

The Influence of ICT on Teaching and Learning in Adult Education Programs in Nairobi County Kenya.

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ABSTRACT

The purpose of this paper was to examine the influence of Information Communications Technology (ICT) on teaching and learning in adult education programs in Nairobi County Kenya. The study sought to establish how the current trends in the usage of ICT in the 21st century is influencing the methods and the content that is being taught in the adult education centres. The study employed Everett Rogers diffusion of innovation theory. A descriptive survey method was utilized in this research. The target population comprised of one adult education officer, 90 adult educational centres consisting of 1250 adult learners and 360 tutors in Nairobi County. Therefore, out of the 90 principals a sample equivalent to 30% or 27 principals were selected randomly. Out of a target population of 360 teachers, 108 teachers which forms 30% of the population was randomly selected and Questionnaires were administered to the teachers and adult learners while interviews were conducted on the county director adult education and principals. The findings established that there was a significant correlation between what the adult learners learn in the adult education centres and the implementation of what they have learnt in their day to day ICT usage. The level of ICT training by the adult education teachers influences positively on the methods through which the teaching of the adult learners is carried out in the education centres. The teaching and learning in adult education centres should also be tailored towards the current digital needs required to navigate the ICT market to enable the adult learners to successfully access and use e-services. The study recommends that the Ministry of Education should integrate the teaching of ICT in the teaching and learning in the adult education centres. There is a great need to monitor and support teacher training programs in integration of ICT in adult and community learning centres in Kenya. The study concluded that the teaching of adult learners should be market driven, this will enable the adult learners fit well into the fast digital growing environment.

Keywords: E-consumer, digital literacy digitalization, Adult literacy

BACKGROUND TO THE STUDY

ICT services involves the use of electronic gadgets and any other technologies so as to interact, conduct and access digital services, use and transact any transactions through the internet. These services involve both the government and the non-governmental organizations. It requires the use of modern technologies like the World-Wide-Web, (WWW), and Information Communication and Technology (ICT) to electronically offer non-governmental and government services to businesses, citizens, civil servants, and private investor organisations (United Nation, 2019). UNESCO (2019) states that the adoption of these technologies in government and non-government (NGOs) organisations offers improved and better service and information delivery to citizens. These electronic services offer efficient and effective access to information, increasing interactions with business and industry, citizen empowerment, and public-sector management. These benefits of ICT include increased transparency, revenue growth, reduced corruption,

greater convenience, and cost reductions.

The meaning of literacy has expanded beyond just reading and writing skills. Literacy is now described as the skills required to function in different social contexts. However, a functional approach to promotion of literacy and educating leaves out critical conceptualization on operations of adult literacy in the job market. (McCartney, 2021). It fails to see how literacy is embedded in social contexts. This fact is more relevant more so in today's technologically advanced digital world where the consumer world is fast transforming to become an ICT platform where different sets of digital literacy skills are required to successfully navigate and access the marketplace. Advances in technology have upped the ante for adult literacy. It is redefining the skills required to function successfully at work and in everyday life (Norman & Skinner, 2016). Information and Technology (ICT) is also offering new tools with huge potential for improving adult education and literacy if educators can source and utilise them effectively. There are a variety of computer and video technologies, consumer electronics and telecommunication with features suited for adult education. Within each type of these technologies are hardware, software and learning materials available to enhance the adult learners' literacy.

Technologies that have the potential to enhance adult and adolescent literacy development are fast emerging and becoming cheaper for the users. Internet technologies also offer the ability to remove barriers associated with constrained instructional times and locations, allowing individuals to learn and practice when and where they would want to learn from. In addition, because literacy in the digital age necessitates the use of digital technologies, it is critical to incorporate technology into literacy training. Although there is a rising demand to integrate ICT into educational settings, statistical evidence reveal that the levels of illiteracy are still high especially in lifelong learning threatening the implementation of ICT in learning systems (UN, 2018). It is essential for adult learners to learn about basic ICT technology so that they can willingly embrace ICT integration into their learning programmes. Kent (2015) confirms that integration will help in a bid to assist older affiliates in the community get acquitted with the changing trends in consumer services. This trend has seen ICT as the primary set of instructional tools and potential delivery system that can help people acquire the much needed skills. Thus, they can be economically and socially remaining relevant in their day to day daily running of the country. Therefore, increasing their employability and literacy skills.

