

Impact of Advanced Technology in Provision of Adult Education in Tanzania

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ABSTRACT

This study investigates the impact of advanced technology in the provision of adult education in Tanzania. This study identifying the impact of using advanced technology in the provision of adult education programmes and proposing most appropriate measures that can stimulate the uses of advanced technology in the provision of adult education programmes. The study used qualitative research designs as it concentrates on how the research participants relate to the problem by focusing on their written and spoken words and their observable behaviour. The study used both primary and secondary data The study findings show that factors hinder the uses of advanced technology in the provision of adult education programmes are including Insufficient funds which limit institution to have advanced technology tools. The small number of trained personnel who could use advanced technology in teaching and learning process and lastly absence of strong policies for using ICT tools which would guide all the members of the organization to use them in teaching and learning process. The primary data shows that several measures could be employed to stimulate the uses of advanced technology in the provision of adult education programmes such as to set enough budgets for buying ICT tools, to have a department which will ensure effective supervision of ICT tools and lastly to makes effort in emphasizing the uses of ICT tools in teaching and learning process. It is recommended that the management of the institutes providing adult education should ensure that the ICT tools are available in the institution's centres so as to simplify teaching and learning adult education programme because through the presence of information and communication tools the exchange of information between facilitator and adult learners could be easy.

Keywords: *Advanced Technology; ICT Tools; Learning Process; Adult Education Programme; Institute of Adult Education*

1. Introduction

Using blended learning, which they define as “a course that combines a face-to-face classroom component with an appropriate use of technology”, Sharma and Barret (2017) suggest that “positive learning outcomes are most apparent when clear roles are assigned to the teacher and to the technology.” Advanced technology has been reported to yield positive results in classrooms. In fact, judicious use of advanced technology to teach and learn boosts learning in terms of attitudes, autonomy and authenticity.

The process of using advanced technology in everyday education is very complicated. The opportunities provided by advanced technology to support teaching and learning are not problem-free. The virtually limitless opportunities of access to information in an educational context can pose a real danger of information overload if the teachers do not have the skills in searching and adding of information for relevance, or are unable to establish a coherent organizing principle. Both students and teachers may lack the necessary skills to access, process and use information technology equipment's. (Yunus, 2011).

According to Sharma and Barret (2017), the use of technology is the great motivation in teaching and learning process. It offers the possibility to work autonomously or interact and collaborate with others. Technology also provides instant feedback on academic performance in various tasks and exercises. Technology can also be an extension of the classroom and can be time saving. There are several reasons for using technology in teaching and learning. In addition, technology can promote language learning with fresh, authentic and motivating materials directly usable from the Internet.

A very significant determinant of teachers' levels of engagement in advanced technology is their level of confidence in using the technology. Teachers who have little or no confidence in using computers in their work will try to avoid them altogether. There is a close relationship between levels of confidence and many other issues which themselves can be considered as barriers to advanced technology. For example, levels of confidence and therefore levels of ICT use are directly affected by the amount of personal access to ICT that a teacher has, the amount of technical support available, and the amount and quality of training available (Lubis and Lin, 2009).

Levels of access to ICT are significant in determining levels of use of ICT by teachers. However, it is not necessarily the case that a education institution with low access does not have enough equipment; it may be that the amount of equipment is adequate but inappropriately organized in the school. Equipment should be organized in such a way to ensure maximum access for all users (Schoepp, 2015). Inappropriate training styles result in low levels of ICT use by teachers. Courses which lack pedagogical aspects are likely to be unsuccessful, but there also needs to be an element of ICT skills training (Al-Alwani, 2015).

Teachers are sometimes unable to make full use of technology because they lack the time needed to fully prepare and research materials for lessons, particularly where this involves online or multimedia content. Time is also needed for teachers to become better acquainted with hardware and software (Ertmer, 2009). Technical faults with ICT equipment are likely to lead to lower levels of ICT use by teachers. Recurring faults, and the expectation of faults occurring during teaching sessions, are likely to reduce teacher confidence and cause teachers to avoid using the technology in future lessons. The lack of available technical support is also likely to lead to teachers avoiding ICT, for fear of a fault occurring that cannot be rectified and lessons being unsuccessful as a result (Pelgrum, 2011).

