly persons aged 55 to 80 years old.

Several sessions of training have been held over a period of 8 weeks. After the face to face training, all participants have demonstrated their ability to use WhatsApp to carry tasks like calling a friend/ relative, sending voice messages, taking pictures and making video calls to relatives and friends who live in Mauritius and abroad. Also, after the training, the animated learning tool has been revised and distributed to the participants.

1.0   INTRODUCTION

It is known fact that people around the world are ageing rapidly. According to UN Report 2015, "*In 2015, one in eight people worldwide was aged 60 years or over. By 2030, older persons are projected to account for one in six people globally. By the middle of the twenty-first century, one in every five people will be aged 60 years or over*". As of today, elderly people constitute a large part of world population, and a substantial growth is projected to increase in the coming decades. "*Between 2015 and 2030, the number of people in the world aged 60 years or over is projected to grow by 56 per cent, from 901 million to 1.4 billion, and by 2050, the global population of older persons is projected to more than double its size in 2015, reaching nearly 2.1 billion*" (UN 2015).

Older people represent a growing section of the Mauritian society. According to the latest data for 2012 released by the Ministry of Health, the proportion of the elderly, aged 60 years and above has increased from 5.4% of the total population in Mauritius in 1962 to 12.3% in 2012, compared to 9.1% in the year 2000 and showing an average increase of about one per cent per year. Statistical projections show that the population growth rate will follow a negative trend as from year 2032 and the total population of Mauritius will decrease from 1,305,310 in 2027 to 1,303,313 in 2032 and may reach 1,188,403 in 2052 (Source: Ion News). It is therefore becoming importantly challenging to enhance the overall well-being and quality of life of older people in line with the "*active ageing*" concept (WHO 2002).

With the rapid progression of technology in Mauritius, the Ministry of Technology, Communication and Innovation has provided free Wi-Fi access in 350 public places to the public including Community Centres, Social Welfare Centres, Women Centres, `Youth Centres, Village Councils and Post Offices. Therefore, the need to make older people more technologically and socially included and updated is becoming even more relevant in terms of re-skilling and up-skilling, especially in social interaction and communication aspects where ICT plays a central part.

This research therefore, focusses on the elderly use of WhatsApp, which is currently one of the most popular application with over more than 1.2 billion monthly active users in January 2017 and 30 billion messages sent via over billion of active users daily worldwide (Statista, 2017). It is the fastest growing communication app to date among people of all ages, and

especially among the elderly. However, the lack of ICT access and technological skills has been regarded as major challenges for the ageing people who are still very much digitally excluded in developing countries.

This study has consequently targeted elderly people from 55-70 years who are regular members of St-Pierre and Port-Louis community centres. A preliminary questionnaire has been distributed to know the number of participants who are keen to learn about how to use WhatsApp and the reasons why they want to use WhatsApp. The project is consequently a major step in helping the elderly people to be socially and digitally more connected.

2.0   LITERATURE REVIEW

The world around us has been changing profoundly: on the one hand, both developed and developing countries are experiencing an important demographic transformation in terms of unprecedented ageing population (Gil, 2019); and on the other hand, we are living in an interdependent and interconnected world driven by technological progress. We are witnessing how ICT has a transformative impact on every aspect of people's life, be it personal, professional or educational among others. However, despite the rapid proliferation of digital technologies, there is a significant proportion of the population that remains digitally 'excluded'; and among them are the elderly population. Yet, within this frame, media and communication technologies seem to be more and more relevant in helping people to grow old actively (Aroldi *et al*., 2014).

In fact, digital media use is widely dominated by studies with respect to children and youth, but is underdeveloped with respect to older people (Colombo & Fortunati, 2011; Mihailidis, 2014). But with the increasing number of senior citizens worldwide and in Mauritius, it is imperative to consider the opportunities that technology could give to this group.

According to Minosha & Holland (2013), ICTs have tremendous potential to improve the quality of life of the elderly: creating social networks to alleviate social isolation and loneliness; transforming services to help people live independently at home for longer; empowering consumers; maintaining nurturing growth of their interests and hobbies, enabling civil participation and to get better health assistance. Digital inclusion plays a crucial role in building a fair and equitable society and consequently, helps to empower the elderly.

In fact, several studies have analysed the needs of the elderly to be digitally empowered. In the first instance, the needs and concerns of older adults as ICT users appear to differ from those of younger users. In their research, Wagner *et al.* (2010) and Mann *et al*. (2005) found that communication, social support and increased contact with family and friends are the impetus for being digitally included. White & Weatherall (200) also found that leisure and entertainment as well as leisure seeking are also among the main activities that that older adults engage in within the digital arena.

ICT solutions are increasingly more widely employed as a loneliness-reducing intervention, as well as a means to help older people to help themselves. As a result, access to, and effective use of, ICT-based networks promote the empowerment of elderly people and help them to gain power and control over decisions that determine the quality of their lives (Nugent, 2007).

Social interactions are essential for the welfare of the elderly. Cornwell & Waite (2009) discussed how social disconnectedness (e.g. limited social network and occasional involvement in social activities) and perceived isolation (e.g. loneliness and lack of social support) affect the physical and mental health of the elderly. The findings of Zhu *et al*. (2012) shows the importance and needs of older people to be socially connected with family; elderly who have better cognitive function are those who have more family support.

In his research, Ala-Mutka (2009) underlines how ICT can provide new avenues to create learning opportunities for elderly people, both for "*organised education and for building communities for informal learning and communication*" although "*opportunities for participating to meaningful learning activities in old age are scarce*". It is therefore important to develop projects and training to equip the elderly with the necessary skills to use easy and free applications to will help them to remain socially and digitally included.

For Llorente-Barroso *et al*. (2015), though there is relatively less research on the topic, recent studies show that social aspects such as communication have been identified as an important part of active ageing. Moreover, according to Ma-cías-González & Manresa (2013), older people having prior contact with ICT feel greater motivation to learn more about the subject and see these technologies as a helpful tool.

Nonetheless, there is growing research interest in this field to analyse how older people's access to technology can significantly improve the quality of their life and tackle loneliness through easy interaction. In an increasingly digitised society like Mauritius, WhatsApp which is a relatively straightforward app to use for verbal interaction can enable older people to keep in touch with both close and extended networks to maintain and reinforce family and personal ties.

The last decade has seen a growing number of research and publications discussing new ideas and methodologies on how social media can improve the quality of life of older adults. (Cornejo *et al*., 2013; Haris *et al*., 2015; Bell *et al*., 2013). Obar and Wildman (2015) identified four commonalities of current social media services, namely:

(a) They are Web 2.0 Internet-based applications;

(b) Its lifeblood is user-generated content;

(c) Individuals and groups create user-specific profiles; and

(d) They facilitated the development of social networks online by connecting a profile with those of other individuals and/or groups

Today, social networking has become a vital part of everyday life for many older people. We can notice an evolution in the personal interests and communication patterns among the elderly. According to Madden (2010), from 2000 to 2009, there was an increase of 70% in the use of Internet among people aged between 50–64 years, and a 38% increase by those over 65 years. He also pointed out an increase of 88% in the use of social media by people aged 50–64 years, and a 26% increase by those over 65 years in 2010 (Madden, 2010).

Obar *et al*. (2015) describes social media as internet-based applications that create links among users and user-generated content in online environments. They are often used to help people to interact via blogs, forum, numerous communities, virtual games and social networking sites. According to survey analysis on the impact of WhatsApp, Kumar and Sharma (2017) stated that "…currently whoever you chat through WhatsApp, you develop intimate conversations." In fact, WhatsApp has created some kind of belongingness and intimacy with friends and relatives; some kind of psychological expertise of being shut and caring. (Kumar & Sharma, 2017). Groups created on WhatsApp play an essential role in these dynamics by allowing the elderly to be in touch with relatives and friends either local or abroad.

For Rosales & Fernandez-Ardevol (2016), WhatsApp is currently among the most popular application used by older adults. It is often associated to a flat rate bill, and has no limitations. In fact, it is quite easy to access and much cheaper than phone calls or text messages, which makes it more attractive to older people. They are now fast in embracing the social networks platform, especially applications easy to use like WhatsApp, to help maintain a regular

contact with their families and friends, and even manage their daily communications like sharing links, photos, videos, news and status updates (Bell *et al.*, 2013).

If WhatsApp has taken a major leap in people's life today, there is however limited research and literature available in the Mauritian context, with reference to WhatsApp usage. Most of the studies cited studies were done on foreign context.

3.0   AIMS & OBJECTIVES

3.1   Aims

This project aims at making WhatsApp a usable and accessible application for elderly people to use to communicate. It involves an innovative approach to develop basic technological knowledge and skills of the elder people by empowering them through WhatsApp to become more active users of technology. It will also be an opportunity for lifelong learning for this age group and to show them how they can use technology to enhance their lives. The project also aims at inspiring and stimulating the shift to a new paradigm that views the elderly people as more digitally active even if it is only at the personal level. This new paradigm also calls for programmes and training that support learning at all ages and help to project a more positive image of ageing.

