Abstract

This study examined the use of a mobile application to train facilitators of adult literacy with a view to exploring the possibility of providing cost-effective facilitator training, as against regular training programmes which incur several additional costs for venue, feeding, production of training manuals, honorarium, accommodation, subsistence allowance, among others. This has been a reason for which facilitator training has become a neglected field in most African countries, especially Nigeria. The study adopted the pretest-posttest control group, quasi-experimental design, and selected 66 adult literacy facilitators using a multi-stage sampling procedure. Two research questions were raised and analysed using frequency count, mean and standard deviation. Results revealed that it is cheaper to train using the mobile application compared to conventional face-to-face training method; and that participants in the experimental group who used the Mobile Training Application performed better than participants in the control group who went through the conventional training. Recommendations were made based on these findings that awareness could be created among adult literacy facilitators about this innovation of the mobile application for training. Also, the government, as well as other organisations interested in the training of facilitators, such as UNESCO, could be encouraged to adopt this cost-effective means to train facilitators of adult literacy in Nigeria and other African countries.

Keywords: Mobile Application, Cost-effective Training, Nigeria, Facilitator, Adult Literacy
**Introduction**

Literacy in its simplest form is the ability to read, write and compute simple arithmetic and it is essential for personal, community, as well as national development. UNESCO (2016) considers literacy as essential for acquiring basic reading, writing and numeracy skills which further opens up an individual to an unlimited access to information as well as opportunity to learn throughout life. Through these skills people are empowered for the betterment of themselves and their society. For this reason, Damodharan and Rengarajan (1999) described literacy as an engine driving the development and improvement of any society, which implies that literacy does not only impart knowledge and skills, but is also important for human capital development which drives technological and economic growth.

Despite the key position and benefits of literacy to individuals as well as the nation, however, the problem of illiteracy still persists. In the world today, about 775 million adults are still not literate (UNESCO Institute of Statistics, 2016), with Africa recording the highest illiteracy rate of about 182 million adults unable to read and write in Sub-Saharan Africa (UNESCO Institute of Statistics, 2016). Yet, it has been established that the persistence of illiteracy is a major factor slowing down the pace of development in the continent. This calls for a rapid scaling up of adult literacy programmes. Researches, however, reveal that one of the major challenges confronting adult literacy delivery in Africa has to do with lack of qualified or properly trained adult literacy facilitators (Kester and Okemakinde, 2008; Onwuadi, 2012; Fasokun and Pwol, 2015). Therefore, a proper scaling up of adult literacy programmes cannot be achieved without addressing the problem of lack of qualified adult literacy facilitators.

Most adult literacy facilitators in Nigeria are volunteers who had no professional training in the theory and practice of adult learning. Most of them are either teachers in active service or retired from the formal education system, most of who never trained as adult educators or facilitators (Onwuadi, 2012; Ofoegbu and Agboeze, 2014). In the exact words of Prendiville (2008:10) “one of the main weaknesses of voluntary facilitators is their lack of andragogical training and lack of understanding of how to establish an atmosphere conducive for adult learning”. In other words, most facilitators of adult literacy programmes in Nigeria lack training in basic facilitation skills necessary for effective adult literacy teaching (Fasokun and Pwol, 2015). Moreover, the findings of the National Commission for Mass Literacy, Adult and Non-formal Education (NMEC) (2008) revealed that some adult education instructors in Nigeria possessed only post literacy certificate. It also revealed that about 54 percent of these instructors possessed Post-Secondary School certificates while a significant number of them were Teachers Grade II certificate holders.

This problem is further compounded due to the fact that trainings for literacy facilitators are carried out very infrequently or not at all in some cases. Even discussions focusing on the training of literacy facilitators today is regarded a neglected field and one noted by its lack of empirical investigation. For instance, there is said to be a dearth of both data and research as far as literacy facilitator training is concerned (Rogers, 2004; Maruatona, 2012; UNESCO, 2016). Training is indeed cost prohibitive (Kester and Owojuyigbe, 2014). This is due to the fact that in the course of training other costs are usually incurred. For instance, the cost of venue, feeding of trainees and resource persons, production of training materials or manuals, honorarium for resource persons, accommodation for trainees and resource persons, subsistence allowance for trainees and other logistics cost.