Resistance to change is a factor which prevents the full integration of ICT in the classroom. This resistance can be seen in terms of teachers' unwillingness to change their teaching practices, and also in terms of schools as institutions finding it difficult or being unable to re-organize in ways which facilitate innovative practices involving ICT (Yunus, 2011). Teachers who do not realize the advantages of using technology in their teaching are less likely to make use of ICT. Any training programme needs to ensure that teachers are made aware of the benefits of using ICT (Schoepp, 2015). There is a view and perception that age affects levels of teachers' ICT use. Younger teachers are no more likely to make use of ICT in their work than their more experienced colleagues (Al-Alwani, 2015).

There is suggestion that teachers' gender has an effect on the degree to which they use ICT, with male teachers making more use of ICT than female teachers, and with female teachers reporting greater levels of computer anxiety than male teachers. This may have a significant negative effect on the use of ICT in different institution, where there are more female teachers than male teachers (Ertmer, 2009).

In Tanzania There is a close relationship between many of the identified barriers to ICT use; any factors influencing one barrier are likely also to influence several other barriers. For example, teacher confidence is directly affected by levels of personal access to ICT, levels of available technical support and the amount and type of training available, all of which can be seen as barriers to ICT themselves (Lubis and Lin, 2009).

In most of the education institutions in Tanzania which provide adult education, they failed to implement the uses of advanced technology because of the expensiveness of advanced technology which needed for teaching and learning process like advanced projector and microphone together with their mixer for amplifying voices. Also the numbers of the teachers who are experienced in using this advanced technology are few compare to the total number present in the organization (Lubis and Lin, 2009). This gave a reason to examined the impact of advanced technology in provision of adult education in Tanzania, so that to enable the adult education society to be motivated to use advanced technology in their teaching and learning process in order to simplify teaching and learning process and attracts more youth to join these adult education programmes.

Technology equipment's are very essential in making any work done smoothly and effective. In teaching and learning the uses of advanced technology helps to simplify the process of learning and even teaching in the class. This led to the increase of knowledge and skills to the learner and simplifies work to the teachers. Also it appears to save much time by describing many things in a short period of time like the uses of projectors and online teachings and learning. According to recent research conducted by Lindsay (2007), he suggested that the uses of advanced technology led to the keeping of long term memory to learners and increases their ability in mastering the content taught in the class.

Despite these advantageous facts, many adult learners and facilitators are not using advanced technology in teaching and learning process in adult education programmes. This made the continuation of the uses of old methods of teaching which mostly uses the whiteboard and maker pen or chalk and talk.

The government has tried to emphasize on the importance of using advanced technology as a help to facilitators and learners to enjoy the teaching and learning and provision of quality education through various policies it establishes such as National Vision of 2025, but still few facilitators are utilizing them in teaching process. This gave a reason to investigate the impact of advanced technology in provision of adult education in Tanzania so as to make adult education stakeholders aware with the importance of using advanced technology and knowing barriers hinder the utilization of advanced technology so as to help the adult education society to solve them and go with advanced technology in provision of adult education. This study investigates the impact of advanced technology in provision of adult education in Tanzania. This study identifying impact of using advanced technology in provision of adult education programmes

2. Material and Methods

Number of studies has argued that the use of new technologies in education is essential in the information age. The integration of information and communication technology (ICT) in teaching and learning provides more opportunities for facilitators and adult learners to work better in an information age. However, some barriers may discourage facilitators to integrate ICT in the classroom and prevent them to introduce supporting materials through ICT usage. (Green, 2017). Even there are a number of difficulties which act as barriers and prevent facilitators to integrate ICT into the classroom. A barrier is considered as any condition that makes it difficult to make progress or to achieve an aim. The educators have used different categories to classify the barriers for facilitators to use ICT in the classroom. Some researchers have classified the barriers into two major categories of extrinsic and intrinsic barriers. Extrinsic barriers are first-order and cited access, time, support, resources and training and intrinsic barriers are second-order and cited attitudes, beliefs, practices and resistance. Extrinsic barriers are barriers which are related to organizations rather than individuals and intrinsic barriers are those which are related to facilitators, administrators, and individuals. (Cohen, 2009)