3.2   Objectives

The project will ensure that the target group should be able to:

i)   Gain a basic notion of what are internet, Wi-Fi and smartphones.

ii)   State the different functions of WhatsApp.

ii)   Socialise better, communicate with their immediate kin through the use of free WhatsApp applications including: making and receiving voice and video calls, sending and receiving voice messages and pictures.
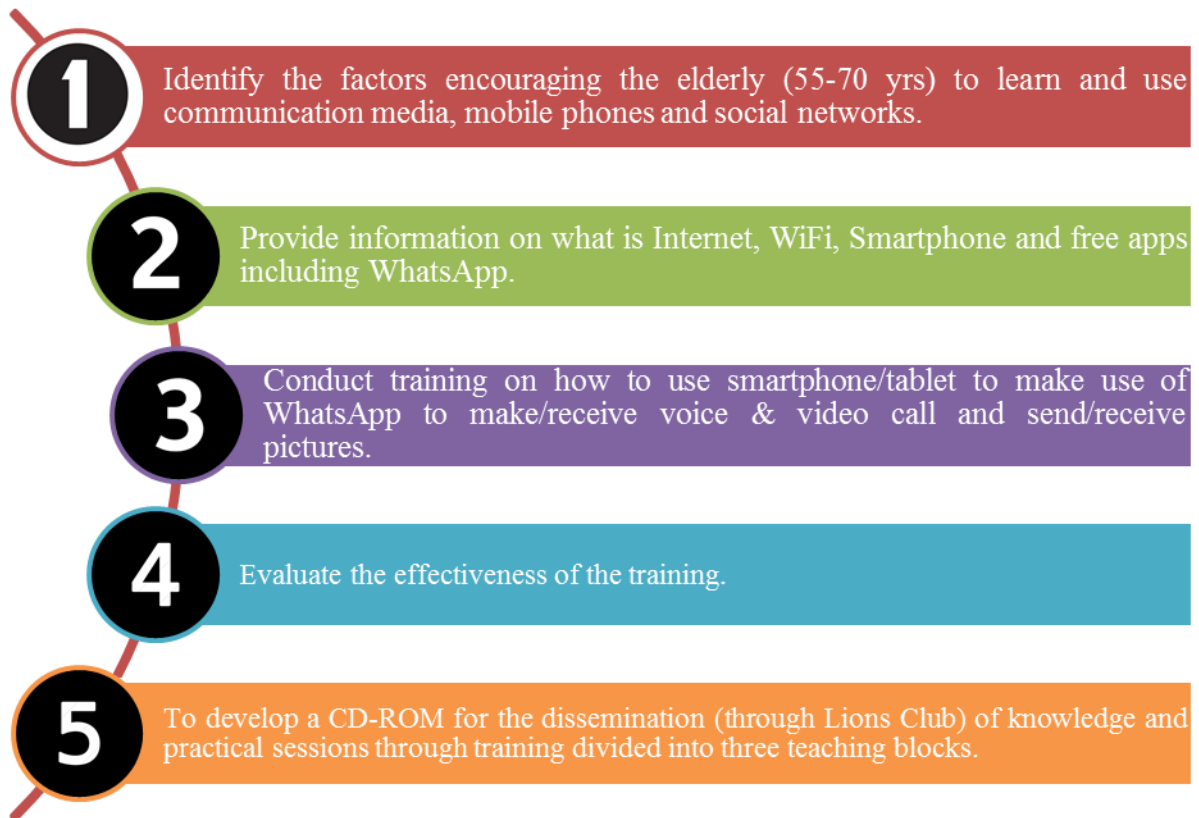
Figure 3.1: Objectives of the Study

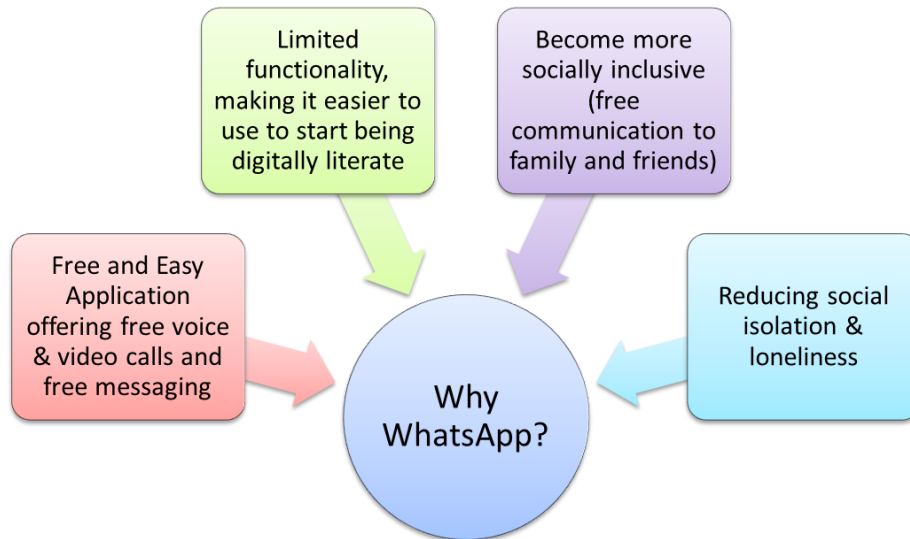## 3.3   Rational for using WhatsApp

Figure 3.2: Rationale of Using WhatsApp

4.0   METHODOLOGY

The target audience for this project is elderly people aged 55 – 81 years and who have been identified from 2 Community Centres in Mauritius: Circonstance, St-Pierre (26 people) and Camp Yoloff, Port-Louis (18 people). The training is structured as 3 Building Blocks; each block representing 2 sessions (of up to 1½ hours each) with the audience. Provisions are also made to have two additional sessions for those requested more explanation and/or hands-on to be confident and conversant with the application. Since a large proportion of the target audience from Saint Pierre has only primary education (majority of participants in Port-Louis have up to secondary level of education), we have used Creole language as medium of explanation within the animation.

4.1   Preliminary Survey

However, prior to the development of the learning resource, a Preliminary Survey was carried out in the two Community Centres to investigate about whether this target group was interested to learn about WhatsApp; the motivation behind their interests; and their level of education which was a prime factor that impacted on the level at which the learning resource would be pitched.

A total of 42 people showed interest to participate in this learning project. It was found that through the preliminary survey, that they are willing to gain knowledge and know-how of using the new technical tools for information, communication and exchange because they feel such knowledge can be useful to them mainly to keep in touch regularly with children, family and friends both in Mauritius and abroad.

The use of technology as an enabler for social contact and involvement can be very successful, but many older people need help, guidance and support at the start. For instance, out of 22 prospective participants at Circonstance Community Centre, 10 participants have a smartphone but 60% of those having a smartphone; do not know what a smartphone is. Similarly in Port-Louis, 9 out of 20 participants have a smartphone but 80% do not know how to use it. Despite this lack of information and knowledge, a large majority has shown strong willingness to learn how to use WhatsApp to communicate with their children in Mauritius and abroad; and some want to learn how to send pictures to family members.

Malanowski *et al*. (2008), in their research, predict a number of elderly nonusers of ICT in the near future who will be at risk of being excluded from important social domains. For elderly adults who are not comfortable with IT, feelings of exclusion may increase. Since many old people can feel uncomfortable with social networking sites because it can be confusing with too many functions and information, we have opted for WhatsApp due to its simplicity and ease of use to make calls, both voice and video.

In the preliminary survey conducted for this project, 50% of interested participants from St-Pierre Community Centre (as shown in diagram) do have WhatsApp but 72.7% have never used the WhatsApp application. Similar trends can be noticed in Port-Louis, whereby out of 65% of participants who have WhatsApp, 70% have not used it.

The survey also revealed that 50% of interested participants from St-Pierre Community Centre (as shown in diagram) do have WhatsApp but 72.7% have never used the WhatsApp application. Similar trends can be noticed in Port-Louis, whereby out of 65% of participants who have WhatsApp, 70% have not used it.

St-Pierre

	Have you ever used whatsapp?	Do you have whatsapp?	Do you know what a smartphone is?	Is the mobile phone a smartphone?	Do you have a mobile phone?
No	16	11	13	12	1
Yes	6	11	9	10	21

