

Expert Rating and Undergraduate Students Attitude towards Developed Interactive Multimedia Instructional Package on Selected Educational Technology Concepts in Kwara State

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Abstract

Instructional technology which is the use of different techniques and methods of passing instruction had undergone different evolutionary changes overtime. Among recent development is the imploration of interactive multimedia tools, and techniques to enhance instructional delivery to learners. Disparities in learning abilities among learners necessitated the need to develop a complementary individualized instructional multimedia package that could assist learners to concretize knowledge. This study explored design and development of interactive multimedia instructional package (IMIP) on selected concepts in educational technology for undergraduates in Kwara State, Nigeria. Specifically; it was developed to teach selected educational technology concepts in modules, determined experts' rating of IMIP on the selected concepts and, determined students' attitude towards the effectiveness of the package. The study was a design and development research type. Three research instruments were used to elicit responses from participants. A total of 30, 300-level undergraduates and 10 experts selected through purposive sampling technique participated in the study. Reliability test on the instrument using Croubach's alpha was 0.76. The data collected were analysed using grand mean. The findings revealed among others that: experts rated IMIP high for instructional delivery with grand mean of 3.61 > benchmark mean score of 2.50; while undergraduate students considered it to be highly effective as a learning tool, with grand mean of 3.44. It is therefore recommended that: instructional models should be used to guide the design and development of instructional packages; and students should make use of instructional packages to enhance their learning.

Keywords: Education, Interactive, Multimedia Package, Attitude

Introduction

Education is a life-long activity; it involves impartation, acquisition of knowledge and skills from the teacher to learners, instructor to the tutored, and trainer to trainees. Educational processes has gone beyond the conventional methods, emerging technological tools such as information and communication technology (ICT), social networking sites (SNS) and multimedia are reshaping educational activities. ICT describes a range of technologies for gathering, storing, retrieving, processing, analysing, and transmitting information. The role of ICT in the 21st century education system has been described as vital to keeping abreast with rapidly changing technologies (Atureta, 2011). This has introduced important changes in the educational system and impact the way we communicate information to learners (Neo & Neo, 2000). Kwasha (2007) opined that, ICT has influenced the quality and quantity of teaching, learning and research in the institutions using it.

Multimedia is a range of technologies that are used for gathering, storing, processing and disseminating information that appeals to various human senses. **Interactive multimedia** normally refer to products and services on digital computer-based systems which respond to the user's actions by presenting content such as text, graphics, animation, video, audio, games, and others.. It is a method of communication in which the output from the media comes from the input of the users. The interactive media lets the user go back with the media, it works with the user's participation. Interactive multimedia in education and training emerged out of the need to share information and knowledge on the research and practices of using multimedia in various educational settings. Students' attitude towards technology based learning is an important factor to be considered in the design and development of such media.

Expert rating is also an important phenomenon in the use of developed instructional resources in the teaching and learning activities. This research therefore, strived to present instructional modules in multi-sensory modes to cater for different learners' preference and motivate them to learn. It explored development of interactive multimedia package to enhance instruction delivery in Nigerian universities and thereby ensure effective increase in learning outcomes as well as providing useful tools for self-study.

Statement of Problem

Multimedia technology adds new dimension to learning experiences because concepts were easier to present and comprehend when the words are complemented with images and animations (Ogunbote & Adesoye, 2006). Despite this advantage, in Nigerian universities, the use of interactive multimedia packages to deliver lectures is not as it is expected to be in this technological dispensation. There is shortage of interactive multimedia instructional facilities for instructional delivery. Furthermore, disparities in learning abilities among learners necessitated the need to develop a complementary individualised instructional multimedia package that could assist undergraduates to concretize knowledge.

These issues prompted the development of interactive multimedia package in selected concepts in educational technology for undergraduates in Nigeria.

Purpose of the Study

The general purpose of the study was to develop a multimedia instructional package for teaching selected educational technology concepts in Universities in Kwara State, Nigeria.

Specifically, the study;

1. designed and developed interactive multimedia instructional package to teach educational technology concepts in modules;
2. determined the experts' rating of the package on the selected educational technology concepts; and
3. determined students' attitude to the effectiveness of the interactive multimedia instructional package.

Research Questions

The following questions were answered in the study;

1. What are the steps involved in design and development of the Interactive Multimedia Instructional Package (IMIP)?
2. What are the experts' ratings of the package on the selected educational technology concepts?
3. What are the students' attitudes towards the effectiveness of IMIP?