Some other researchers grouped the barriers into two categories of facilitator-level barriers and school-level barriers. Some barriers based on whether they refer to individual (facilitator-level barriers), such as lack of confidence, shortage of time, and resistance to change, or to the institution (school-level barriers), such as lack of effective training in solving technical problems and lack of access to resources. Other classified barriers into micro level barriers, such as those related to facilitators' attitudes and approaches to ICT, and macro level barriers, such as those related to the institutional context. They also added a third group called macro level barriers, such as those related to the wider educational framework (Jones, 2014). Additionally, another group of researchers refer to the barriers as those pertaining to two types of conditions: material and non-material. The material conditions refer to the insufficient number of computers or copies of software. The non-material barriers refer to facilitators' insufficient ICT knowledge and skills, the difficulty of integrating ICT in instruction, and insufficient facilitator time (Green, 2017).

In the US, the most important barriers to high school facilitators' use of ICT were insufficient number of computers, lack of free time for learning and lack of classroom time for adult learners to use computers. Facilitators in larger schools and city schools were more likely to report lack of computers as a barrier and facilitators in schools with high minority student populations were more likely to report outdated, unreliable computers as a barrier (Cohen, 2009). In a study in UK, Jones (2014), reported that lack of personal confidence and insufficient access to the ICT resources were the key barriers for majority of the surveyed facilitators. Some other factors which were more internal to the facilitators such as resistance to change and lack of awareness of the benefits of the ICTs for learning were reported in Jones' study. In the New Zealand, lack of time for professional development to learn about the new technologies and lack of time to explore technologies such as the internet and social networking services were repeatedly reported by facilitators as the significant barriers for using ICT in the classroom. Other factors such as ICTs not being considered as important enough to be a priority, contentment with current approaches and lack of confidence to integrate ICTs in the curriculum were reported by the facilitators as well (Jones, 2014).

The integration of information and communications technology in teaching and learning is considered as a medium in which a variety of approaches and pedagogical philosophies may be implemented. However, ICT as a teaching aid is more complicated in that it demands more specific skills from the facilitators. However, this does not necessarily mean that they integrate ICT into the curriculum. In addition, insufficient technical supports at schools and little access to Internet and ICT prevent facilitators to use ICT in the classroom. Shortage of class time and time needed to learn using ICT were reported as two other key barriers for facilitators to integrate ICT into the curriculum (Balanskat and Kefala, 2016). Research has shown that appropriate use of ICTs to influence a model shift in both content and adragogy that is the heart of adult education reform in the 19th century. ICT-supported adult education to enhance the success of the ongoing knowledge and skills that will give the adult

learner continuous learning if properly designed and implemented. The maximum uses of ICT in an appropriate manner enables new methods of teaching and learning, especially for learner in exploring exciting ways of problem solving in the context of adult education. New ways of teaching and learning is supported by constructivist learning theory and model shift from facilitator-centred pedagogy of memorization and rote-learning to focus on student centred (Blyth, 2011). Based on Becta's (2014) and Nyangarika et al.(2020a) analysis, ICT can have positive effects on teaching and learning of various subjects in adult education. As far as benefits for the pupils are concerned, it seems that digital resources helps to facilitate adult learners' individual practice with what they have taught previously. At that time, they can be slowed to a better understanding.

According to Blyth, (2011), the real success wide reaching way communication can be solved by video conference with native speakers, which can deliver a rich and real experience to adult learners. If not, adult learners can be helped by some word processors and their applications to review, edit and summarizes the text. E-mail correspondence with the 'e-friend' is another important communication tool that can have a positive impact on grammar, vocabulary and tenses. As far as benefits for the facilitators concerned, there seems to be affirmative relationship out of the use of ICT in teaching and learning with the performance (Harrison, 2012). You are a tool like an interactive whiteboard that appears to make possible to improve speed of delivery, communication and debate, and create a passion for both facilitators and pupils. The needs of individual adult learners can be better supported with potential facilitators who realize the needs of advanced technology that can be used to meet the specific training needs. ICT is the possible access to the native speakers and their culture (Harris and Kington, 2012). Finally, multimedia resources approved the facilitators to utilize visual, audio and text practices in the target language.