Port-Louis

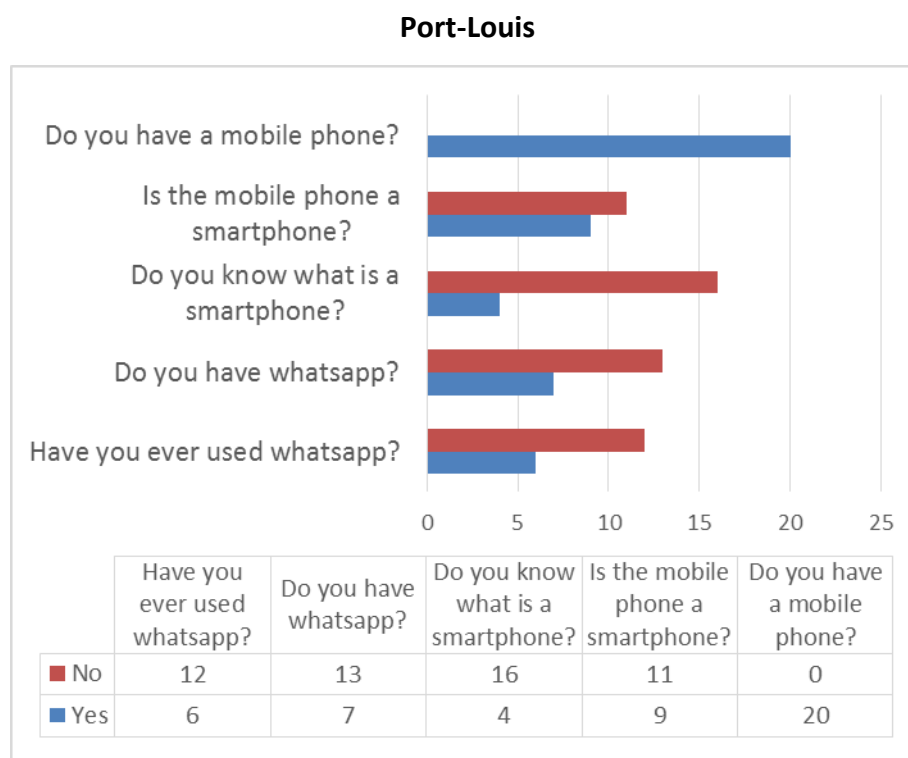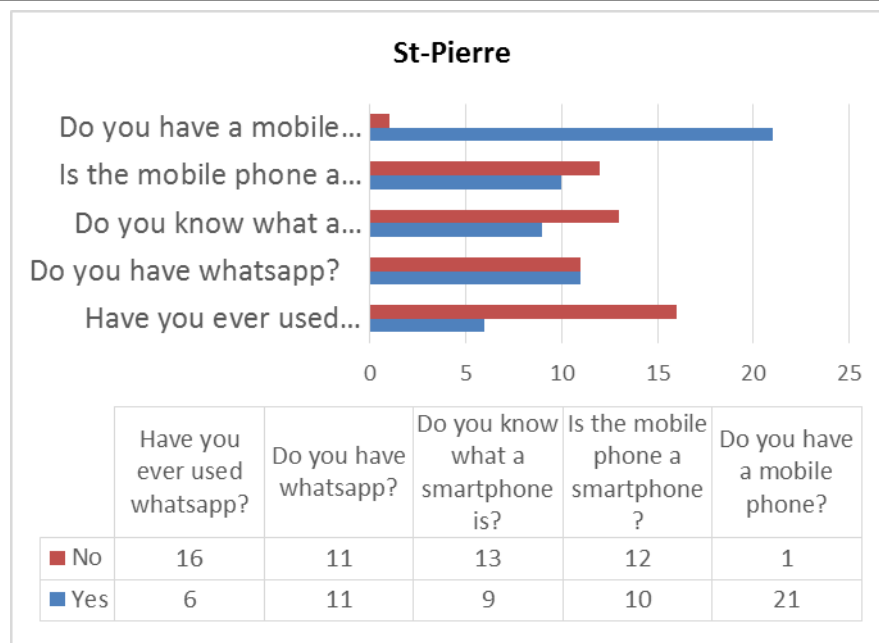|	Have you ever used whatsapp?	Do you have whatsapp?	Do you know what is a smartphone?	Is the mobile phone a smartphone?	Do you have a mobile phone?
No	12	13	16	11	0
Yes	6	7	4	9	20

Figure 4.1: % Participants having WhatsApp but have never used the Application

Church & Oliveira (2013), in their studies, found that the benefits offered by WhatsApp such as cost saving, the capability of group chat and unlimited text messaging, are the factors that cause people to make use of such free Apps. WhatsApp has been selected for this research basically because it offers limited functionality and focus (voice/video call and messaging) that makes it easier to use. We have also narrowed our research on voice and video calling and sending and receiving pictures because of the varied educational background of participants (**Table 3.1**) that can make it complex for the elderly to type (to send messages) and their relatively low level of comfort with technology. Also being able to talk as well as see and talk to children and family puts more emphasis on relationships.

Level of Education	Number of Respondents	
	St-Pierre	Port-Louis
Primary	8	6
Secondary	13	14
Tertiary	1	0
Total	22	20

Table 4.1: Level of Education of Participants

4.2   ADDIE Model

For the purpose of this study, the ADDIE model has been opted for as it is simple but very useful. The simplicity of the ADDIE model lies largely in its linearity that provides a step-by-step framework of each sequence of the learning lessons to ensure learners meet the specific objectives set. Therefore, it allows for clear learning outcomes and related structured content. It also caters for *"controlled workloads*" for the specific target audience. Along with the content, the learning activities, integrated media and assessment are strongly linked to the stated learning outcomes. "*Although these good design principles can be applied with or without the ADDIE model, it is a model that allows these design principles to be identified and implemented on a systematic and thorough basis*" (Bates, 2014). Therefore, for this study with the elderly, the ADDIE model lends itself to a neat organisation, implementation on a

methodical basis as well as a useful management tool to ensure learning outcomes are met by the target audience.

The diagram below shows the different phases as well as the objectives of each of the model. The right-hand side of the diagram depicts the activities that need to be conducted to achieve the objectives.
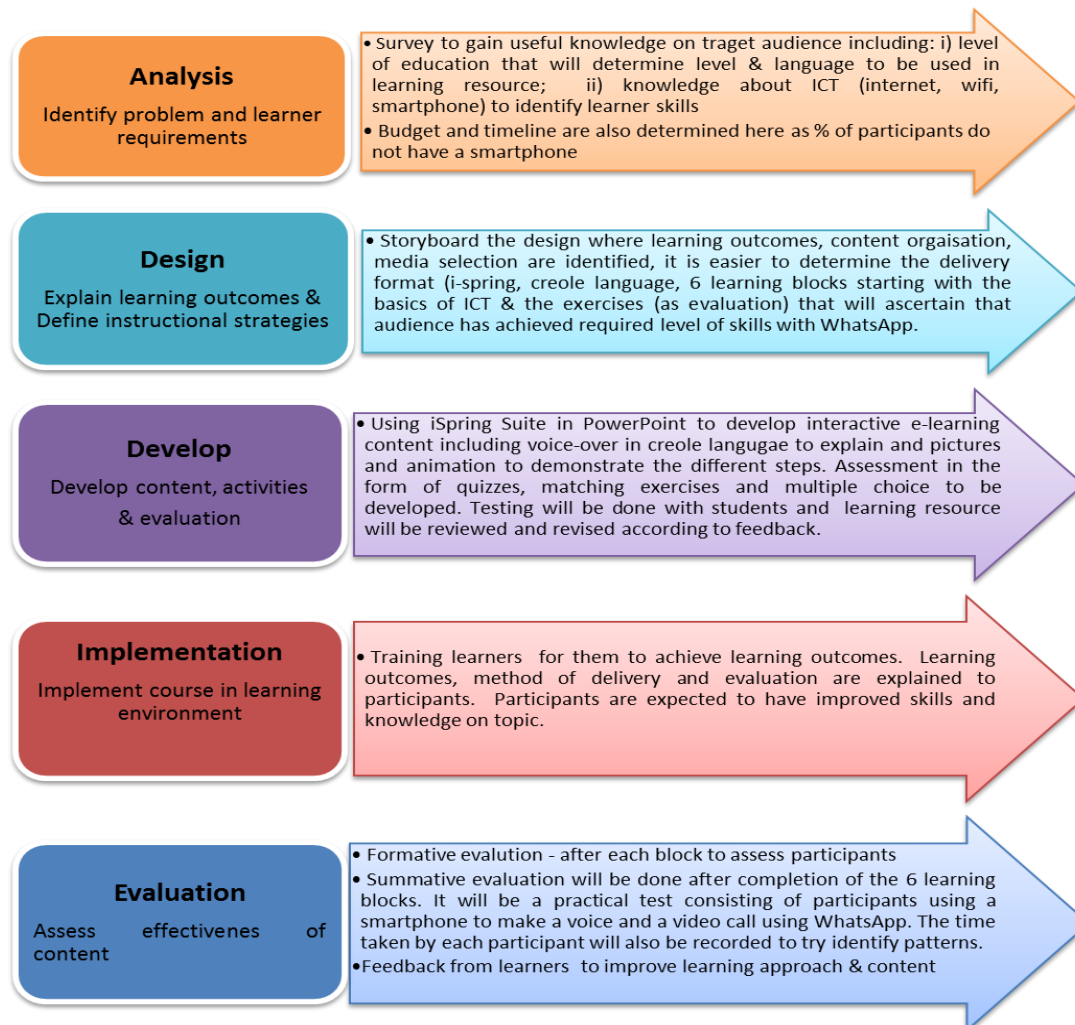

Analysis
Identify problem and learner requirements

- Survey to gain useful knowledge on traget audience including: i) level of education that will determine level & language to be used in learning resource; ii) knowledge about ICT (internet, wifi, smartphone) to identify learner skills
- Budget and timeline are also determined here as % of participants do not have a smartphone

Design
Explain learning outcomes & Define instructional strategies

- Storyboard the design where learning outcomes, content orgaisation, media selection are identified, it is easier to determine the delivery format (i-spring, creole language, 6 learning blocks starting with the basics of ICT & the exercises (as evaluation) that will ascertain that audience has achieved required level of skills with WhatsApp.

Develop
Develop content, activities & evaluation

- Using iSpring Suite in PowerPoint to develop interactive e-learning content including voice-over in creole langugae to explain and pictures and animation to demonstrate the different steps. Assessment in the form of quizzes, matching exercises and multiple choice to be developed. Testing will be done with students and learning resource will be reviewed and revised according to feedback.

Implementation
Implement course in learning environment

- Training learners for them to achieve learning outcomes. Learning outcomes, method of delivery and evaluation are explained to participants. Participants are expected to have improved skills and knowledge on topic.

Evaluation
Assess effectivenes of content

- Formative evaluation - after each block to assess participants
- Summative evaluation will be done after completion of the 6 learning blocks. It will be a practical test consisting of participants using a smartphone to make a voice and a video call using WhatsApp. The time taken by each participant will also be recorded to try identify patterns.
- Feedback from learners to improve learning approach & content

Figure 4.2: ADDIE Model

19

4.3   Software Used

The learning resource to be used in the training has been designed using the software Adobe Flash (the latest version is CS6) which is not limited to animation and but it also allows content from Photoshop or Illustrator can be exported and animated within Flash. The learning resource is an interactive animation involving much visual aspects and the use of Creole language to make the resource o that it is easily accessible and understandable to the elderly. I-Spring Suite 8 has been used to design the evaluation (summative and formative) part of the training. Because of the diverse educational background of the interested participants, specific tailor-made training content has been developed to address their needs.