LITERATURE REVIEW

ICT is becoming a potent tool for educational change and reforms. Adults with limited literacy abilities, however, enter the market without the literacy resources of other consumers and are potentially more vulnerable to exploitation by the people they seek so that they can transact some of the e-services needed from them by either the government or the private sector. Biney, I. (2021).

Kambaouri, Mellar and Logan (2016) examined the development of digital literacy skills among older adults in the UK. The study established that ICT skills are crucial life skills that can transform the lives of older adults. However, effective teaching and learning approaches are required for these skills to be learnt. The tutors must adopt various strategies to develop adult learners' digital skills. A purely didactic form of teaching when approaching the ICT skills or a time-intensive strategy of individual tuition may be required as opposed to a lecture method. Collaborative learning was also found to be effective in promoting the students' understanding of the learning concepts among adult learnerstheir case study established that most educators used their expertise to expose learners to a range of communication technologies, enabling them to acquire discrete skills for academic and work purposes.

Kim (2020) indicated that online learning has been taking place extensively since the onset of the Covid-19 pandemic. Online learning has become indispensable in education programs. In the study, Kim (2020) reported the experiences and reflections of adult teachers from a practicum course offered in 2020 in the

USA. The study found that adult learners need to use and interact with computer gadgets and internet services to enhance teaching and learning. It was established that the use of demonstration and a learner-centred approach was more effective as compared to the use of lecture methods. Rapanta, Botturi, Goodyear, Guardia and Koole (2020) cited the tutors' training and qualifications. The researchers indicated that the 2020 covid-19 pandemic had raised significant challenges for the global higher education community. The major challenge has been transitioning learning to online platforms from traditional face-to-face ones. Online teaching and learning demand specific pedagogical content knowledge related to designing and organising better teaching and learning experiences. It also demands the creation of distinctively interactive digital learning environments using digital technologies. Therefore, the teachers' knowledge, training and expertise in these digital technologies are vital for the eventual success of digitised education processes.

According to Chametzky, (2018), new technologies can assist and improve the education provided to the learners, therefore providing successful communication between teachers and students in previously unattainable ways. This is because learning will be made more real and relevant to the learners. They will be able to apply what they have learnt when using computers and other electronic gadgets when navigating, accessing and using the ICT services provided by the government and the private sector.

As Drucke, (2022) have pointed out, learning is an ongoing lifelong activity where learners change their expectations by seeking knowledge, which departs from traditional approaches. As time goes by, they will have to accept and be willing to seek new sources of knowledge. Skills in using ICT will be an indispensable prerequisite for these learners.

ICT develops students' new understanding in their fields of learning, according to Chai, Koh, and Tsai (2010). They go on to say that ICT also allows for more innovative solutions to many types of learning problems. For example, e-books are frequently utilised in reading-aloud activities in a reading class. Learners can use computers, laptops, personal digital assistants (PDAs), or iPads to access a wide range of texts from beginner to intermediate levels. According to Igwe and Ewelum (2016), using ICT allows students to interact, exchange, and collaborate anywhere, at any time.

According to NACEP, (2010), and Mbugua (2009) the government of Kenya and private organizations have introduced ICT market services such as I tax, applications for, and renewals of driving licenses, applications for business permits, registration of businesses, application for passports, registration of companies, name search for companies, mobile money transfer by use of Mpesa among others. The use of such technologies requires a certain level of basic literacy as well as computer literacy. Since the introduction of such ICT services, there is little evidence on how they influence adult and community education teaching and learning. The study tries to assess how electronic devices such as computers, projectors or any other electronic devices are being used by adult education teachers in teaching and learning processes in order to enhance the necessity for better usage of ICT technology in their day to day activities.

Purpose of the study

The purpose of this paper was to examine the influence of Information Communications Technology (ICT) on teaching and learning in adult education programs in Nairobi County Kenya.

Objectives of the study

To establish the extent to which ICT is influencing the teaching and learning in adult education programs in Nairobi County Kenya.