Under the Revitalizing Adult and Youth Literacy (RAYL) project, for example, 12 million naira was released by UNESCO to the southwest zone of the country alone for the training of 60 facilitators. This implies that N200,000 was expended on each facilitator (RAYL Final Report, 2017). Considering the number of facilitators in the non-formal sector, the attempt by UNESCO is only a drop in a bucket. The number of facilitators trained represents a minute fraction of the whole. Yet, it is expected that trainings should be carried out quarterly, implying that the total cost of training a facilitator 4 times a year is N800,000. It is for this reason, which is, the prohibitive cost required to organise professional facilitator training, as well as the fact that the non-formal education sector rarely gets adequate funding from government, that a more cost-effective approach to training needs to be explored (Kester and Owojuyigbe, 2014).

Meanwhile, studies in Africa have found the use of mobile phones among individuals to be very important. The mobile phone unlike computer is easily accessible and affordable, making it the most appropriate for developing countries. In addition, mobile phones are cheaper compared to other ICT tools such as computers, laptops, tablets, personal digital assistants among others. More so, among mobile devices such as netbook, smartphone, e-book reader and tablet, the smartphone is the cheapest. Besides, mobile phones have some affordances personal computers (PCs)
cannot boast of; some of which include ubiquity, mobility, lifespan of battery, several applications and tools which could be improvised or adapted for educational use and above all high penetration rate in Africa (International Telecommunications Union, 2010; Goundar, 2011; Adedoja, Adelore, Egbokhare, and Oluleye, 2013; Adelore, 2017).

For this reason, this study experimented with a Mobile Training Application (MTA) for facilitation skills enhancement. The MTA is a software for facilitator training designed by the researcher. This application was installed on android OS mobile phones and used for facilitator training without bringing them to a particular location. With this mobile application installed on facilitators’ mobile phones they had access to training content on the go; anywhere and at any time.

Previous studies have established the problem of lack of appropriate facilitation skills due to poor training; training as a determinant of job performance among literacy facilitators, as well as the fact that training is cost prohibitive (Fasokun and Pwol, 2015; Oyelami, 2017; Kester and Owojuyigbe, 2014). However, there appears to be no empirical record of the use of ICTs, particularly the mobile phone for the training of literacy facilitators, despite its great affordances. It is against this backdrop this study designed and developed a Mobile Training Application (MTA) and used it to train facilitators of adult literacy for facilitation skills enhancement.

**Objectives of the Study**

The general objective of this study was to develop a mobile training application and use it to train adult literacy facilitators for facilitation skills enhancement in Oyo State, Nigeria. The specific objectives of the study include the following:

i. To determine the cost effectiveness of the use of the Mobile Training Application (MTA) for training compared to conventional training.

ii. To examine the effect of treatment (the application) on facilitation skills.

iii. To determine the difference between the achievement of participants in experimental and control groups.

**Research Question**

i. How cost effective is the use of the application for training compared to conventional training?

ii. What is the difference between the achievement of participants in experimental and control groups?

**Research Hypothesis**

Ho: There is no significant main effect of treatment on facilitation skills.

**Methodology**

**Research Design:**

The study adopted the pretest-posttest control group, quasi-experimental research design.

**Sample and Sampling Techniques:**

The sample size for this study was 66, which was selected using a multi-stage sampling procedure. Thirty-three (33) participants were assigned to each of experimental and control groups respectively. This was done as follows:

**Stage 1:** All the 33 Local Government Areas (LGAs) in Oyo State were selected by total enumeration.
Stage 2: Sixty-six (66) adult literacy facilitators facilitating in conventional literacy centres in Oyo State, under the oversight of the State Agency Adult and Non-Formal Education (AANFE), were selected by total enumeration. This was done in order to prevent attrition to be barest minimum in the course of this study.

Stage 3: The 33 LGAs were divided into 7 zones using Stratified Sampling Technique. This was done in line with AANFE’s style of zoning literacy centres in Oyo State. The zones include Ibadan City (with 5 LGAs); Ibadan Less City (with 6 LGAs); Ibarapa (with 3 LGAs); Ogbomoso (with 5 LGAs); Oke-Ogun 1 (with 5 LGAs); Oke-Ogun 2 (with 5 LGAs); and Oyo (with 4 LGAs). This zoning was necessitated by the need to make monitoring and assessment of participants (which are important parts of this study) easy.

Results

Research Question 1: How cost effective is the use of the application for training compared to conventional training?