Technology has been supported in various ways to teach and learn. Marsh (2012), outlines a significant change in approach, methodology of teaching foreign languages in Europe over the last twenty years. The authors highlight the positive impact of the implementation of ICT in both facilitators and learners on basic attitudes as a result of the changes and improvements in teaching and learning theories. Computer-Assisted Language Learning (CALL), in particular, and the use of web for teaching and learning (WBT) in a second place shape the two most recurrent and central research streamlines of present times. A recent report by Becta (2014) is concerned with the use of ICT in teaching and learning. This report is based on an analysis of existing research on the utilization of ICT among primary and secondary facilitators in teaching. Important findings are really affected, while the resources available to introduce ICT to teach FL are also mentioned. Therefore, ICT can contribute to education key skills listening, speaking, reading and writing through various ways:

Digital sources as the Internet, CD-ROM, database vocabulary and video clips that provide access to various kinds of information and learning opportunities. Adult learners can work at their own pace as the digital resources can be slowed down and played over and over again as the needs of individuals. Access to authentic materials and communication with schools abroad through video conferences and e-mail discussion forum in the target language to facilitate cultural awareness (Bohlander, 2016). Multimedia presentation software enables a variety of adult education skills into practice and to support multiple learning styles. Digital video can offer feedback on pupils' language performance for self-critique, facilitator or peer evaluation. Word-processing applications allow adult learners to plan, organize and edit their work and develop skimming and scanning techniques (Harris and Kington, 2012) and (Nyangarika et al, 2020a).

In order to integrate ICT into the curriculum, on the one hand, facilitator training institutions should provide appropriate and sufficient support for the facilitators. On the other hand, facilitators should be aware of what is happening in the classroom and what changes are occurring around the world and the advancement of technology so as to be updated to the new innovations. Therefore, possible effective uses ICT can be applied in teaching and learning, which will eventually lead to the improvement of educational programs (Billowes, 2011). The use of ICTs as presentation tools (through overhead and LCD projectors, television, electronic whiteboards), where adult learners simultaneously will be able to view the same resources on computer screens will see the increase of effectiveness. While it may promote class understanding of and discussion about difficult concepts (especially through the display of simulations), such uses of ICTs can re-enforce traditional pedagogical practices and divert focus from the content of what is being discussed or displayed to the tool being utilized (Hung, 2010) and Nyangarika et al (2020b).

Promote the use of technology in everyday teaching and learning activities appears to be more important than specific instruction in "computer classes". While the development of technology skills is seen to have a role in the teaching and learning process, it is more important as an enabler of other teaching and learning practices, and not too important in and of itself. Schools that report the highest levels of student ICT-related skills and experience are often not those with heavy computer course requirements, but rather ones that made use of ICTs

on a routine basis throughout the facilitator professional development and the teaching and learning process (Billowes, 2011). Effective facilitator professional development should include learning of uses of Advanced technology to master the classroom environment as much as possible. "Hands-on" instruction on ICT use is necessary where ICT is deemed to be a vital component of the teaching and learning process. In addition, professional development activities should model effective practices and behaviors and encourage and support uses of advanced technology among facilitators. On-going professional development at the school level, using available ICT facilities, must see as a key driver for success, especially when focused on the resources and skills directly relevant to facilitators' everyday needs and practices (Balanskat and Kefala, 2016).

Research has shown that appropriate use of ICTs to influence a model shift in both content and adragogy that is the heart of adult education reform in the 19th century. ICT-supported adult education to enhance the success of the ongoing knowledge and skills that will give the adult learner continuous learning if properly designed and implemented. The maximum uses of ICT in an appropriate manner enables new methods of teaching and learning, especially for learner in exploring exciting ways of problem solving in the context of adult education. New ways of teaching and learning is supported by constructivist learning theory and model shift from facilitator-centred pedagogy of memorization and rote-learning to focus on student centred (Blyth, 2011).