METHODOLOGY

A descriptive survey method was utilized in this research. The design was deemed appropriate for the study because it enabled the researcher to collect data from a large population within a short time. Questionnaires and interviews were used to collect data. Collected data was analyzed using both descriptive and inferential statistics and presented in tables, frequencies and percentages.

MAJOR FINDINGS

ICT and Services on Teaching and Learning Activities

The study aimed to determine the influence of ICT services on teaching and learning activities in adult and community education. Several questions were asked to solicit responses that could answer this objective.

First, the instructors were asked to indicate the instruction they use to instruct their learners. Their responses are presented in figure 1.

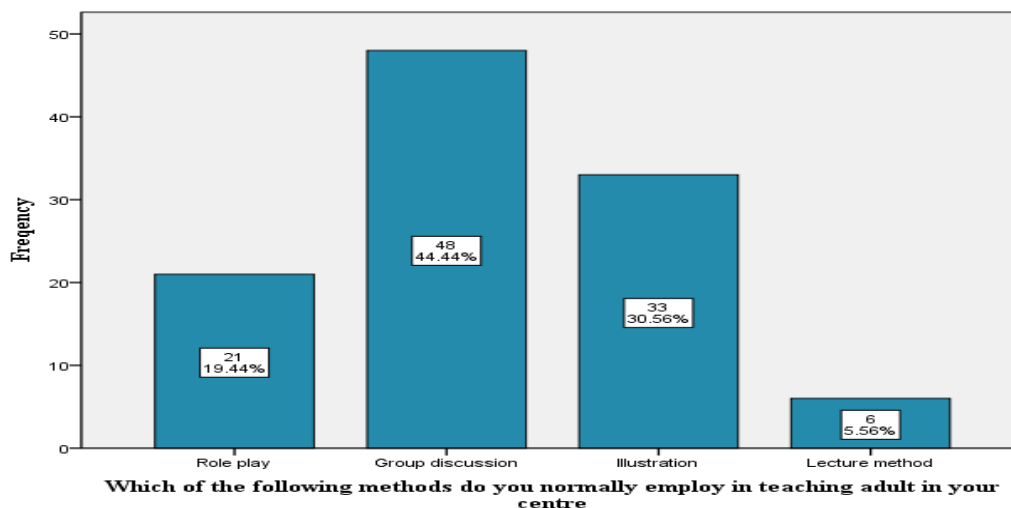


Figure 1: Method of instruction

The figure 1 shows that 44.44 percent of adult instructors use group discussion teaching in their centres while 30.56 percent indicated that they use illustration. Role play was also identified by 19.44 percent of the instructors while 5.56 percent indicated that they use lecture methods. Overall, most of the instructors indicated that they either use discussions or illustration in teaching adults in their institutions. These findings suggest that most of the adult learners interact with each other during learning as discussions are often used. Additionally, the use of illustrations and role play suggest that most of them are exposed to practical aspects of their learning experience improving their exposure so subjects such as the use of ICT tools which may be critical in their learning and use of ICT electronic gadgets. As Jimenez-Rodriguez, Vazquez-Cano, Cebrian-Hernandez, and Lopez-Meneses (2021) argue, computer knowledge and the level of education had a direct influence on citizens' impulse to purchase things online. Similarly, individuals with greater level of knowledge and greater exposure to computer use based on their level of education also had a higher tolerance of risk associated with the use online. These findings imply that where adults are exposed to computer use and with greater knowledge of online purchasing, then individuals are likely to be willing to utilise online platforms to undertake different activities.

The adult education instructors were also asked whether they involve learners in the choice of teaching

method. Their responses are provided in figure 2.

