

DIFFICULTY PHASES IN THE PRODUCTION OF AUDIO-TUTORIAL INSTRUCTIONAL PACKAGE AS PERCEIVED BY STUDENT TEACHERS IN FEDERAL UNIVERSITY DUTSIN-MA, KATSINA STATE, NIGERIA

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ABSTRACT

This study verified and proved the difficult phases in the production of audio-tutorial instructional package as perceived by student teachers in Federal University Dutsin-Ma Katsina State, Nigeria. The target population was all the eighty-eight (88) student teachers at the 2021/2022 Long Vacation Training (LVT) education programme in the Federal University Dutsin-Ma, Katsina State. All these eighty-eight (88) student-teachers that are in contact four who registered for Educational Technology course and were taught both practical and theory in the production of audio-tutorial instructional package were purposively selected for the study. The validation of the instrument was done by two lecturers in the Faculty of Education in the Federal University Dutsin-Ma, Katsina State. The instrument was pilot-tested using 20 students who are not part of the main study. The instrument reliability was established by using Cronbach Alpha and the value obtained was 0.71. The data collected were analyzed using descriptive statistics of frequency counts and percentages as well as inferential statistics of t-test and Analysis of Variance (ANOVA). The findings of the study revealed that the difficult phase in the production of audio-tutorial instructional package is the development phase. There is significant difference in the opinion of male and female and as well as the opinion of in-service, pre-service and starter teachers in the difficult phase of audio –tutorial instructional package. Based on these findings, it was recommended that Lecturers handling Educational Technology course should emphasis more on development phase while teaching students on production of instructional media in education.

Keywords: Production, Audio-tutorial, Production Phases, Instructional Package, Perception.

Introduction

One of the functions of Educational Technology from its definition is to help teachers and trainers to be able to create learning resources that will help learners to exhibit desirable change and be able to achieve the objectives stated for the lessons. This is established in the definition given by Januszewski & Molenda(2008) which emphasizes that the knowledge acquired in the field of Educational Technology will help teachers and trainers to create

resources to support verbal instructional content delivery, help in the effective use or integration of resources during teaching/learning process and as well help in the management of the resources created in order to prolong its life span. Achieving educational success is paramount in every country of the World and that is why the 'Educational Technology' is made one the compulsory general education courses be offered and passed before receiving the award of education certificate in any field in education just as other educational courses like Psychology, Sociology, Educational Research, Statistics, Curriculum and so on. In short, the knowledge acquire in the field of Educational Technology will enable teachers to be able to produce cost effective teaching materials in manual and digital forms, help in integrating several innovative methods while teaching, help in effective usage of learning resources and as well in the management of the learning resource created so as to help in improving the performance of learners in any field of study.

The learning resources that teachers can produce ranges from visual, audio, audio-visual, multimedia and hypermedia. These resources can also be in the form of manual or digital. Many of manually created resources may not need any device to relay them but digitally created resources need machines or any electronically operated device or network to transmit the instructional messages in them. In this context, the production of digitally produced mobile audio- tutorial instructional package is the focus of this study.

The term 'Audio Tutorial' was first used by a Professor Postlethwait of Botany in Purdue University in 1961 as reported by Robert (1983). The intention of this seasoned teacher for introducing this innovative system and learning materials was to help learners who have poor background in the subject and as well finding mean of addressing the issue of large class during teaching/learning process. Audio-tutorial system as defined by Mangal (2010) is the system or teaching strategy in which well-planned instructions carrying appropriate learning experiences are provided to learners on audio-tape/disc to be followed by students according to own their own pace.

The audio-tutorial instructional package is the production of learning content on material like audio cassettes, audio CDs, Memory cards and so on, which could be made available to learners individually or in group before coming for physical interaction with the teacher or peer. Audio-tutorial instructional package becomes mobile audio tutorial when produced and the instructional content is delivered or communicated and the interaction between teacher and student, student to student is sustained using mobile devices (Omiola, 2020). The success of this innovative audio-tutorial system was high in helping biology students and this makes its usage to spread to all other fields of study as reported by Houlden, Frid, and Collier. (1998). Also, Omiola, Abdulsalam and Ogwuche (2016) equally reported its effectiveness in teaching English language pronunciation in secondary school as students taught using audio-tutorial system performed better in English language pronunciation than their counter parts in the conventional group. This proves to the researchers that, this mobile audio-tutorial instructional package should be a welcome system or digital learning material to be adopted in the field of education especially in this period when the whole world is experiencing one outbreak of one disease or the other that is keeping students away from face-to-face physical interaction with the teachers.