4.4   Overall Testing Summary

Suitable systematic steps were taken during the test process in order to make sure that the final flash program is free from errors. Feedback from the test results were incorporated in the systems final design. This led to a final flash program which has a professional look, easy navigation with good interaction of sound and text.

Training was carried out in the Social/Community Centres that have been earmarked for the research. Eventually, a learner-friendly CD Rom with all learning content and interactive evaluation was distributed to all participants and same will be distributed to all the Social/Community Centres across Mauritius to address the needs of the elderly.

5.0 DEVELOPING LEARNING RESOURCE

5.1 Block A

Each block is divided into two sessions. The first block, under session 1 introduces the learners to the concept of Internet and how it relates to communication and the types of technologies that can be used to access the internet. The focus is to teach the users how to connect their smart phones to the internet by using WIFI. Secondly learners will be introduced to WhatsApp and will be shown how to install it on their smart phone (under session 2).

A lady cartoon figure has been created using Adobe Illustrator and has been named Sarah. The voice over has been recorded in house and Adobe Premiere software was used to do the editing of the voice (Audition and After Effect). The duration of the first block was 5 minutes. Creole language, the mother tongue of all participants, used in the animation, was clear and easy to understand.

Here various symbols and logos are introduced to the learners. More details of Block A are provided in the table below:

Outcomes	Steps
SESSION 1	
By the end of this session, learners should be able to: 1. **Differentiate between a standard mobile phone and a Smartphone.** 2. **Recognise the different symbols/icons on a Smartphone.** 3. **Put Wi-Fi on.**	- What is a Smartphone? - How a Smartphone is different from a standard mobile phone – explain the various uses and applications available on a Smartphone. - Explain the importance of having Internet connection or WiFi – recognize the WiFi icon and how to put it on, and Data plan (in case WiFi is not available). - Show how to put WiFi on.

SESSION 2	
By the end of this session, learners should be able to: 1. **Recognise the WhatsApp icon on their smartphone or tablet.** 2. **Download WhatsApp on the Smartphone.** 3. **Connect to Internet, either by using WiFi or Data Plan.** 4. **Set up WhatsApp on their phone or tablet.**	- What is WhatsApp? - The uses of WhatsApp – to send text messages, pictures, videos, make voice or video calls, etc. - Explain why it is a popular application. – Free (apart from having WiFi connection), safe and relatively easy to use. - For those who do not have WhatsApp, explain how to download and install it on the Smartphone or tablet. - Explain how WhatsApp works – elaborate on the similarities and differences between WhatsApp and other traditional text messaging. - Show how to set up WhatsApp on their smartphone or tablet.

Table 5.1: Block A

At the end of Block A, in order to test whether the learners have understood the topic, a formative evaluation **[Annex 2]** was carried out consisting of 4 questions. They ranged from the simplest to more complex questions. The questions were also be accompanied with a voice over in Creole. Simple questions such as identifying symbols related to WIFI and smart phones have been considered.

5.2 **Block B**

The same software has been used to make Block B with the same cartoon character. The second animation will provide a step by step explanation on how to use WhatsApp to make a voice call (session 3) and to be involved in a chat conversation using chat message with another person (session 4). More details of Block 2 are listed in the table below.

Outcomes	Steps
SESSION 3	
By the end of this session, learners should be able to: 1. **Access the Contacts.** 2. **Explain how to add a person to contact and explain how to import contacts from address book automatically to WhatsApp.** 3. **Recognise the 'Call' button on a Smartphone or tablet.** 4. **Start and end a voice call.**	▪ How to access the '**Contacts**' by typing **the name of the person** you want to call. ▪ How to open the conversation and tap the '**Call**' button to start your conversation. ▪ Explain how to answer an incoming call by sliding the 'answer' button to accept the call. ▪ Discuss about the various options like how to use 'speaker' and end a call. ▪ You must ensure that the friends who you wish to message have WhatsApp installed on their phones. ▪ Start a chat - tap on the **new chat** icon and select a contact's name.
SESSION 4	
By the end of this session, learners should be able to: 1. **Access the text bar.** 2. **Recognise the different icons – send and call buttons, camera, etc.** 3. **Start a conversation on WhatsApp with a contact.** 4. **Send and receive chat messages on WhatsApp.**	▪ Explain how to access the text bar, type and send a message to their contacts. ▪ Verify if message has been sent – check of the double ticks, colour code, etc. ▪ See if their contact is online or offline. Send a short voice recording.

Table 5.2: Block B

A formative evaluation consisting of 4 questions **[Annex 3]** will also carried out at the end of Block B.

5.3   Block C

In Block C, users get to explore the other tools available in WhatsApp like voice recording, taking and sending pictures and small videos to another person. Step by step clear instructions are provided in the animation. Details of what the users will learn in Block C are listed in the table below:

Outcomes	Steps
SESSION 5	
By the end of this session, learners should be able to: 1. Access the Contacts. 2. Recognise the 'Call' button on a Smartphone or tablet. 3. Send and listen to voice recording.	- How to access the '**Contacts' by** typing **the name of the person** you want to send a voice message. - How to start a voice recording and tap the **'Record'** button. - Explain how to listen to an incoming voice message.
SESSION 6	
By the end of this session, learners should be able to: 1. Take pictures and make small video recordings. 2. Send pictures and video recordings to your contact.	- Explain how to take and save pictures. - How to access your pictures. - Swap from pictures to video recordings. - How to make short video recordings and send it to your contacts.

Table 5.3: Block C

A summative evaluation was carried out at the end of Block C whereby participants will have to demonstrate their ability to put WiFi on in their smartphones; to use WhatsApp to make a call, to send a chat message and to send a picture to their contact.

Figure 5.1: Block C

5.4   Piloting and Testing the Learning Blocks

Before implementing the project in the community centres, a sampling strategy of five elderly persons above 60 years old will be used to test and pilot the product. The aim of this piloting will be to gain feedback on the resource that has been developed. The pedagogical and technological aspects will be considered based on any constructive feedback. Necessary amendments has then been made to the learning resource.

6.0   RESULTS AND ANALYSIS

The learning blocks were implemented in February 2019 in the two community centres.

Background

Prior to the development of the learning resource, a Preliminary Survey was carried out in the two Community Centres to investigate about whether this target group was interested to learn about WhatsApp; the motivation behind their interests; and their level of education which was a prime factor that impacted on the level at which the learning resource would be pitched.

A total of 42 people showed interest to participate in this learning project. It was found through the preliminary survey, that the prospective participants were willing to gain knowledge and know-how of using the new technological tools for information, communication and exchange because they feel such knowledge can be useful to them to feel included in the digital world and very importantly, to keep in touch regularly with children, family and friends both in Mauritius and abroad.

6.1   Implementation

The implementation phase - training at the two Community Centres, Circonstance, St-Pierre and Camp Yoloff, Port-Louis - started in February 2019 with a total of 44 participants.

St-Pierre

Training at Circonstance Community Centre in St-Pierre started on 7 February 2019 and was conducted at a frequency of twice per week upon availability of both the Centre and participants. Although 22 people initially showed interest to participate in the project during the Preliminary Survey, 26 participants turned up during the Implementation phase. As earmarked in the Methodology, 6 sessions + 2 additional training days were required (mainly because it was a large group) to complete the learning resources; make the participants feel confident and autonomous to get connected to Wi-Fi (Wi-Fi Mauritius) to use WhatsApp to make both a voice/video call; and to conduct both formative and summative evaluation. There were four (4) men and twenty-two (22) women who attended the training sessions.

Port-Louis

The implementation phase took place a Camp Yoloff Community Centre, Port-Louis. Six sessions were conducted over a period of seven weeks from 12 February to 25 March 2019. 18 participants consisting of sixteen (16) women and one (1) man who responded positively and were present for all the six sessions, Most of them were literate, so it was easy to communicate and they understood fairly quickly. As we moved along with the training, participants felt more confident and autonomous to connect to Wi-Fi (Wi-Fi Mauritius), use WhatsApp and its various applications.
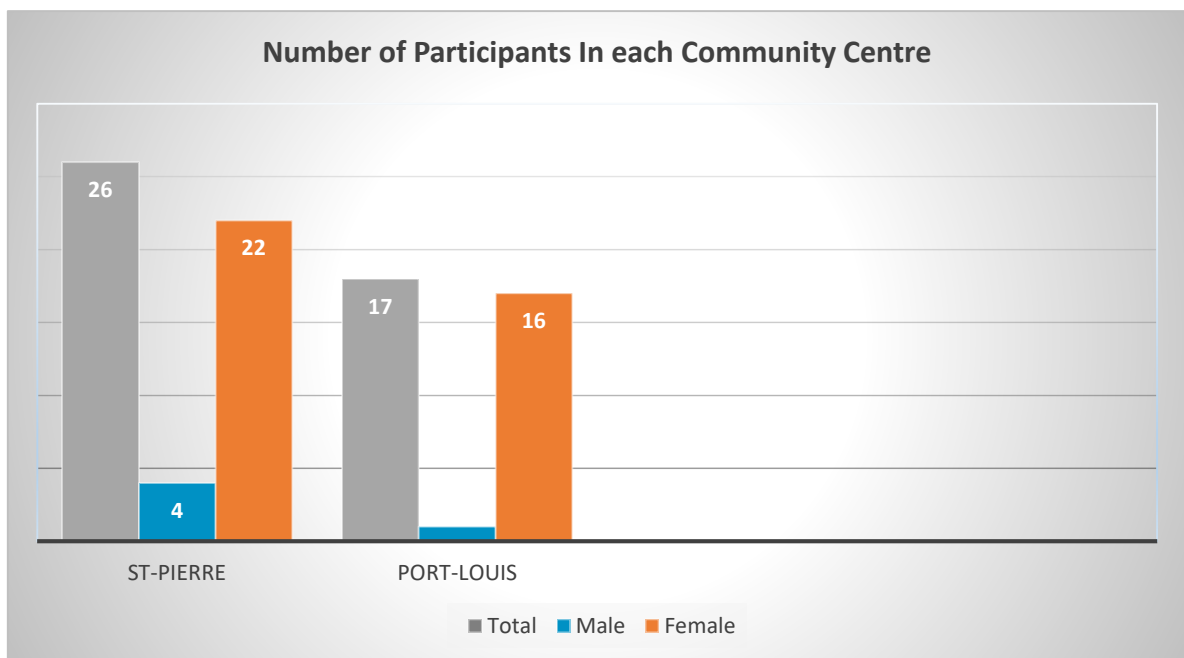
Figure 6.1: Number of Participants

A printed guideline (with diagrams) was provided to the participants at their request on what was covered under each Block. This document was a valuable tool that helped them during their practice at home.