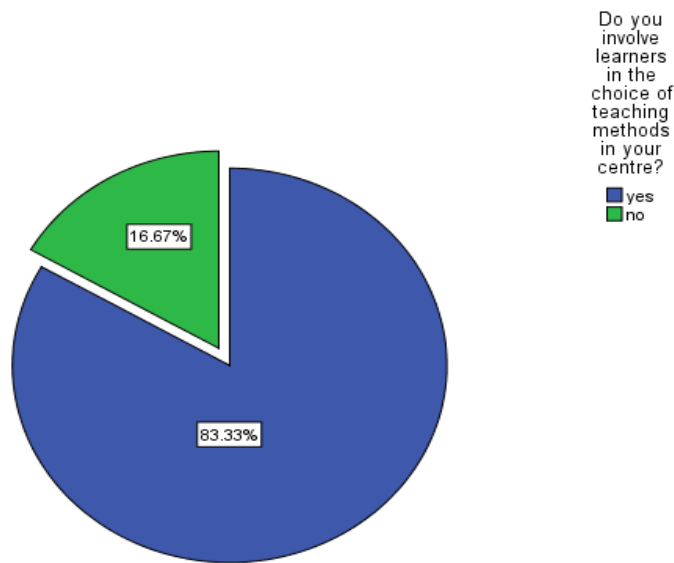


Figure 2: Involvement of learners in choice of teaching method

The figure shows that most instructors 83.33 percent involve their learners in the teaching method chosen while 16.67 percent indicated that the learners are not involved in the choice of teaching method adopted. The findings imply that most centres adopt teaching methods most preferred by the adult learners. As Gakuru. A.N & Gakunga D.K (2015) have stated, ICT is a tool that students can use to discover learning topics, solve problems, and provide solutions to the problems in the learning process. ICT makes knowledge acquisition more accessible, and concepts in learning areas are understood while engaging students in the application of ICT. Therefore, where the instructors use instructions methods most appropriate for their learners then digitization can occur effectively.

The adult instructors were also asked to indicate the factors influencing teaching and learning and table 1 displays their responses.

Table 1: Teaching and Learning materials

Teaching and Learning materials	N=108	F	%
What mainly do you consider in the choice of a teaching method?	Content	27	25.0
	Learners' ability	57	52.8
	Lesson objective	24	22.2
Where do you mainly get your teaching /learning aids for the adult education programme?	Department of adult education (Consumer	48	44.4
	Learners levies	42	38.9
	N.G.O's	12	11.1
	Community purchases	6	5.6
Are these aids appropriate to the literacy levels of your learners in terms of readability?	Fairly appropriate	54	50.0
	Very appropriate	51	47.2
	Not appropriate	3	2.8

Are the teaching /learning aids/material adequate?	Enough	27	25.0
	Not enough	81	75.0

In table 1, the findings show that the choice of the teaching method is mainly formed by the learners’ ability as most of the instructors’ 52.8 percent indicated. The lesson objective 22.2 percent and the content 25 percent were also found to be critical in informing the instructors’ choice of teaching method. These findings show that the ability of the learners is the main factor influencing the choice of the teaching method. This implies that the instructors adjust their instruction based on their learners’ understanding of the subject as well as their level of learning.

Further, the table also shows that the teaching and learning aids used in the adult community and learning centres are mainly sourced from the department of adult education 44.4 percent. Other sources were also consumer learners levy 38.9 percent, NGOs 11.1 per cent and community purchases 5.5 percent. The findings imply that the major sources of the teaching and learning aids for adult education are from the department of adult education and the learners’ levies. Educational and formal processes are adapted to students’ needs and the instruments can be used for related-education services.

The adult participation in the education calls on different computer reproduced and or simulated representations which are supported by techniques, colours, graphics and sounds. However, to fully reap the benefits of these resources, adult learners need to acquire competence and experience as well as get new knowledge on the activity fields. They also need to have an interconnection between virtual reality and physical reality.

The table also shows that in general the teaching aids are in line with the content the learners are learning terming them as readable. The other 47.2 percent of the instructors indicated that the tools are very appropriate for the literacy levels of the learners regarding their readability while 2.8 percent were of a contrary view. These findings imply that overall, the teaching aids used in the institutions are fairly appropriate in regards to meeting the needs of the adult learners. The researcher was able to observe and confirm that the teaching aids used in the adult and community centres are relevant to what the adult learners are being taught, though they are not enough for all the learners

The instructors were also asked if the teaching and learning materials were adequate where the majority 75 percent indicated that the materials were not sufficient whereas 25 percent indicated that the materials were enough. It can, therefore, be argued that most of the materials available for teaching and learning are not adequate to teach the number of students in the different centres. Due to the constraints such as limited materials and teaching aids, adults with limited literacy abilities, the adult learners enter the marketplace without the literacy resources of other consumers and are potentially more vulnerable.