As part of the lecturers preparing student teachers for teaching tasks in one of the Universities in Nigeria, one of the areas stressed is the production of instructional materials that could help the pre-service teachers to easily support or facilitate the learning content while teaching. In doing this, ADDIE model of instructional design procedures are modified and adapted. ADDIE is an acronym for Analysis, Design, Development, Implementation, and Evaluation. The purpose of this instructional design model is to help educators ensure that they are teaching the appropriate material in an optimal manner, or to provide both an appropriate destination, and the right road to the achievement of learning objectives. The ADDIE model has been used to develop curriculum and curriculum materials in diverse fields such as library instruction and online continuing education and in any other field and based on these testimonials, the researchers observed that it is a worthy model to be adapted for instructional media production. These five procedures are modified to four in this study: Design, Development, Implementation and Evaluation/Validation phases. Analysis phase is merged with design phase and that is the only modification done to the original model.

Design Phase: at this stage the producer needs to identify the need of the learner, formulate objectives relating to the need, develop the instructional content to meet the need, develop the production script which serves as the blueprint, vet the script and practice reading the script in preparation for the development or production stage.

Development Phase: this is the stage where the developer or producer makes use of appropriate electronic devices and experts to transform the content of audio-tutorial script into tangible format such audio, video or any other formats which students can use and meet the learning objectives.

Implementation Phase: this is the stage where the developer or producer trial test the instructional package developed or produced before final production. Smaller group of the target population will be used to test the package and the feedback received will be used to modify the production before embarking on the final production.

Evaluation/Validation Phase: in this stage, the developer or producer obtains feedback about the program and make the appropriate adjustments to the instructional media produced. Here, the producer gives instructions to ensure effective usage of the instructional media developed or produced (Hsu, Lee-Hsieh, Turton, and Cheng, 2014).

The above four phases are followed by the lecturer to teach production of instructional material to student teachers in theory and practice which they have done. The area of interest of the researchers here is to find out the difficult phases among the production phases so as to help incoming student teachers overcome with ease the difficulty stages identified.

Purpose of the Study

The main purpose of this study is to determine the difficulty phases in the production of audio-tutorial instructional package as perceived by student teachers in Federal University Dutsin-Ma, Katsina State, Nigeria. Specifically, the study determines:

1. Difficulty phases in the production of audio-tutorial instructional package
2. Difference in the opinion of student teachers regarding the difficulty phases in the production of audio-tutorial instructional package based on gender

3. Difference in the opinion of student teachers regarding the difficulty phases in the production of audio-tutorial instructional package based on type of schools of student teachers.

Research Questions

The following questions are used to guide the conduct of this study:

1. What is the difficulty phase in the production of audio-tutorial instructional package as perceived by student teachers in Federal University Dutsin-Ma, Katsina State?
2. What is the difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on gender?
3. What is the difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on type of experiences of student teachers?

Research Hypotheses

The following hypotheses are tested at 0.05 significance level:

Ho1: there is no significance difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on gender.

Ho2: there is no significance difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on type of experiences of student teachers.