At the end of the implementation, a CD was also provided to them to guide them through their learning about the use of WhatsApp.

6.2   Time Plan

BLOCK 1 comprises of two (2) sessions namely
-   Session 1: What are Internet, Wi-Fi and a Smartphone?
-   Session 2: Setting up WhatsApp on Smartphone/Tablet

Saint-Pierre

It was completed in three (3) face to face trainings. More than 50% of the participants had no notion of what are internet and WiFi. They needed repeated explanations and demonstrations on how to connect to Wi-Fi on their smartphones. Because connecting to WiFi Mauritius comprises of several steps, it was quite difficult for them to understand how to proceed. Despite demonstrations were done several times, all participants needed assistance for the first time they connected to WiFi Mauritius. It clearly showed that these people did not know how to access free WiFi that Government provided in 350 public places in Mauritius.

Nevertheless, participants were so amazed and interested to learn about Session 1 that they recommended other people to join in for Session 2. Unfortunately, we could not accept more participants as this would have impacted on the quality of training as most participants required individual attention because of their literacy level and/or low ICT skills and knowledge. Nevertheless, we gave those people a CD to guide them in the use of WhatsApp.

At the end of Block 1, participants requested to have printed handouts with pictures to help them practice and remember what has been covered. Therefore, handouts were designed and distributed to participants after each Block.

Port-Louis

Learning Block 1 was covered during the first session. Most of the participants (70%) were familiar with Wi-Fi and has used it but they needed some demonstration on how to put Wi-Fi on their smartphones. The major difficulty was to log on to Wi-Fi Mauritius which most participants found quite complicated. We had to assist them but by mid-session, most of them had their Wi-Fi on and could access the Internet. The video was played and we regularly stopped to ensure that all the participants are able to follow the pace. From time to time, we

answered to some of their questions and queries. All these interactions were fruitful and contributed to boost the motivation of the participants. At the end of the sessions, participants were provided with handouts with pictures and some basic instructions to help them practice whatever they have learned and become independent learners/users.

Evaluation for Block 1 was done during Training Day 2.

BLOCK 2 required involves the following:

- Session 3: Starting Voice/Video Call on WhatsApp
- Session 4: Sending Chat

Saint-Pierre

It was completed in three (3) sessions. Evaluation for Block 1 was done with participants in third face-to-face, prior to the start of Block 2. What was very much time-consuming at the start of each session was for participants to connect to WiFi Mauritius. They needed at least 30 minutes for all participants to complete all the steps (under trainers' guidance) to have internet connection through WiFi Mauritius.

A handful of participants have internet connection at home and they know how to use WhatsApp to make a call. But, it was a new discovery world for the others. They showed much enthusiasm and willingness to learn and succeed in making a voice and video call. The different icons on WhatsApp interface made it easier for the 12 older participants (60 years above) to understand, recognise and execute the different steps to make a voice and video call.
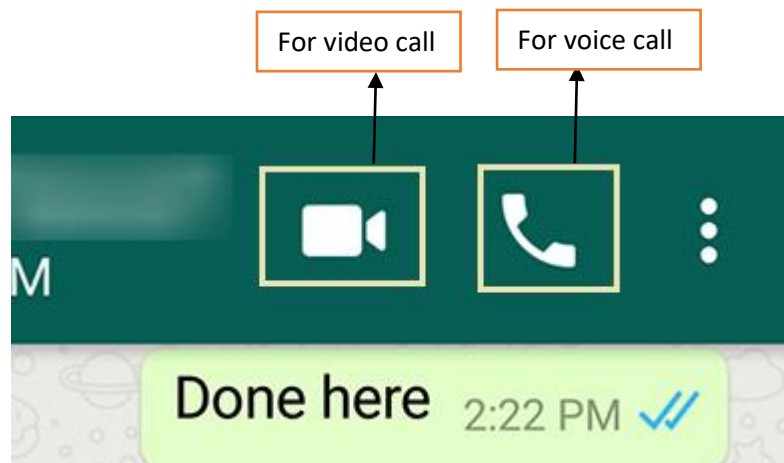

Figure 6.2: Icons on WhatsApp to make calls

Participants were split in groups and were asked to practice using WhatsApp to do a video and voice call with participants in their groups. This implied having to save their friend's number; looking for it on WhatsApp and actually calling and talking to them. At the same time, they also learnt, through these hands-on classes, how to accept and reject a call; which required different actions for different smartphones. The Participants were lively, motivated,

happy and feel satisfied and accomplished after successfully completing all the tasks. Group learning proved to be very helpful for the participants.

For the Chat part, many participants had difficulties typing messages. Therefore, we altered the sessions by moving voice messages in Block 3 so as not to confuse participants with too many icons at the same time.

Evaluation for Block 2 was done at the end of Training Day 6.

Port-Louis

Block 2 was completed in 2 sessions – Training Day 2 and 3. Due to bad weather conditions we had some issues with Wi-Fi Mauritius and this caused some delay in our training. Despite this, all the participants demonstrated a keen interest and were highly motivated to learn about the functions of WhatsApp. Some participants (60%) already have access to Internet and Wi-Fi at home and were somehow familiar with WhatsApp but relied mostly on some family members to access the applications and use it. The remaining participants were discovering WhatsApp and its applications for the first time but showed great eagerness to learn and communicate to their close ones through phone and video call. The older participants (65+ and above) relied a lot on the icons of WhatsApp interface to execute the different steps required to make a voice / video call.

During Training Day 3, we moved to practical sessions where the participants were split in groups and had to practice how to make a voice call, video call and send a voice message with their peers. They had to save the contact of their peers, put Wi-Fi on, access WhatsApp and make a voice / video call. During such hand-on activities, they learned how to accept and reject and call, and also how to cut a call. This session was very animated and participants showed their understanding and mastery of the tool. To avoid confusion especially for those who were not highly literate, the session on sending a text message was moved to Block 3. The evaluation for Block 2 was carried out at the end of Training Day 4.

BLOCK 3 comprises of two (2) sessions namely:
- Session 5: Sending and receiving Voice messages
- Session 6: Sending and Receiving Pictures

Saint-Pierre

Block 3 was completed in two (2) sessions. Participants showed more confidence and successfully connected their smartphones to WiFi Mauritius. A handful of participants (5) still needed help to complete the steps.

Trainers were informed that participants came on their own at Circonstance Community Centre to practice using WhatsApp together and learning from each other. To keep this team spirit on, the 26 participants were teamed in different groups (of 5-6 members) and they were more responsive, confident and assimilated more rapidly on how to record a voice message. Only 1 participant was aware about this feature in WhatsApp; and which can easily replace typing a message. All participants found this features very pertinent and appropriate to their personal life and context; saying, for instance, it is far easier to record a recipe than to type one to be sent to children.

They were very excited to take their own pictures and those of their team members and sending and receiving these from each other.

The eighth (8th) session included mainly a Summative evaluation which was hand-on activities to evaluate participants' ability to perform different tasks.

The session ended with notes of thanks from different participants who showed their immense gratitude for getting help and guidance to slowly but surely integrate the digital world. There were also several requests for more training on WhatsApp and the use of smartphones.

Port-Louis

When we reached fifth session, the participants were very much at ease with the use of Wi-Fi, and some applications of WhatsApp. Most of them could easily connect to Wi-Fi Mauritius, except 2 participants (above 80 years old) needed some assistance. We completed Learning Block 3. Participants were again grouped in small teams of 3 to 4, where they had to practice sending a voice message and pictures/selfies, etc. The third summative evaluation was carried out during hands on activity on Training Day 5 to evaluate participants' ability to perform different tasks.

The last session we had a recap and attended to all questions and queries from the participants. We also had notes of thanks from different participants who showed their appreciation to us for helping and guiding them through this digital experience. There were also several requests for more similar training on the use of smartphones and other applications.

6.3 Evaluation

For Blocks A & B evaluation, questions were all MCQs. Participants were given hard copies to tick the right answer. The Character Sarah read, in Creole, the questions as well as the different options for answers. Participants were given ample time for the evaluation; and trainers ensured that each question was completed by everyone before moving to the next questions.