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3. Methods

The study used the qualitative research methodology as it concentrates on how the research participants relate to the problem by focusing on their written and spoken words and their observable behaviour. The study used both primary and secondary data. The sample consisted a total of 90 respondents were involved in providing the information for the questionnaires, both open-ended and closed questions were used to gather data from the respondents. The sample frames of this study were facilitators, adult education officers and adult learners from Temeke district in Dar es Salaam. The researcher was concentrated to interviews the adult education facilitators and adult education officers who are the main responsible people in provision of adult education programmes. Both the structured interview and unstructured interview were used by the researcher to obtain information. The main reason for using this method is that it is easy to collect information from respondents even if they are many in number. Both qualitative and quantitative data analyses were done.

4. Results

The first specific objective was aimed to find out the impact of using advanced technology in provision of adult education programmes. Data collected through interview and questionnaire from 62 respondents who were (97%) of the sampled population, including 50 distance learners and 12 adult education facilitators helped to reveals the impact of using advanced technology in provision of adult education programmes.

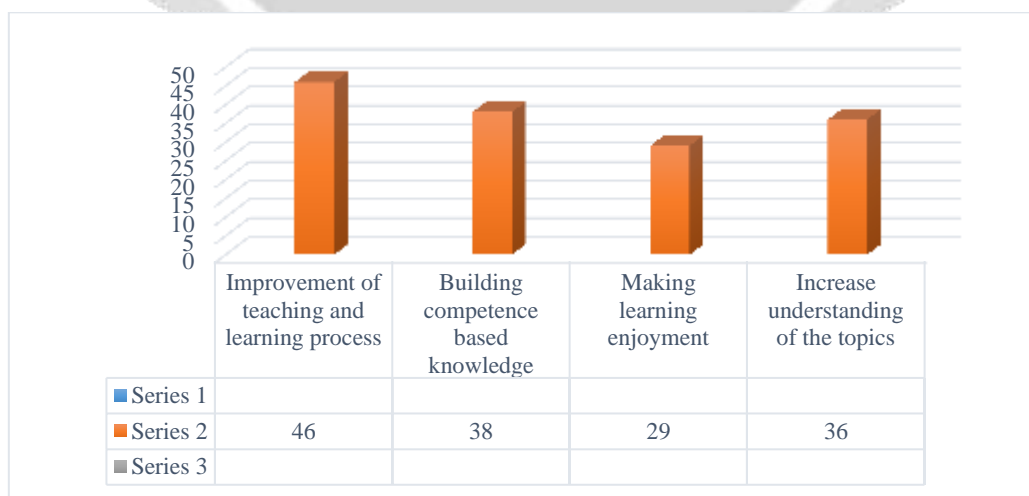


Figure 4.1 Using advanced technology in provision of adult education programmes

Source: Field Data (2020)

In (Figure 4.1) show that the 46 respondents among 62 who were 90% of the sampled population agreed that the uses of advanced technology in teaching and learning process led the improvement of the teaching practice and learning activities. In teaching respondents have commented that many tutors could present well what they have prepared to learners due to the effectiveness of the advanced technology present at the Institute of Adult Education example projector and computers. Also they help tutors to be able to acquire much information for teaching in the class as shown in (Figure 4.2). Based on the learning process respondents have commented that; *“The presence of advanced technology helps them to learn well what have been taught by their tutors in the class. This is because they see clearly and capture the concept effectively from the advanced tools used in the class especially basement classes and Elimu hall where many learners prefer to have session there.”*