![Bar Chart]

Fig. 1: Number of Facilitators Trained and Cost Implication by UNESCO and through the Mobile Training App

Source: (RAYL Final Report, 2017; Field Work, 2021)

The figure above shows the number of facilitators trained under UNESCO’s Revitalising Adult and Youth Literacy (RAYL) Project and those trained through the use of the Mobile Training Application (MTA) developed in this study, as well as the cost implications of these trainings. The figure reveals that UNESCO, under the RAYL Project spent N12 million to train 60 facilitators in South-Western Nigeria. It also reveals that with the use of the Mobile Training App, it cost N2.4 million to train 33 facilitators (and has the capacity to train an unlimited number of facilitators).
Research Question 2: What is the difference between the achievement of participants in experimental and control groups?

![Bar chart showing the difference between the achievement of participants in experimental and control groups.](image)

**Fig. 2: Difference Between the Achievement of Participants in Experimental and Control Group**

*Source: Field Work (2021)*

The figure above shows the various facilitation skills levels of facilitators in the experimental and control groups after the intervention. It reveals that 54.5% of the facilitators possessed high facilitation skills in the experimental group, while 51.5% of the facilitators in control group possessed high facilitation skills. It also reveals that 36.4% of the facilitators possessed intermediate facilitation skills in the experimental group, while 30.3% of the facilitators possessed intermediate facilitation skills in the control group. And lastly, 9.1% and 18.2% of the facilitators fell within the low facilitation skills level in the experimental and control groups respectively. This result indicates that facilitators in the experimental group performed better than those in the control group. This, therefore, suggest that facilitators who used the Mobile Training App for training achieved better compared to those who used the Conventional Training Manual.
Hypothesis: There is no significant main effect of treatment on facilitation skills.

Table 1: Summary of Analysis of Covariance (ANCOVA) on Facilitation Skills

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>1.113(^a)</td>
<td>2</td>
<td>.556</td>
<td>2.519</td>
<td>.089</td>
<td>.074</td>
</tr>
<tr>
<td>Intercept</td>
<td>42.866</td>
<td>1</td>
<td>42.866</td>
<td>194.042</td>
<td>.000</td>
<td>.755</td>
</tr>
<tr>
<td>Pre_ECS</td>
<td>.143</td>
<td>1</td>
<td>.143</td>
<td>.648</td>
<td>.424</td>
<td>.010</td>
</tr>
<tr>
<td>APP</td>
<td>1.026</td>
<td>1</td>
<td>1.026</td>
<td>4.644</td>
<td>.035</td>
<td>.069</td>
</tr>
<tr>
<td>Error</td>
<td>13.917</td>
<td>63</td>
<td>.221</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1008.000</td>
<td>66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>15.030</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .074 (Adjusted R Squared = .045)

The above table reveals that there is a significant main effect of treatment on facilitators’ effective communication skills \(F(163) = 4.64; p<0.05; \eta^2 = .07\). Therefore, the null hypothesis \(H_0\) is rejected. It also reveals that there is a significant main effect of treatment on facilitators’ active listening skills \(F(163) = 4.73; p<0.05; \eta^2 = .07\). Therefore, the null hypothesis \(H_0\) is rejected. Similarly, the table show that there is no significant main effect of treatment on facilitators’ participation enhancement skills \(F(163) = .04; p>0.05; \eta^2 = .00\). Therefore, the null hypothesis \(H_0\) is accepted. It also shows that there is no significant main effect of treatment on facilitators’ lesson planning skills \(F(163) = .89; p>0.05; \eta^2 = .01\). Therefore, the null hypothesis \(H_0\) is accepted. Lastly, the table reveals that there is a significant main effect of treatment on facilitators’ evaluation skills \(F(163) = 6.38; p<0.05; \eta^2 = .09\). Therefore, the null hypothesis \(H_0\) is rejected.

Discussion of Findings

Results of the study imply that it is cheaper to train using the mobile app compared to conventional face-to-face training method. For instance, the Training of Trainers (TOT) capacity building programme for literacy facilitators organised in 2014 under UNESCO’s RAYL project, cost 12 million naira. This fund was meant for the southwest zone alone, and for the training of 60 facilitators (RAYL Final Report, 2017). Meanwhile, with the use of the Mobile Training App, 33 facilitators were trained (and had the capacity to train an unlimited number of facilitators), with 2.4 million naira. This also means that with only 20% (N2.4 million) of the amount (N12 million) expended by UNESCO to train 60 facilitators in southwest zone alone, facilitators in the whole country could have been trained using the Mobile Training App.