Evaluation for Block A (Annex 2) comprised of five (5) questions in Creole supported by images and icons. Each question represented 20% of the overall score for Evaluation 1.
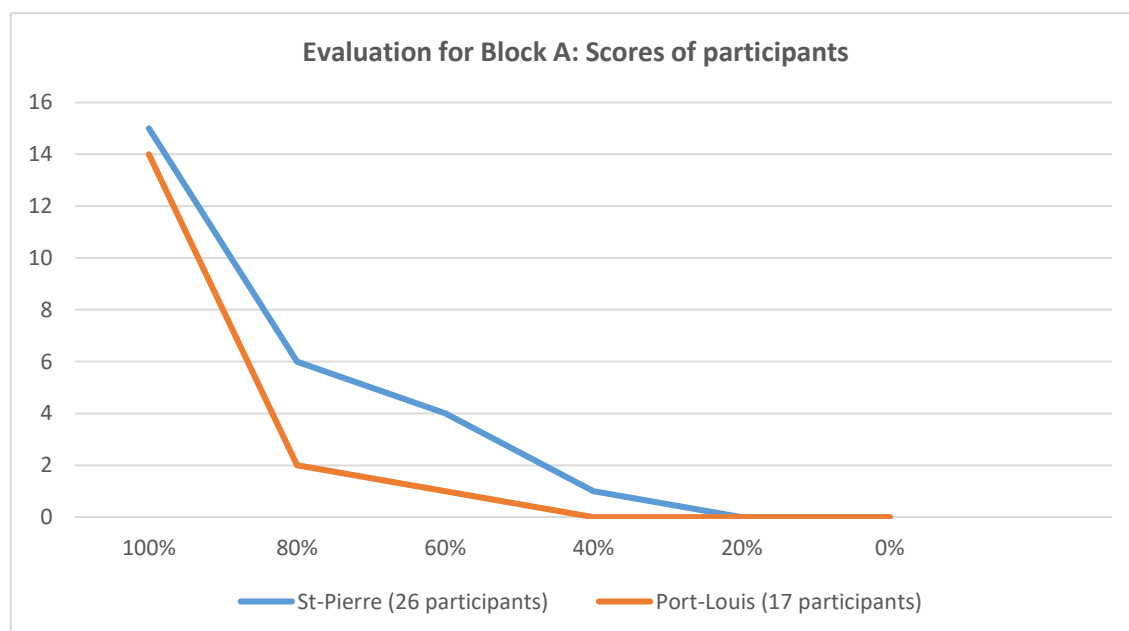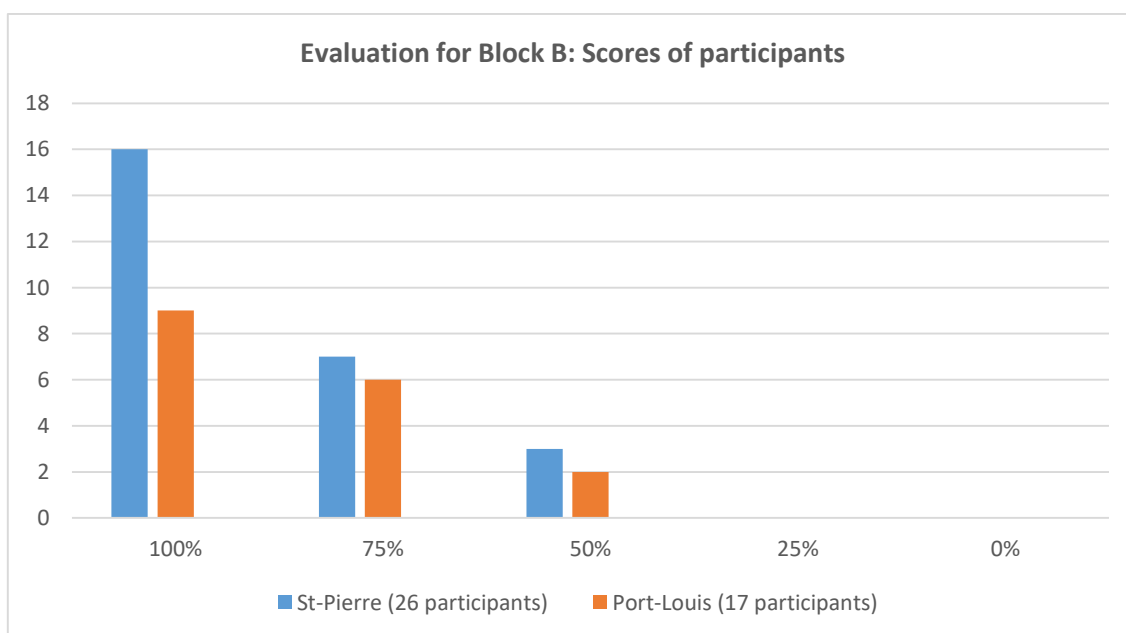

Figure 6.3: Evaluation for Block A

Overall, it was a very laudable performance. 15 over 26 participants scored 100% at Circonstance St-Pierre Community Centre. The remaining 16 participants were all confused with regards to possible answers to Questions 4 & 5 because there were more than one possible good answer. However, prior to the start of the evaluation, they were informed about this possibility. They gave only one good answer and that was why they did not score marks for those questions. It is to be noted that there was only 1 participant who recorded 20% of total marks; that participants has no smartphone and no internet connection at home. For her, this training was her first step in the digital world.

At Camp Yoloff Community Centre, Port-Louis, 14 out of 17 participants scored 100%, 2 participants scored 80%, and 1 participant scored 60%. It must be noted that the latter was one of the most seniors (81 years old). Overall, it was a good response since participants showed their interest and determination to learn.

Evaluation for Block B (Annex 3) comprised of four (4) questions in Creole and that also included images and icons. Each question represented 25% of the overall score for Evaluation 2.

Figure 6.4: Evaluation for Block B

Overall, it was a better performance than Evaluation 1 as no one scored lesser than 50% and more participants recorded 100% at Circonstance, St-Pierre Community Centre. Participants showed more confidence while attempting the questions. This evaluation was very important for them to test their own understanding of what has been covered so far. A positive difference in participants' attitude has been noted; if, for Evaluation 1, they were very self-conscious and stressed because they feared they would not do well, for Evaluation 2, they were eagerly waiting to prove to themselves that they were capable of doing much better. They have started to feel comfortable with the new jargon (WiFi, Smartphone, WhatsApp, Apps, etc) as they understood what these meant. Even the participant who had only one good

answer in the previous evaluation, managed to score 50% in the second one. According to their feedback, the printed handouts that were distributed to them largely helped them to 'revise' and practice.

In Port-Louis, for Evaluation 2, 9 out of 17 participants recorded 100%, 6 scored 75% and only 2 obtained 50%. No participants scotched below 50%. Participants were much more confident as they attempted the questions and they were keen to evaluate their understanding of what they have learned during the last two sessions. Most of them were familiar with the smartphones and jargons.

Summative Evaluation

This evaluation was of a summative nature; hands-on activities that tested understanding and skills developed throughout the 3 learning blocks.

Participants had to perform four (4) tasks:
  i)   Put on WiFi on their smartphone
  ii) Connect to an open WiFi Network, namely WiFi Mauritius
  iii) Open WhatsApp, choose a contact (any participant) and make a voice call
  iv) Choose a contact on WhatsApp (any participant) and make a video call.

St-Pierre Community Centre
Participants were grouped in teams at St-Pierre Community Centre. There were 4 groups of four participants and 2 groups of 5 people. At this point, most of the participants were confident on the knowledge and skills acquired to carry out the four tasks.
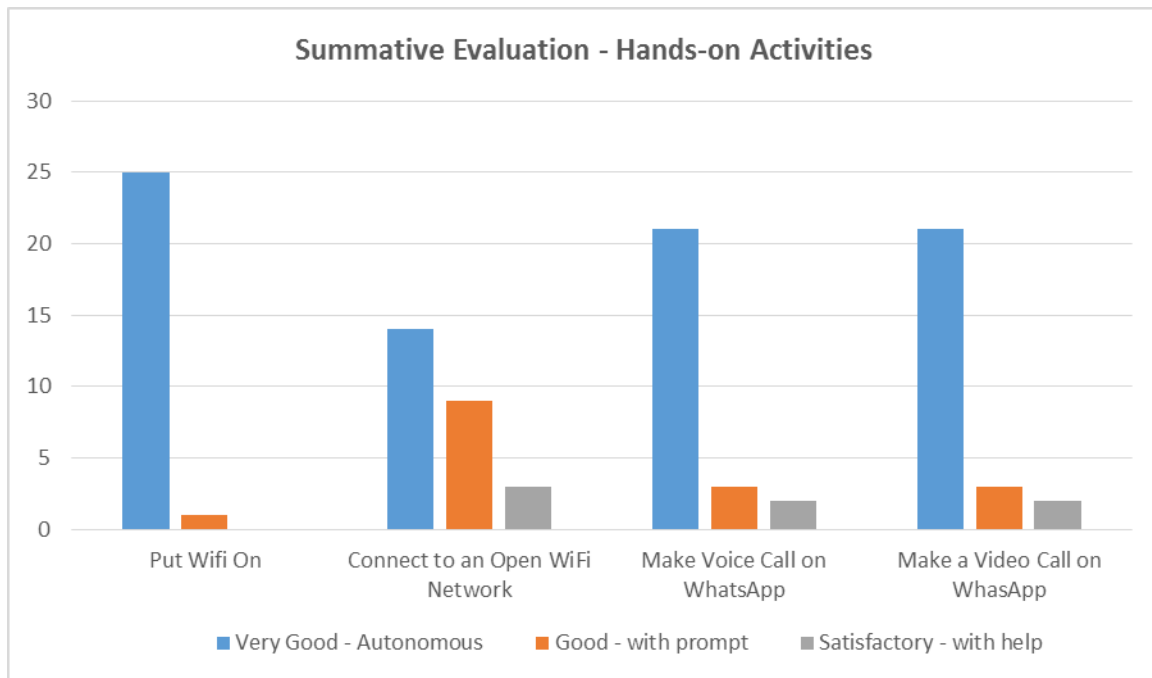
Figure 6.5: Summative Evaluation at St-Pierre

Twenty-five (25) out of twenty-six (26) participants could easily and autonomously put on WiFi on their smartphone without any requiring any help or explanation. However, getting connected to WiFi Mauritius proved to be slightly difficult to nine (9) participants who quickly remembered the different steps when given some verbal prompts. For three (3) participants, trainers had to actually help them, especially with regards to checking the code sent as message to them and going back to WiFi Mauritius page to insert the code to be connected in internet.