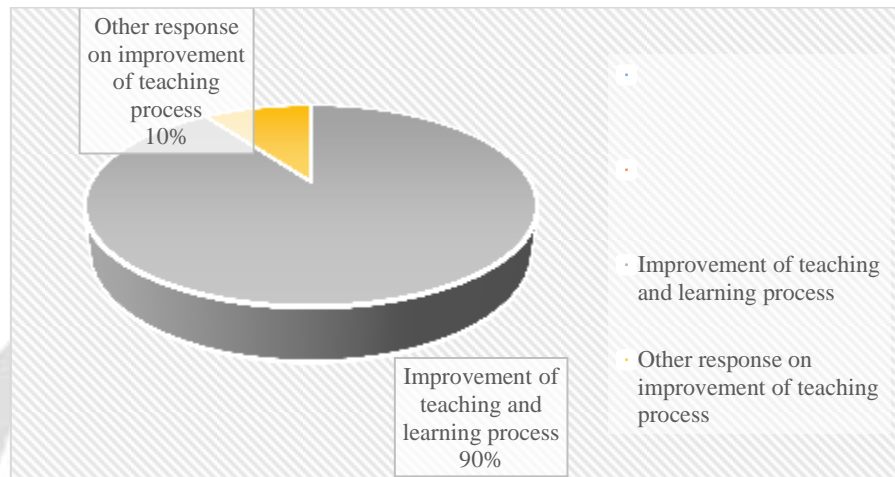


Figure 4.2 Teaching using Advance Technology
(Source: Field Data 2020)

In (Figure 4.3) the findings show that 48 respondents among 62 who were 77% of the sampled population agreed that through having advanced technology at the institute of adult education the teaching process helps to ensure that learners are gaining more competences on what they learned by having them practice it. This is done for those who learn uses of computer by enabling them to practice what they are leaning in computer room at the institute and also for those who are in the classes they gained competence from uses of projectors during presentation sessions. This enables the institute to produce competent graduates who could fit into the labour market within the country and outside the country.

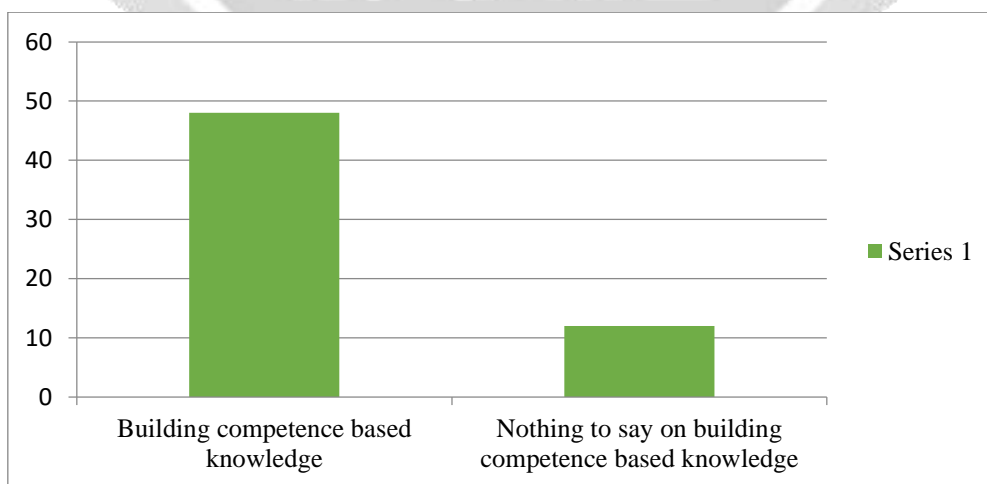


Figure 4.3 The uses of advanced technology help to make the teaching and learning process
(Source: Field Data 2020)

In (Figure 4.4) the findings show that 39 respondents among 62 who were 63% of the sampled population agreed that the uses of advanced technology help to make the teaching and learning process enjoyable due to its attractions it have on the mind of the people. The uses of projectors are much better than the use of whiteboard in writing learning information. Through projector teachers are not bothering to learn in the class so he or she saves his or her energy. Also students through the uses of advanced technology they do not get tired of the period due to good presentation which can be made through uses of projectors and computer. Therefore, the uses of advanced technology in teaching and learning process helps both facilitator and learners to enjoy teaching and learning process in the class.