Literature Review

Students Attitude towards Interactive Multimedia Instructional Packages

Attitude is the way an individual will feel about an event or object. Attitude is a part of cognitive structure people use to organize, systematize their experiences and behaviors Oladosu, (2011). Guoyuan et al (2009) described attitude as predisposition to respond favorably or unfavorably to an object, person or event. To support this definition, Okoli (2000) expressed attitude as established mental set that a person use to evaluate something favorably or unfavorably. He went further to say that, attitude are inferred from overt behavior both verbal and non-verbal which could be appropriate or inappropriate. In the opinion of Hema (2005), attitude is the mental and neural state of readiness organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects with which it is related. Therefore, this study defined attitude as students attitude towards to effectiveness of the developed interactive multimedia instructional package. Katz (2000) affirmed that, attitudes of students towards the use of ICT are of paramount importance when evaluating effectiveness. Additional research has found

Students with positive attitudes toward computer-based instruction scored significantly better on posttests than students with negative attitudes. This will suggest that the importance of attitude in technology-based instruction cannot be underplayed.

Methodology

This study adopted a research design of design and development type. The production work adapted 'Easy test' internet software and relevant YouTube video clips incorporated into power point slides for the development of the Interactive Multimedia Instructional Package (IMIP), and to develop the concepts in modular instructional format. The target population for this research comprised ten lecturers and experts from relevant disciplines and thirty 300-level undergraduates of educational technology offering computer education course. Purposive sampling was used to select the participants in the study. The instrument for the study comprised four items; Educational Technology Experts' rating form (ERF1), Instructional Design Expert's Rating Form (ERF2), and Computer /Telecommunication Expert's Rating Form (ERF3). Each of them contained two sections. Section A contained demographic record of the respondent while section B elicited their rating response regarding the structure, organisation, screen designs, interactivity, instruction ability and adaptability of the interactive multimedia instructional package (IMIP).

The fourth instrument for the study is a researcher designed questionnaire titled; student attitude towards interactive multimedia instructional package. The instrument comprised of two sections, section A dealt with demographic data of the respondent while section B contained ten items which required the respondents to tick appropriate options using the four likert scale ranging from strongly agree (SA) to strongly disagree (SD). The instrument was validated by two educational technology experts, and one lecturer in other related discipline from University of Ilorin for face and content validity. Following the validation reports, some items were modified to enhance the quality of the research.

In order to determine the reliability of the instrument, the package was administered on ten undergraduates from the department of telecommunication, university of Ilorin, which was not part of the sample. Croubach's alpha was used to test the internal consistency of the instrument at 0.05 level of significance and the result was 0.76, hence, the instrument was found to be consistent and reliable. The data gathered were analysed using mean scores at benchmark of 2.50.

Data analysis and Discussion

Table 1:
Educational Technology Expert's Rating

	Mean
A STRUCTURE	
The package content is relevant to the selected educational technology concepts	3.50
Contents are structured in a clear and understandable manner	3.75
B ORGANISATION	
The Package is well organised	3.50
The materials are well presented	3.50
Navigation through the package is easy	3.50
C SCREEN DESIGN	
Screens are designed in a clear and understandable manner	3.25
The quality of texts, illustrations and graphics is good	3.25
D INSTRUCTIONABILITY	
The multimedia instructional package enhances instruction	3.25
The assessment questions are relevant to the contents	3.50
E ADAPTABILITY	
It allows learner to learn at his/her pace	3.50
The multimedia instructional package motivates learners to learn	3.75
D INTERACTIVITY	
The level of interactivity is satisfactory	4.0
Its immediate feedback enhances learning	3.75
Grand Mean	3.54

The educational technology experts rating of the IMIP in terms of structure, organisation, screen design, instructionability, adaptability and interactivity are; 3.63, 3.50, 3.25, 3.38, 3.63 and 3.88 respectively, each of which was greater than the benchmark of 2.50. The grand mean is 3.54 which is also greater than the benchmark mean of 2.50. The educational experts considered IMIP's contents to be relevant to the contents of selected educational technology concepts, satisfactory in terms of organisation, screen designs, instructionability, adaptability and interactivity.

Table 2:
Instructional Design Expert's Rating

	Mean
A STRUCTURE	
The package content is relevant to the selected educational technology concepts	4.0
Contents are structured in a clear and understandable manner	3.75
B ORGANISATION	
The Package is well organised	3.75
The materials are well presented	3.25
Navigation through the package is easy	3.50
C SCREEN DESIGN	
Screens are designed in a clear and understandable manner	3.50
The quality of texts, illustrations and graphics is good	3.75
D ADAPTABILITY	
It allows learner to learn at his/her pace	3.50
The multimedia instructional package motivates learners to learn	3.50
E INTERACTIVITY	
The level of interactivity is satisfactory	3.0
Its immediate feedback enhances learning	3.50
F INSTRUCTIONABILITY	
The multimedia instructional package enhances instruction	3.75
The assessment questions are relevant to the contents	3.50
Grand Mean	3.56