With regards to Tasks 3 & 4, 21 participants confidently and successfully all the steps required to complete the tasks. 3 participants have to be reminded that they needed to choose a contact first and then press on the correct icon to make a voice call. These same three (3) participants needed again the same prompts for the video call. As for remaining two (2) participants, they required help in terms of recognizing the icons and correctly pressing the right icons for both video and voice calls which they managed to complete.

Port-Louis – Camp Yoloff Community Centre

At Camp Yoloff Community Centre, Port-Louis, the participants were grouped in teams, namely three (3) groups of four (4) participants and one (1) group of five (5) participants. Most of them were very much confident on the acquired knowledge and skills and showed keen interest to carry out the last tasks.
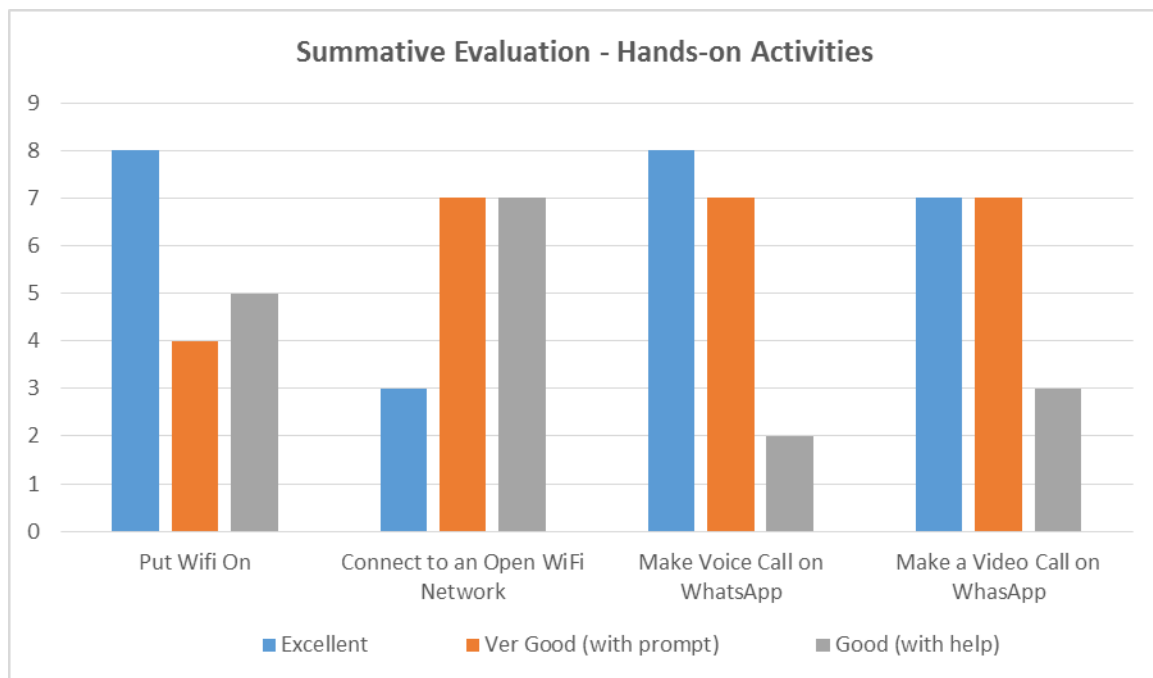

Figure 6.6: Summative Evaluation at Port-Louis

Fifteen (15) out of seventeen (17) participants could easily and autonomously put on Wi-Fi on their smartphone without any requiring any help or explanation. Only two (2) required some assistance since they were having difficulty with inserting the code (via Wi-Fi Mauritius). For Task 3 and 4, all the participants successfully completed all the steps required to make a voice and a video call. Three (3) participants needed some help/prompt but they then proudly completed all the tasks by themselves. They were so pleased and satisfied when they could make a video call to their relatives. One participant (81 yrs. old) even got emotional while talking to her daughter in New Zealand who was eagerly waiting for her call. She even insisted that we (the trainers) should say hello to her daughter. It must be noted all participants recognised the various icons for bother voice and video calls.

7.0   LIMITATIONS OF THE STUDY

✓ With regards to text message, a few participants had problems and this is partly due to their level of education [CPE and below].

✓ Some participants had difficulty to connect to Wi-Fi Mauritius, which they found quite complicated.

8.0   CONCLUSION

This study has been an exceptionally successful experience for us as well as for the participants. We must highlight the excellent response we had from all the participants. No one missed a single training session and they were always keen to learn, and asked questions whenever they had some difficulties. At the end of the training, all the participants were at ease in using their smartphones. They were able to use WhatsApp to communicate to their family and friends; make a phone/video call, send pictures and voice messages, etc. They were extremely grateful to us for our patience, and having devoted our time and energy to teach them the various tools on WhatsApp.

9.0   RECOMMENDATIONS

This study can be a stepping stone for further research. We have seen a growing interest for the participants for mobile applications but noticed that many of these elderly have some difficulty in using their smartphones for making calls or adding a contact, etc. It is therefore important to ensure that the elderly become more autonomous with their use of their smartphones and become more digitally literate. The following recommendations could be made:

✓ Having additional sessions to teach the various functions of a smartphones.

✓ Teach them how to download and access other applications.

✓ Teach them how to use YouTube or Google to access to online news, newspapers, etc.

✓ This project could also be extended to all community centers in Mauritius and outer islands.

10.0   REFERENCES

Ala-Mutka, K. (2009). Active ageing and ICT for learning. Available at:
https://www.researchgate.net/publication/290203739_Active_ageing_and_ICT_for_learning
[accessed Jul 11, 2017]

Aroldi, P., Carlo, S., & Colombo, F. (2014). "Stay Tuned": The Role of ICTs in Elderly
Life', in G. Riva, P., Ajmone, & C. Grassi (Eds.), Active Ageing and Healthy Living: A
Human Centered Approach in Research and Innovation as Source of Quality of Life. (pp.
145-156). Amsterdam: IOS Press.

Bates, T. (2015). Teaching in a Digital Age: Guidelines for Teaching & Learning.
VictoriaBC: BCCampus
Available   at: https://www.tonybates.ca/2014/09/09/is-the-addie-model-appropriate-for-
teaching-in-a-digital-age/

Bell, C., Fausset, C., Farmer, S., Nguyen, J., Harley, L., Fain, W.B. (2013). Examining social
media use among older adults. In: *Presented at the Proceedings of the 24th ACM Conference
on Hypertext and Social Media*, pp. 158–163.

Beyond WhatsApp: Older people and smartphones (PDF Download Available). Available
from:
https://www.researchgate.net/publication/303864672_Beyond_WhatsApp_Older_people_and
_smartphones [accessed Jun 8, 2017].

Church K, Oliveira Rd. (2013). What's up with whatsapp? Comparing mobile instant
messaging behaviors with traditional SMS. Proceedings of the 15th international conference
on Human-computer interaction with mobile devices and services. p. 352-61.

Cornejo, R., Tentori, M., Favela, J. (2013). Enriching in-person encounters through social
media: a study on family connectedness for the elderly. Int. *J. Hum Comput Stud.* 71(9), 889–
899 (2013). Available at: https://doi.org/10.1016/j.ijhcs.2013.04.001

Cornwell EY, Waite LJ. (2009). Social disconnectedness, perceived isolation, and health
among older adults. Journal of Health and Social Behavior. 50(1):31-48.

Colombo, F., & Fortunati, L. (Eds.). (2011). Broadband society and generational changes (Vol. 5). Berlín, Alemania: Peter Lang Publishers

Gil, H.T. (2019). "*Elderly & ICT: A Need and Urgency for an Effective Info-Inclusion*"; In: Oliviera, A.L (2019). Promoting Conscious and Active Learning and Aging: How to Face Current and Future Challenges?

Haris, N., Majid, R.A., Abdullah, N., Osman, R. (2014). The role of social media in supporting elderly quality daily life. In: *2014 3rd International Conference on IEEE Presented at the User Science and Engineering* (i-USEr), pp. 253–257.

Ion News. Available at: http://ionnews.mu/workforce-woes-mauritius-population-increasingly-features-people-aged-60/ Accessed on 06 July 2017.

Kumar, N. & Sharma, S. (2017). Survey Analysis on the usage and Impact of Whatsapp Messenger. *Global Journal of Enterprise Information System.* DOI: 10.18311/gjeis/2016/15741.

Llorente-Barroso, C., Viñarás-Abad, M. & Sánchez-Valle, M. (2015), Internet and the Elderly: Enhancing Active Ageing. Comunicar 45:29-36; Media Education Research Journal. Available at: https://www.revistacomunicar.com/verpdf.php?numero=45&articulo=45-2015-03&idioma=en

Macías-González, L., & Manresa, C. (2013). Mayores y nuevas tecnologías: Motivaciones y dificultades. Ariadna, I(1), 7-11.
DOI: http://dx.doi.org/10.6035/Ariadna.2013.1.2

Madden, M. (2010). Older adults and social media: social networking use among those ages 50 and older nearly doubled over the past year. Pew Research Center.

Malanowski, M., Özcivelek, R., & Cabrera, M. (2008). Active Ageing and Independent Living Services: The role of Information and Communication Technology. Luxembourg: European Communities.

Mann, W.C., Belchior, P., Tomita, M.R. and Kemp, B.J. (2005), "Computer use by middle-aged and older adults with disabilities", *Technology and Disability* , Vol. 17 No. 1, pp. 1-9.