Methodology

This study makes use of a descriptive survey research and it employs both qualitative and quantitative data. The target population was all the eighty-eight (88) student teachers at the 2021/2022 Long Vacation Training (LVT) education programme in the Federal University Dutsin-Ma, Katsina State. All these eighty-eight (88) student teachers that are in contact four that registered for Educational Technology course and were taught both practical and theory in the production of audio-tutorial instructional package. This target population were grouped into in-service teachers (teachers already teaching in the public school that needed more certificate), pre-service teachers (teachers who are in training in the school with NCE certificate who have not secured teaching appointment with the government) and starter teachers (pre-service teachers who have school certificate in WAEC, NECO, NABTEB and other relevant certificates and are undergoing training to become qualified teachers). Purposive sampling technique was used to select all the student teachers that registered for Educational Technology (EDU 311) course. The reason for using purpose sampling technique was that the population is few. The instrument used for this study was a researchers' designed questionnaire with a Likert scale of Very Difficult, Difficult, and Not Difficult. The face and content validations of the instrument was done by two lecturers at the Faculty of Education, Federal University Dutsin-Ma, Katsina State. The instrument was pilot-tested using 20 students who do not take part in the main study and the reliability co-efficient of the data collected were computed using Cronbach Alpha. The value of the internal consistency of the instrument was 0.71 and this reliability co-efficient value was considered appropriate for the study. After teaching the student teachers on how to produce audio-tutorial instructional package following the four phases (Design, Development, Implementation and Evaluation) and thereafter, they were subjected to production activities. The researchers made distribution of the questionnaire to the respondents and waited patiently to collect it. The researcher also

made one to one interview with some of the respondents to authenticate the outcomes from the findings. The data collected was sorted and analyzed using descriptive statistics of frequency count, percentages, mean, and standard deviation to answer research questions while inferential statistics was used to test the hypotheses at 0.05 significant level.

Results

Research Question One

What is the difficult phase in the production of audio-tutorial instructional package as perceived by student teachers in Federal University Dutsin-Ma, Katsina State?

Table 1: difficult phase in the production of audio-tutorial instructional package as perceived by student teachers in Federal University Dutsin-Ma, Katsina State

Identify difficult phase in the production of audio-tutorial instructional package below:	Very Difficult	Difficult	Not Difficult	Mean	Std	Decision
Design phase which involves identifying the need, stating objectives, developing content to meet the need, writing, vetting and reading the script in preparation for its development	0, (0)	4(4.5)	84 (95.5)	2.95	0.209	ND
Development phase which involves the usage of appropriate electronic devices and experts to transform the content of audio-tutorial script into tangible instructional media like audio, video, multimedia, hypermedia and so on	80, (90.9)	8, (9.1)	0, (0)	1.545	0.1446	V.D
Implementation phase which involves trial testing of the developed or produced audio-tutorial package in order to get feedback on the media produced	6 (6.8)	7(8.0)	76, (85.2)	2.818	0.94497	ND
Evaluation phase which involves modification of the audio-tutorial instructional package produced based on the feedback received from implementation stage and writing of instructional guide for its effective usage	5, (5.4)	6(6.8)	77(87.5)	2.841	0.4190	ND
Decision mean=2.50						

The table I shows that respondents in this study agreed that the only difficult phase in the production of audio-tutorial instructional package is development phase. The mean score is 1.545 which is below 2.50 cut of marks.

Research Question Two

What is the difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on gender?

Hypothesis One

Ho1: there is no significance difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on gender.

Table 2: Opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on gender.

Group	N	X	Std	df	t	Sig. (2-tailed)	Decision
Male	54	10.417	1.658	86	3.724	0.000	Ho1 Rejected
Female	34	9.570	1.63				

The result from table 2 revealed that there is significant difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on gender. The $t(86) = 3.724$, sig (2-tailed) = 0.000 and $p < 0.05$ significant level.

Research Question Three

What is the difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on type of experiences of student teachers?

Hypothesis Two

Ho2: there is no significance difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on type of experiences of student teachers.

Table 3: Opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on their teaching experiences

Group	Number	Mean	Standard Deviation
In-service teachers	25	9.660	1.3128
Pre-service teachers	23	10.326	0.6326
Starter	40	10.375	0.710

The result in table 3 showed the respondents mean scores based on the level of their teaching experience are: in-service teachers (9.660), pre-service teachers (10.326) and starter (10.375) respectively.

Table 4: One Way Analysis of Variance (ANOVA) on the difference in the mean Opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on their teaching experiences

Group	Sum of squares	df	Mean square	F	Sig.	Decision
Between Groups	8.733	2	4.367			
Within Groups	55.039	85	0.683	6.395	0.003	Ho2 Rejected
Total	66.773	87				

Analysis of Variance (ANOVA) in table 4 indicated that there is significant difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on their teaching experiences. This is because $f(2, 366) = 6.395$, $sig = 0.003$ and $p < 0.05$ significant level.