The older people can be taught to utilise computers and its associated technology just the same way as the younger people UNESCO (2014) However, there are two additional considerations that should be made regarding the older adults’ teaching and learning of computers and technology. The first is the time needed to facilitate acquisition of computer skills by the older learners. The study established that the older learners need ample time to master new skills. Similarly, there was a need to ensure that the older adults learn to use computers and other technologies in a positive manner to make them feel valued and that they should expect success at the end of the learning process. Generally, the study showed that negative stereotypes of the older people avoiding technology and being incapable of using them are outdated. Where the older adults are given encouragement and clear explanations and examples, they can easily acquire the computer and other digital skills needed in today’s world.

The adult education instructors were presented with a range of opinions on ICT and teaching and learning-adult instructors as presented in the following table.

Table 2: ICT on teaching and learning (Adult instructors)

ICT and teaching and learning	N=108	F	%
How do adult learners view literacy classes?	for the aged	3	2.8
	for illiterates	27	25.0
	for source of knowledge	78	72.2
Are adult learners in your centre proud to be associated with adult learning	Few	21	19.4
	majority	87	80.6
What kind of assessment do you employ in your centre?	formative	75	69.4
	summative	33	30.6
How is the assessment administered in your centre?	oral test	33	30.6
	written test	69	63.9
	through practical's	6	5.6
In your opinion, should computer literacy be taught in adult education programmes as a subject on its own?	Yes	102	94.4
	No	6	5.6
Have you received any training on integration of computer literacy in adult education programmes?	Yes	51	47.2
	No	57	52.8
How do you rate yourself in content delivery?	excellent	51	47.2
	good	54	50.0
	Fair	3	2.8

As table 2 Shows, the majority of adult education instructors 72.2 percent indicated that the adults' learners view literacy classes as a source for knowledge while 25.0 percent view it as classes for illiterates and 2.8 percent view it as classes for the aged. Based on these findings, it can be deduced that most of the adult learners go to adult and community education centres to search for knowledge; hence, implementing ICT in these centres could aid the adult learners in gaining the much-needed knowledge to navigate the current e-digital platforms.

The table also shows that the adult instructors perceive most of their adult learners 80.6 percent to be proud to be associated with adult learning while 19.4 percent felt that the adult learners were not proud to be associated with adult learning. The adults view the adult learning process as an inevitable journey for those who want to enjoy the convenience that comes with the digital world. The majority of these may be those who viewed adult education to be a critical source of knowledge, and so they would be proud to be a part of the learning process to gain knowledge. New technologies, as Adalore (2019) contends, are becoming increasingly crucial in many aspects of people's daily lives and livelihoods. ICTs, particularly mobile phone devices, have unique advantages for learning both in and out of school.

The table also shows that in the learning centres, most adult instructors 69.4 percent reported that they use formative assessments while only 30.6 percent indicated that they use summative assessments. Further, most adult education instructors' 63.9 percent use written tests to administer assessments, 30.6 percent use oral tests and only 5.6 percent assess the learners using practical's. Overall, the findings shows that formative assessments are mainly used in the adult and community learning centres with oral and written tests being the main forms of administering the assessments.

Further, the findings also reveal that most of the adult education instructors 94.4 percent believed that computer literacy should be taught in adult education programmes as a subject on its own while 5.6 percent

were of contrary opinion. These findings suggest that most adult instructors feel the need to teach computer literacy independently which would increase the learners’ exposure to technology and enhance their understanding of how computers and other technologies work increasing their likelihood of using ICT gadgets effectively.

However, for these skills to be learnt, effective teaching and learning approaches are required. The tutors need to adopt a range of strategies to develop the adult learners’ digital skills. When it comes to ICT skills, a purely didactic approach or a time-intensive strategy of individual tutoring may be necessary as opposed to a lecture method. Collaborative learning was also found to be efficient in promoting the students’ understanding of the learning models among adult learners. In regard to training on integration of computer literacy in adult education programmes, most of the adult education instructors 52.8 percent indicated that they have not received any training on integration of computer literacy while only 47.2 percent indicated that they have received training. These findings suggest that even where computer literacy is introduced as an independent subject, there is need for further training of the adult education instructors to promote full integration of computer literacy in adult education programmes. Training enables the teachers to adopt models that offer life-long learning experiences for the teachers and the tutors through blended learning.