Mihailidis, P. (2014). A tethered generation: Exploring the role of mobile phones in the daily life of young people. Mobile Media & Communication, 2(1), 58–72.

Minocha, Shailey and Holland, Caroline (2016). Digital inclusion: opportunities for older people. In: Older European Citizens in a Changing World, Conference and AGM, Ransackers Association, 20 Sep 2016, Europe House, London, England.

Nielsen, J. (2013). Seniors as Web Users [cited 2015 13th Jan].
Available at: http://www.nngroup.com/articles/usability-for-senior-citizens/

Nugent, C.D. (2007), "ICT in the elderly and dementia", *Aging and Mental Health*, Vol. 11 No. 5, pp. 473-476.

Obar, J., Wildman, S. (2015). Social media definition and the governance challenge: an introduction to the special issue. *Telecommun. Policy* 39(9), 745–750. Available at: http://dx.doi.org/10.2139/ ssrn.2647377

United Nation, Report (2015). World Population Ageing. Available at:
http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf

Wagner, N., Hassanein, K. and Head, M. (2010), "Computer use by older adults: a multi-disciplinary review", *Computers in Human Behaviors*, Vol. 26 No. 5, pp. 870-882.

White, J. and Weatherall, A. (2000), "A grounded theory analysis of older adults and information technology", *Educational Gerontology*, Vol. 26 No. 4, pp. 371-386.

WHO (2002). Active Ageing – A Policy Framework, WHO, Geneva.
Available at http://whqlibdoc.who.int/hq/2002/WHO_NMH_NPH_02.8.pdf
Accessed on 8 June 2017

Zhu S, Hu J, Efird JT. (2012). Role of social support in cognitive function among elders. Journal of Clinical Nursing. 21(15/16):2118-25.

ANNEXES

Questionnaire

Name:

_____

Age: _____

Gender: **M** ☐ **F** ☐

Status: **Married** **Single** **Widow** **Divorced**

☐ ☐ ☐ ☐

Education:-

Primary: _____

Secondary:_____

Tertiary: _____

Others (IVTB, MITD, Training/Technical, etc): _____

1. Do you have a mobile phone?

   Yes ☐ No ☐

2. If Yes, is the mobile phone a smartphone?

   Yes ☐ No ☐

3. Do you know what a smartphone is?

   Yes ☐ No ☐

4. Do you have WhatsApp?

   Yes ☐ No ☐

5. Have you ever used WhatsApp?

   Yes ☐ No ☐

   If Yes, for which purpose?

   _____

   _____

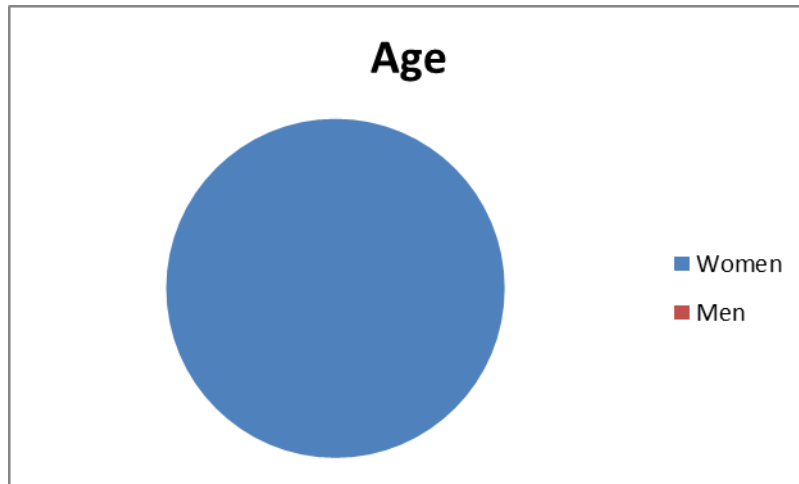6. Are you interested to get a free training to learn how to use WhatsApp?
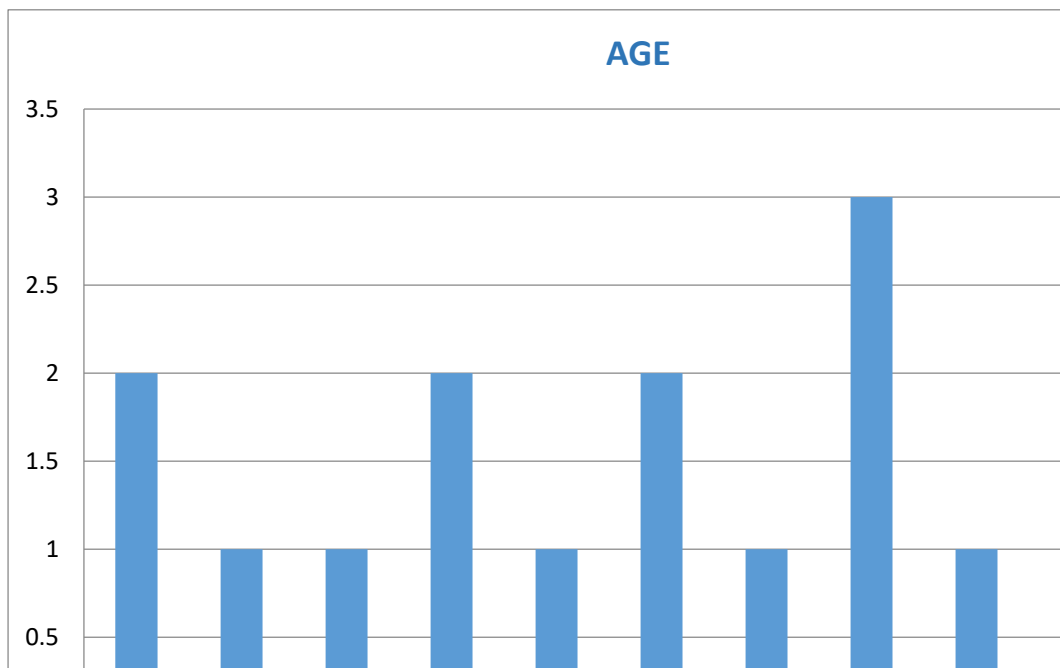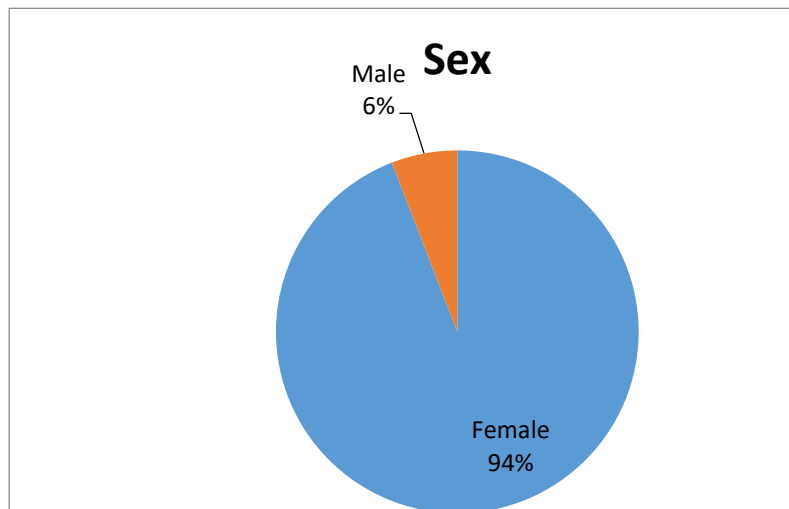
Yes ☐ No ☐

If Yes, why?

_____

_____

Date: _____

Social Community Centre: _____

Saint-Pierre – Circonstance Community Centre

Port Louis – Camp Yoloff, Community Centre
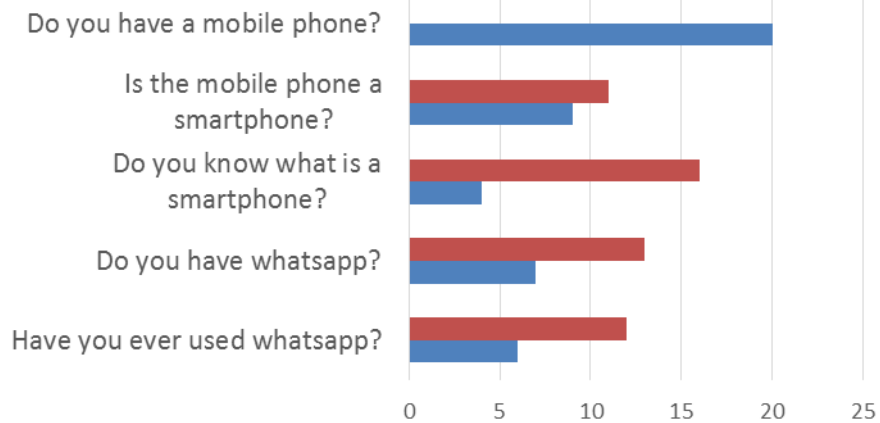
Sex

Male 6%
Female 94%

AGE

St-Pierre

	Have you ever used whatsapp?	Do you have whatsapp?	Do you know what a smartphone is?	Is the mobile phone a smartphone?	Do you have a mobile phone?
No	16	11	13	12	1
Yes	6	11	9	10	21

Port-Louis

	Have you ever used whatsapp?	Do you have whatsapp?	Do you know what is a smartphone?	Is the mobile phone a smartphone?	Do you have a mobile phone?
No	12	13	16	11	0
Yes	6	7	4	9	20

ANNEX 2: ASSESSMENT BLOCK 1

ANNEX 3: ASSESSMENT BLOCK 2