This is in line with the finding of Akinyele (1988), one of the earliest studies which explored the use of ICT for adult learning in Nigeria, and found ICT-enabled instructional package to be cost-effective compared to face-to-face instructional package. Reasons for this are not farfetched, as a lot of indirect costs are incurred when holding a physical (face-to-face) training programme. For instance, costs for venue of the training; decorating the venue; accommodation for trainees; accommodation for resource persons; feeding of trainees and resource persons; payment of honorarium to resource persons; payment of subsistence allowance to trainee; payment of transportation fare to trainees; payment of allowance to other staff of the organisers of the training, and many more. All of these are indirect costs, but can take a huge lump of the total budget for the training. Yet, there is still a more direct cost which must be incurred in organising such training programme, which is the cost for the production of the facilitators’ training manual. Practically, the amount incurred on all the indirect costs mentioned above, are always a lot greater than what is spent on the production of the training manual, which is the most important component of the training.

Meanwhile, Kester and Owojuyigbe (2014) recommended that a more cost-effective approach to adult literacy facilitators’ training ought to be explored, particularly due to the fact that the non-formal education sector rarely gets adequate funding from the government. This study has attempted a solution to this problem, by innovating a new and cost-effective approach to training adult literacy facilitators. Adelore and Ojedeji (2022) also believed that with a cost-
effective approach to training, the government and other stakeholders could be encouraged to reconsider sponsoring more training programmes for adult literacy facilitators. Results from this study have confirmed that an innovative and cost-effect approach to facilitators’ training is indeed possible. This has equally dismissed the fears and impression that many have that once it is technology it is very expensive or highly cost-intensive. Findings from this study have shown that although technology use (particularly the mobile app) for training might be expensive to initiate, but this is usually only an initial cost. Once the app is up and running, it could be used to train limitless number of people. In this wise, training through the mobile app is cheaper compared to the conventional face-to-face approach.

Results also imply that there is a significant main effect of treatment on facilitators’ effective communication skills. This means that facilitators who used the mobile app for training recorded improvement in their communication skills. This is in line with the position of Youngman and Singh (2005) who maintained that training leads to improved performance in terms of effective communication of adult literacy facilitators. Also, Adelore and Ojedeji (2022) considered training to be essential for improvement in communication skills of facilitators, which is also crucial for effective literacy teaching. This is simply because adult literacy facilitation has changed greatly from what it used to be many years ago. Literacy facilitation, therefore, in today’s world requires better specialised skills and effective communication takes the lead in the line-up of such skills. The best recognised way of helping facilitation master such skills is through specialized training programmes designed to teach specific facilitation skills.

Adelore and Ojedeji (2020) also found that training generally is capable of enhancing functional skills. They stated that facilitators are the ones driving the success of adult literacy programmes and the kind of training they are given is highly essential for their delivery. Results of their study signified that not only effective planning, material and financial support are responsible for the success achieved in adult literacy programmes, but more importantly the facilitation skills level of the facilitators who are the main drivers of such programmes. Thus, it was established that the performance of literacy facilitators is strongly connected to the kind of training they receive. The finding of this study is not any different, as training did enhance the facilitation skills, particularly effective communication skills of facilitators.

In the same vein, results of this study imply that there is a significant main effect of treatment on facilitators’ active listening skills. This means that facilitators who used the mobile app for training recorded improvement in their active listening skills. This finding buttresses the position of Prendiville (2008) and Rogers (2005) that active listening as more than mere listening, which makes it a skill. And that it is through specialised trainings that such skills are acquired or enhanced. For this reason, Rogers (2005) recommended training programmes that enhance active listening skills for facilitators of adults. Thus, this study has further established that specialised training programmes are capable to enhancing active listening skills of adult literacy facilitators.

Meanwhile, Rogers (2005) stated that one of the major weaknesses of the fact that most adult literacy facilitators are volunteers from the formal education system is their lack of necessary skills of facilitation, particularly as it relates to adults. For this reason, he maintained that such skill gap could only be bridged through training and this study has shown this to be true. It is also interesting to note that the use of the mobile app as a mode of delivery of the training programme in no wise hampered the outcome of the training. This is in line with the finding of Adelore and Ojedeji (2016) whose study revealed the use of WhasApp mobile application as a useful learning support tool. Similarly, Jordan, Laubscher and Blignaut (2017) found the use of mobile applications for learning to be highly stimulating and one that provides learners with better experience compared to what happens in the conventional class. In a similar manner, this study has shown that just as other forms of learning, facilitators’ training could also benefit immensely from the affordances of the mobile technology. For instance, facilitators who used the mobile app for training recorded improvement in their active listening skills, and performed even better than those who used the conventional training method.