Lastly, the table shows that the majority of the adult education instructors 97.2 percent rated themselves as good and excellent in content delivery whereas 2.8 percent rated themselves as being fair. These findings imply that most of the instructors believe in their ability to deliver content effectively to the adult learners and in a way that the learners can comprehend the subject matter sufficiently. Overall, these findings have serious implications on the need to train the teachers in adult education classes to enhance their ability to utilise digital resources in the classes.

The learners were also asked a range of questions on ICT services on teaching and learning. Their responses are as provided in table 3

Table 3 Adult Learners’ responses on ICT teaching and learning

	N=375	F	%
Does your age interfere with your literacy learning process	Yes	81	21.6
	No	294	78.4
Do you feel proud to be associated with adult literacy programmes?	Yes	348	92.8
	No	27	7.2
At what stage is assessment carried out in your Centre by facilitators?	Continuously	240	64.0
	At the end of the course	135	36.0
How is assessment administered in your Centre	Through practical	123	32.8
	Through written test	234	62.4
	through oral test	84	22.4
	None	39	10.4
Are you awarded any certificate	Yes	252	67.2
	No	123	32.8
If yes, at what level	Certificate	273	72.8
	Diploma	33	8.8
	Degree	3	.8
	Not applicable	66	17.6

The learners were asked a range of questions on the implementation of ICT. First, the adult learners were

asked whether their age interferes with their learning experience. The majority 78.4 percent indicated that their age does not interfere with their learning experiences while 21.6 percent claimed that their age interferes with their learning. Moreover, the majority 92.8 percent indicated that they are proud to be associated with adult learning while 7.2 percent were not proud to be associated with adult learning. This shows that despite some of the adults indicating that their age interferes with their learning, they are still proud to be getting education in adult learning centres. The learning of digital skills which they receive enables them to acquire crucial skills which are very vital in performing most of their day to day activities in today’s world. Most of the adults have seen the need to engage in the adult learning process and they have viewed it as an inevitable journey for those who want to enjoy the convenience that comes with the digital world.

The adult learners were also asked the stages of assessment in the centres and the majority 64 percent indicated that assessments are continuous while 36 percent claimed that the assessments are conducted at the end of the course. The findings imply that most of the adult centres use continuous assessments to help them identify the learners’ mastery over subject content. The learners were also asked whether they are involved in the choice of assessment and most of the learner’s 51.2 percent indicated that they are involved in the choice of assessment while 48.8 percent claimed they are not involved in the choices. These findings suggest that the learners are mostly involved in choosing their preferred choice of assessment by the adult and community learning centres.

Most learners’ 67.2 percent also indicated that they are awarded certificates after their course. They were then asked if the certificates are given to them after completing which level and the majority 72.8 percent indicated that they are awarded certificates, after completing learning at a certificate level, while 8.8 percent claimed that they were awarded with a diploma certificate and a minority 0.8 percent claimed that they are awarded with a degree certificate. These findings show that adults in adult learning institutions do receive certification once they complete it with the majority receiving certificates. Older adults’ engagement with ICT can significantly enhance their quality of life and well-being. This is because with the certificates awarded the adult learners can advance in their career leading to one getting a better job hence leading to a better salary, therefore improving their quality of life.

The adult learners were also asked to rate the instructor’s willingness to teach them how to use ICT and promote e-learning. Their responses are as provided in the figure 3.