Table 5: post hoc test of difference among the mean scores of groups

(I) experience, (J) experience	Mean difference (I-J)	Std error	Sig.
In-service Pre-service teachers	0.6661	0.2387	0.024
In-service Starter teachers	0.7150	0.2107	0.005
In-service In-service teachers	0.6661	0.2387	0.024
Pre-service Starter teachers	0.0489	0.2162	0.975
Pre-service In-service teachers	0.7150	0.2107	0.005
Starter Pre-service teachers	0.0489	0.2162	0.975

The mean difference is significant at 0.05 level.

To further verify the direction or where the difference lies among the three groups, post hoc analysis was carried out using scheffe test. There is significant difference in the opinion of pre-service teachers and starter teachers (0.024 and 0.005). and the difference is in favour of starter teachers. There is no significant difference in the opinion of in-service teachers and starter teachers (0.024 and 0.975). There is significant difference in the opinion of in-service teachers and pre-service teachers (0.005 and 0.975). The difference is favour of in-service teachers.

Discussion

The finding of this study revealed that the respondents in this study agreed that the only difficult phase in the production of audio-tutorial instructional package is development phase. This is in line with the qualitative report gathered from the respondents through interview. The reasons why development phase is assumed to be difficult is because it cannot be handled individually without the help of the professional or experts except the student is endowed with necessary ICT skills that will help in the process. Also, the development phase

needs electronic devices such as computer with necessary software and mobile devices such smart phone and palmtop which may be difficult for students to acquire.

The finding equally indicated that there is significant difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on gender. The difference in the favour of male. When the students were interviewed based on this outcome, it was gathered that male students are willing to learn new things in addition to knowledge they have before and they devoted time to it. The female students complained that home chores and other family affairs stand as conflicting factors. Although, this outcome is contrary to the finding of Salihu, Usman, Mohammed and Buhari (2020) while measuring the perception of tertiary institutions towards advancing knowledge-based economy in Nigeria where there was no significant difference in the opinion of both male and female.

The outcome of this study showed that there is significant difference in the opinion of student teachers regarding the difficult phase in the production of audio-tutorial instructional package based on their teaching experience. When post hoc test was conducted to establish the difference among the groups, it was reported that, there is significant difference in the opinion of pre-service teachers and starter teachers and the difference is in favour of the starter. Qualitative report gathered from the student teachers was in support of this finding because they show interest in digital skills development but the pre-service teachers are majorly adults who do not show much interest in the digital skills development. There is no significant difference in the opinion of in-service teachers and starter teachers. These two groups have positive means. This outcome supported the qualitative report from the student teachers because they confirmed that in-service teachers have gathered enough digital skills and experience that will help them while the starters are young and willing to learn digital skills. There is significant difference in the opinion of in-service teachers and pre-service teachers. The difference is favour of in-service teachers. This finding is line with the qualitative report gathered from student teachers because in-service teachers have experience and they have been working with the government before while pre-service teachers are just teachers in training with little experience. This finding do not support the finding of Salihu, Usman, Mohammed and Buhari (2020) while measuring the perception of tertiary institutions towards advancing knowledge based economy in Nigeria where there was no significant difference in the opinion of undergraduate students, Master students and Ph.D. students.

Conclusion

Based on the findings of this study, it can be concluded that the difficult phase in the production of audio-tutorial instructional package is the development phase. There is significant difference in the opinion of male and female and as well as the opinion of in-service, pre-service and starter teachers in the difficult phase of audio –tutorial instructional package.

Recommendations

The following recommendations are given based on the findings of this study:

1. Lecturers handling Educational Technology course should emphasis more on development phase while teaching students on production of instructional media in education.

2. University authority should make provision for enough computers and necessary software to help student teachers develop digital skills.
3. Lecturers handling Educational Technology course should be exposed to training and re-training on the use of computer and appropriate software for the production of instructional media in education.

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