Results also show that there is no significant main effect of treatment on facilitators’ participation enhancement skills. This means that facilitators who used the mobile app for training recorded no significant improvement in their participation enhancement skills. This result lends credence to the fact that literacy facilitators are essentially volunteers who are trained teachers from the formal education system. For instance, it is expected that a teacher who has been teaching for years should be capable of enhancing the participation of learners in the learning environment. Thus, the result of this study revealed that the display of participation enhancement skills on the part of facilitators was not traceable to training they received through the use of the mobile training application. Yet, this has nothing to
do with the mobile training app, but with the fact that facilitators are experienced teachers who are skillful at enhancing the participation of learners in the learning environment. Thus, this finding is contrary to the opinion of Rogers (2005) that participation enhancement is a skill which most literacy facilitators do not possess. On the contrary, this result aligns with the position of Prendiville (2008) that most facilitators of adult literacy have a wealth of teaching experience which is considered a huge advantage. Thus, one of such advantages is the fact that an average adult literacy facilitator ought to be able to skillful at enhancing the participation of learners at the literacy centre, having been in the teaching profession for years.

Again, this contradicts the position of Rogers (2005) that what it takes to enhance the participation of children is different from what it takes to enhance the participation of adults. Thereby suggesting that the experiences facilitators have gathered over the years as teachers in the formal education system is not relevant for adult literacy teaching. Results from this study has shown that the experience of teachers who volunteer as facilitators cannot be disregarded, but maximised and further enhanced for improved productivity on the part of the facilitators. Training, therefore, as far as participation enhancement skill is concerned is mostly for skill enhancement rather than acquisition.

Similarly, results imply that there is no significant main effect of treatment on facilitators’ lesson planning skills. This means that facilitators who used the mobile app for training recorded no significant improvement in their lesson planning skills as a result of using the app for training. This result again supports the fact that those who work as facilitators are experienced teachers who are skillful at planning their lessons. Thus, the use of the mobile training application for training had no significant effect on their lesson planning skills because they are already skillful as far as lesson planning is concerned before the intervention. Therefore, their display of this skill could not be attributed to the use of the mobile app for training. This is in line with the position of Adelore and Ojedeji (2019) that most adult literacy facilitators are qualified teachers though not of adults. Therefore, it is normal to expect that such facilitators will possess appropriate lesson planning skills. Meanwhile, lesson planning skill is similar across levels. This means that the same lesson planning skills a teacher in the formal education system possesses is equally relevant for use in the adult literacy centre. Again, the vast experience teachers in the formal education system who volunteer as teachers have in this wise is not in any way disregarded.

Also, results imply that there is a significant main effect of treatments on facilitators’ evaluation skills. This means that facilitators who used the mobile app for training recorded improvement in their evaluation skills. This confirms the position of Land (2005) who emphasised adult literacy facilitator need to be trained, and that such training is essential for enhancements of their lesson planning skills in particular, as well as other facilitation skills.

Land (2005) argued that several training programmes which have been organised for literacy facilitators in the past hardly focus on lesson planning skills. He argued further that many times training programmes are organised based on organiser’s perceived needs rather than based on facilitators’ training needs. Therefore, he concluded that training programmes that are more sensitive to facilitators’ training needs hold much benefit for the enhancement of facilitation skill, particularly lesson planning skills. This study, therefore, is in agreement with this position having established that there is a significant effect of training on facilitators’ evaluation skills.

**Conclusion and Recommendations**

This study established that facilitator training through the use of a mobile app is more cost-effective compared to training through the conventional face-to-face mode. Similarly, the study revealed that training via the mobile app achieved better results compared to training via the conventional mode.

Having established that the Mobile Training App is more cost-effective compared to conventional training, the government, as well as other organisations interested in the training of facilitators, such as UNESCO, could be encouraged to adopt this means to train facilitators. This could be done by adopting the standard and validated procedure provided in this study or by simply adopting the use of the one already developed in this study.

Policy makers could empower government agencies saddled with the responsibility of providing and monitoring adult literacy programmes such as AANFE and NMEC, through necessary policies to champion the course of developing more mobile training applications for cost-effective facilitator training in the future.
References


Rogers, A. 2004. Non-formal Education: Flexible Schooling or Participatory Education? Hong Kong: University of Hong Kong, and Dordrecht: Kluwer.

Rogers, A. 2005. Training Adult Literacy Educators in Developing Countries. Education for All Global Monitoring Report 2006, Literacy for All. UNESCO.