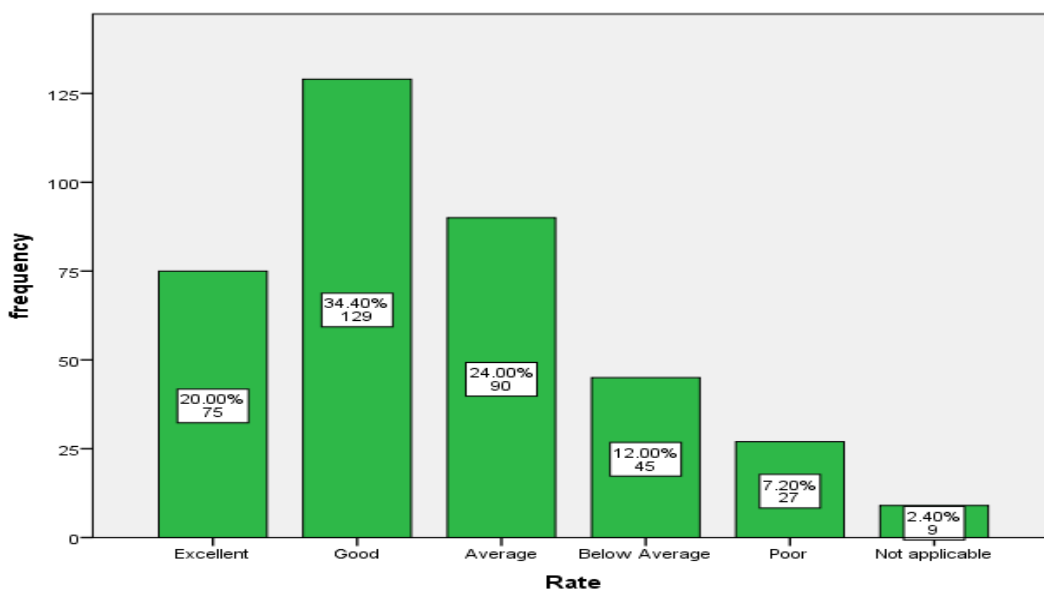


Figure 3: Instructors’ willingness to assist learners

The figure 3 shows that most students 34.4 percent and 20 percent rated their instructors' willingness to aid them learn ICT as good and excellent respectively. The figure also shows that the majority 24 percent of the students rated their instructors as average, 12 percent rated them below average and 7.2 percent rated them as poor. These findings imply that most majority of the adult instructors 78.4 percent are willing to teach them digital literacy though 21.6 per cent rated them as below average. This is viewed as a good aspect, because the adult learners are free to interact willingly and ask any underlying issues they could be facing from their instructors. In areas where the learners and instructors can interact freely; learning will take place effectively. The learners will also be assisted and guided by their adult instructors on matters related to digital literacy, hence improving their knowledge and skills.

SUMMARY CONCLUSION AND RECOMMENDATIONS

The research aimed to examine the influence of ICT technology on teaching and learning activities in adult and community education. It was found that role-play, illustration and group discussion were the most used methods of instruction employed by the instructors. It was found that most instructors' 83.33 per cent involve their learners in the choice of instruction method. Most instructors also indicated that they consider the learners' ability when choosing the method of teaching, while others consider the lessons' content and objective. It was also found that the teaching and learning aids were mainly sourced from the department of education and the learners' levies. It was found that the teaching aids were appropriate in meeting the learners' literacy needs. The research also established that generally, the learner's attitude towards adult education was positive with most perceiving it as a source of knowledge.

Regarding assessment, it was found that most assessments were formative and continuously administered mainly through written and oral tests.

Conclusion

The study concludes that ICT influences teaching and learning activities.

Recommendations from the study

Based on the findings and conclusions of the study, several recommendations have been made.

Recommendations for practice

1. Teaching and learning in adult education centres should be tailored towards the current digital needs required to navigate the ICT market to enable the adult learners to successfully access and use e-services.

Recommendations for policy:

1. The ministry of education should enact policies to make it compulsory for e-learning practices to be adapted in adult learning institutions. Such policies would ensure that the adult learners are adequately exposed to the digital world.
2. Policies should be put in place by the government to ensure that each school is equipped with adequate ICT infrastructure and physical facilities to promote efficient teaching and learning of digital literacies.
3. Policies should be put in place mandating teachers of adult learners to undergo annual seminars and workshops on the utilisation of ICT facilities to promote digital literacies among the adult learners. This is due to the daily advancement in digital literacy, the adult tutors need to equip themselves with

the knowledge so as to be able to effectively transmit it to the learners.

4. Teaching and learning in adult education centres should be tailored towards the current digital needs required to navigate the ICT market to enable the adult learners to successfully access and use e-services

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