The mean scores of instructional design experts rating showed that the relevance of IMIP in terms of structure is 3.88. Organisation's mean score is 3.50. Others are; screen design : 3.63, adaptability : 3.50, interactivity : 3.25 and instructionability : 3.63, each of which is greater than the benchmark of 2.50. The grand mean is 3.56 which is also greater than the benchmark mean of 2.50. From table two, instructional design experts considered IMIP to be satisfactory in terms of structure, organisation, screen designs, adaptability, interactivity and very suitable for instruction,

Table 3
Computer/Telecommunication Expert's Rating

	Mean
A STRUCTURE	
The package content is relevant to the selected educational technology concepts	3.50
Contents are structured in a clear and understandable manner	4.00
B ORGANISATION	
The Package is well organised	4.00
The materials are well presented	3.50
Navigation through the package is easy	3.50
C SCREEN DESIGN	
Screens are designed in a clear and understandable manner	3.50
The quality of texts, illustrations and graphics is good	4.00
D INTERACTIVITY	
The level of interactivity is satisfactory	4.00
Its immediate feedback enhances learning	3.50
E INSTRUCTIONABILITY	
The multimedia instructional package enhances instruction	4.00
The assessment questions are relevant to the contents	3.50
F ADAPTABILITY	
It allows learner to learn at his/her pace	4.00
The multimedia instructional package motivates learners to learn	3.50
Grand Mean	3.73

One computer and one telecommunication experts did rated IMIP and the mean scores of their ratings is as follows: Structure : 3.75, Organisation : 3.67, Screen Design : 3.75, Interactivity : 3.75, Instructionability :3.75 and Adaptability :3.75. Each of their rating mean score, as well as the grand mean of 3.75 is greater than the benchmark mean of 2.50. From the above, the computer and telecommunication experts considered IMIP to be satisfactory in terms of structure, organisation, screen designs, interactivity, Instructionability and adaptability.

Research Question Three: *What are the students' attitude towards the effectiveness of the Interactive Multimedia Instructional Package (IMIP)?*

Table 4:
Analysis of students' attitude towards the effectiveness of IMIP

	Mean
1. IMIP modular topic contents are relevant to the objectives stated	3.40
2. The modular lectures in the package are easy to understand	3.30
3. Navigating through the package is easy	3.30
4. The modular lectures are relevant to the selected Educational Technology concepts	3.70
5. The assessment questions are appropriate and enhance memory of the acquired knowledge	3.25
6. Getting immediate result and feedback reinforces learning	3.75
7. The multimedia approach of IMIP motivates me to learn	3.45
8. I enjoy using IMIP and prefer taking other courses with it	3.25
9. The Package is adequate for self-paced learning; it enables me to accomplish tasks more quickly	3.60
10. I prefer taking instruction with interactive multimedia instructional package to normal class lecture.	3.45
Grand Mean	3.45

The responses of thirty 300-level educational technology students offering computer education course on attitude towards the effectiveness of the package based on 10 criteria were analysed with each of their attitude towards mean score greater than the benchmark mean of 2.50. 'Getting immediate result and feedback reinforces learning' had the highest mean score of 3.75 while criteria 5 and 8 had the least mean score of 3.25 each. The grand mean of 3.45 is greater than the benchmark mean of 2.50.

Generally they considered the package to be very effective for instructional delivery purpose.

Summary of Major Findings

Based on the analyses and interpretation of the data collected from the respondents in this study, the following summaries were obtained:

1. ADDIE model could guide the design and development of interactive multimedia instructional package for instructional delivery
2. The experts rated the interactive multimedia instructional package (IMIP) high for instructional delivery of selected educational technology concepts in terms of structure, organisation, screen design, instructionability, adaptability and interactivity. Grand mean of 3.53 > benchmark mean score of 2.50; and
3. Undergraduate students considered IMIP to be highly effective as a learning tool, with grand mean of 3.73 > benchmark mean score of 2.50

Conclusions

The study concluded that; ADDIE model is found suitable for the design and development of instructional packages; IMIP is very suitable for instructional delivery of selected educational technology concepts in terms of structure, organisation, screen design, instructionability, adaptability and interactivity; and interactive multimedia instructional package (IMIP) can enhance student learning.

Recommendations

- Based on the findings of this study, the following recommendations were made:
1. instructional models should be used to guide the design and development of instructional packages;
 2. interactive multimedia instructional package should be adopted as instructional tool for course delivery in universities; and
 3. students should make use of instructional packages to enhance their learning.

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