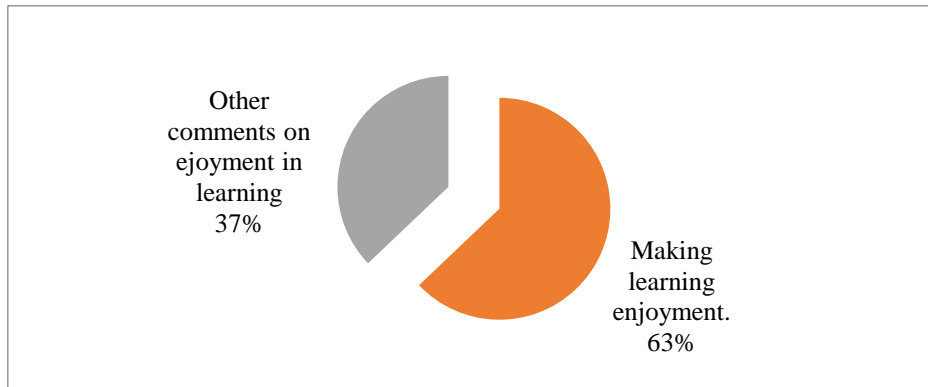


Figure 4.4 The uses of advanced technology in teaching and learning process (Source: Field Data 2020)

In (Figure 4.5) the findings show that 46 respondents among 62 who were 74% of the sampled population agreed that through the uses of advanced technology learners are benefited by understanding more what has been presented. This is because by using advanced technology such as projectors the facilitator could display notes, audio materials or video materials which contain the information taught by the facilitator. Therefore, based on that learners could grasp more and become understandable of what they have learned. One respondent gives an example from one facilitator who taught entrepreneurship by saying that when he teaches he included the video materials which becomes more helpful than his only talking. So through that video they understand well what they have been taught in the class.

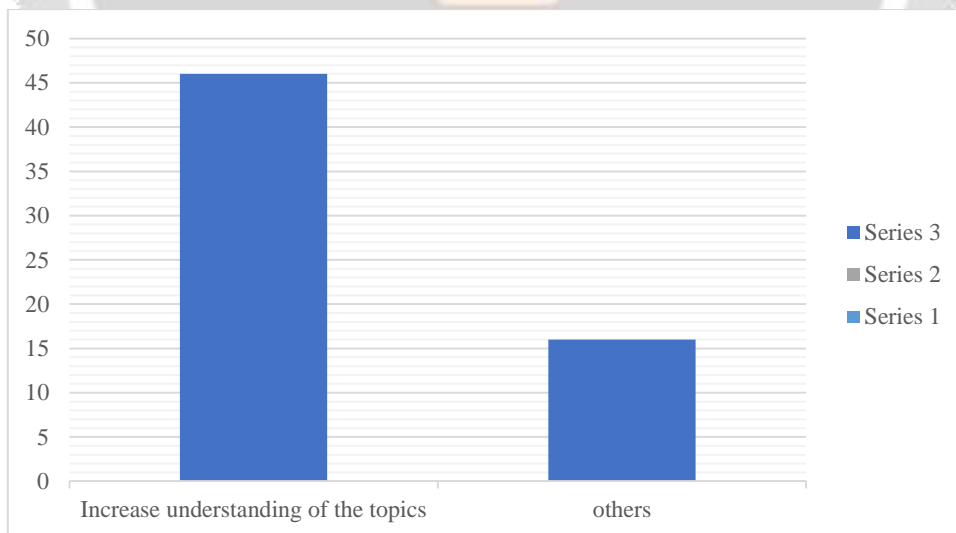


Figure 4.5 Video materials which contain the information taught by the facilitator (Source: Field Data 2020)

The third specific objective was aimed to explore the measures that can stimulate the uses of advanced technology in provision of adult education programmes. Data were collected through questionnaire from adult education officer, resident tutor, facilitators and adult learners who were 64 total. The findings obtained from field area on the measures that can stimulate the uses of advanced technology in provision of adult education programmes were presented as follows;

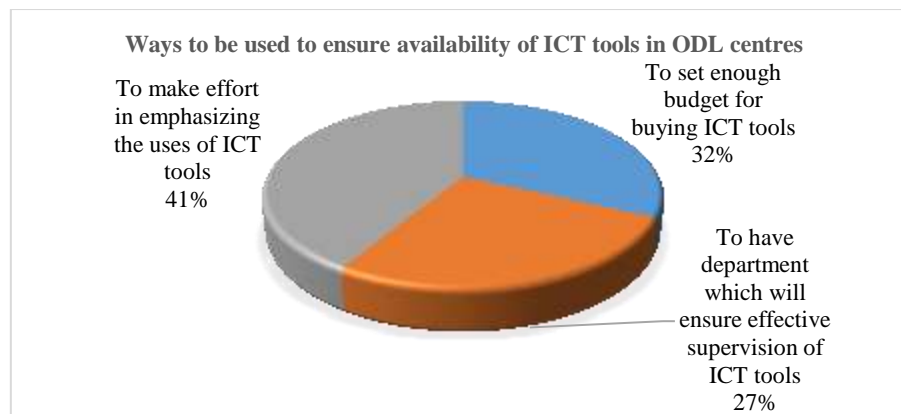


Figure 4.6 The uses of advanced technology in provision of adult education programmes

Source: Field Data (2020)

From the (Figure 4.6) above, the study findings show the measures that can stimulate the uses of advanced technology in provision of adult education programmes as follows; Findings show that the 44 respondents among 64 who were equal to 64% as shown in the pie chart suggested that one of the measures that can stimulate the uses of advanced technology in provision of adult education programmes at Temeke municipality is to make sure that the management of the institutions providing adult education set enough budget for buying ICT tools which could be used in teaching and learning process in the classes. This must be done for all classes. Also the projectors must be bought for seminar hall if it is available which manage to take many students. The ICT tools which should be bought must reflect the needs of the institute and its students. The 37 respondents among 64 who were 58% of the sampled respondents as shows in the chart suggested that the management of the institute which providing adult education must ensure that there is specific department which dealt with taking care and supervise the present ICT tools and ensure that those tools are used as planned. This department should be well trained and have experience on the uses of advanced technology in teaching and learning process and their supervision so as to ensure the present tools are in the safe hands. The 57 respondents among 64 who were 89% of the sampled population as shown in chart suggested that there must be made extra efforts to ensure the teaching and learning process is conducted through ICT tools and advanced technology. This has to be done through strong emphasize and formulation of rules and regulations which could be used to stimulate the uses of advanced technology in teaching and learning process at their centres. Through this facilitator and tutors would be encouraged to use ICT tools then enhancing effective teaching and learning process.

5. Conclusion

Basing on the research findings the study shows that factors hinder the uses of advanced technology in provision of adult education programmes are including Insufficient funds which limits institution to have advanced technology tools, Small number of trained personnel who could use advanced technology in teaching and learning process and lastly absence of strong policies for using ICT tools which would guide all the members of the organization to use them in teaching and learning process. From the data obtained respondents agreed that several measures could be employed to stimulate the uses of advanced technology in provision of adult education programmes such as to set enough budgets for buying ICT tools, to have department which will ensure effective supervision of ICT tools and lastly to makes effort in emphasizing the uses of ICT tools in teaching and learning process. The study shows that the uses of advanced technology have positive impact in provision of adult education programmes including improvement of teaching and learning process, building competence based knowledge, making learning enjoyment and lastly increase understanding of the topics. Lastly the study suggests that various measures could be employed to stimulate the uses of advanced technology in provision of adult education programmes such as to set enough budgets for buying ICT tools, to have department which will ensure effective supervision of ICT tools and lastly to makes effort in emphasizing the uses of ICT tools in teaching and learning process. It is recommended that facilitators should be experienced in using ICT tools so as to ensure the provision of education either by convention or through distance learning system. This is because many adult learners depend on the uses of communication systems to learn while they are doing their other responsibilities. It is recommended that the management of the institutes providing adult education should ensure that the ICT tools are available in the institutions centres so as to simplify teaching and learning adult education programme because through presence of information and communication tools the exchange of information between facilitator and adult learners could be easily. It is recommended that government must emphasize the uses of ICT tools to those higher learning institutions and all institutions providing adult education programmes. This could help to ensure provision of quality education and simplify learning process for adult learners.

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