EXPERTS' RATING AND STUDENTS' PERCEPTION OF INTERACTIVE MULTIMEDIA INSTRUCTIONAL PACKAGE EFFECTIVENESS ON SELECTED EDUCATIONAL TECHNOLOGY CONCEPTS IN KWARA STATE

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Abstract
Multimedia instructional packages have transformed the way 21st century learners at all levels of education learn and there are several views to the use and effectiveness of these multimedia packages. It is to this end that this paper presents findings on how experts and students perceived and rate the Interactive Multimedia Instructional Package on Selected Educational Technology Concepts. This study was carried out by administering questionnaires to experts and students of Educational technology in the University of Illorin. From the findings of this study, ADDIE MODEL was used to design the procedure for the instructional package. The study showed that experts rated the interactive multimedia instructional package (IMIP) high for instructional delivery of selected educational technology concepts in terms of structure, organisation, screen design, instructional, and adaptability and interactivity. Grand mean of 3.53 which is greater than the benchmark of 2.50. Findings also revealed that students considered IMIP to be highly effective as a learning tool, with grand mean of 3.73. It was recommended among others that the package could be modified to suit the content of the courses

Keywords: Experts' Rating, Students' Perception, Multimedia Instructional Packages, Educational Technology

Introduction

Education is a life-long activity; it involves facilitation and acquisition of knowledge, and skills display from the teacher to learners. Information and communication technology (ICT) has placed a major role of keeping abreast with rapidly changing technologies in this 21st century educational system (Atureta, 2011). ICT has introduced important changes in the education system and have influenced the way information is communicated to learners (Neo & Neo, 2000). Kwasha (2007) opined that, ICT has influenced the quality of teaching, learning and research in the higher institutions of learning. Educational processes has gone beyond the conventional methods, whereby emerging technological tools such as information and communication technology (ICT) tools such as; social networking sites (SNS) and multimedia are reshaping educational activities.

Debashis (2001) stated in his write-up that traditional media refers to the time-honored, conventional means of mass communication, of which the chalkboard, textbook and talk/lecture method is an instance. In the contrast, modern media such as the internet interactive media, refers to mass communication characteristic of recent times, or the present contemporary way of thinking, or communication relating to a recently developed or advanced style, technique or technology, of which multimedia instructional strategy is an example. The basic objective of interactive multimedia material is not so much to replace the teacher as to change the teacher's role entirely Shailendra and Mahapatra, (2016). The use of multimedia as a complement in the teaching learning process has been found to improve learning outcomes Sahat, Mursid and Yasaratodo (2014).

Owolabi and Oginni (2014), stated that multimedia involves the use of two or more different types of animated instructional media in a presentation. Animation teaching could be in form of lesson presentation, in that, still pictures; text, graphics, motion picture, background sound as well as some

narrations are synchronized or combined at the same time in order to enhance learners' understanding of concepts. Danebeth, (2013) also stated that it has also been highlighted by educators that multimedia integration in the classroom increases students' responsiveness toward learning concerns, advances their understanding of the course, and deepens their learning. Students prefer the use of interactive multimedia in the teaching and learning process than the traditional lecture-based instruction. 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 (Turcsányi-Szabó, 2013). It is a method of communication in which the acceptance and quality of output from the media is determined b experts reting nd students perception of it. Students' perception is important but how experts' rate multimedia instructional package is much to be looked into as to further validate Its worth.

Venkatesh, Croteau and Rabah (2014).Several experts' have investigated the link between students' quality of learning. Experts' rating as regards the effectiveness of multimedia instructional package, its proficiency and its knowledge have revealed how influential and critical it could be to the success or failure of student in the higher institution of learning. In order to ensure a balance, it is important to shed light upon students' perceptions of this package, so that technology implementation in higher education settings is congruent to better educational quality and increase in student gains (Venkatesh, Croteau and Rabah 2014).

Delaney, J et' al (2010) in their study found that students' perception of what constitutes effective instruction transcends time and mode of delivery. Hey noted that the characteristics of effective teaching identified by contemporary students are consistent with evidence he gathered from the study of historical memoirs and biographies. Young (2006) as cited in also in their study, found that students' learning in online environments had a core set of perception about effective teaching that were not dependent on technology. According to Gamal and Aziz (2011), better understanding of the context of multimedia readiness and perception should enable educational technologist to address their customers' needs more fully.

Educational technology adds new dimension to learning experiences because concepts are made easier to present (Ogunbote & Adesoye, 2006). Shailendra and Mahapatra, (2016) Intervention of technology in the teaching learning process as a result of Educational Technology is the product of instructional and learning process. Despite this advantage, Nigerian universities have not really engaged the use of interactive multimedia packages to deliver lectures as expected in this technological dispensation. There is shortage of interactive multimedia instructional facilities for instructional delivery. Furthermore, disparities in learning abilities, necessitates a need to develop a complementary individualized instructional multimedia package that could assist undergraduates to concretize content knowledge. Hence the need to develop an interactive multimedia package in selected concepts in educational technology for undergraduates in Nigeria.

Objective 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' perception of the effectiveness of the interactive multimedia instructional package

Research Question

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' perceptions of the effectiveness of IMIP?

Methodology

The study adopted a design based research and descriptive research design of the survey type. A design-based research integrates the development of solutions to practical problems in learning environments with the identification of re-usable design principles. A design based research integrates the development research. In the process of developing and assessment of the Interactive Multimedia Instructional Package (IMIP), the ADDIE model was used. More so, survey was used to sample the opinions of experts and perception of students concerning the developed interactive multimedia instructional package (IMIP) package.

The target population for this research comprised all educational technology lecturers, Instructional Design experts and students from the Department of Educational Technology, University of Ilorin, Nigeria. Purposive sampling technique was used to select the respondents in the study. 10 lecturers, 10 Instructional Design experts and 30 students Department of Educational Technology, University of Ilorin, Nigeria were selected. This makes a total of 50 respondents

The research instruments consist of four instruments. The instruments covered topics in educational technology that include: Communication in the Classroom, Social Media in Education, Games, Simulations and Cartooning in Instruction. More so, Educational Technology Experts' rating form (ERF1), Instructional Design Expert's Rating Form (ERF2), Section A: Contained demographic record of the respondent while Section B: Elicited their rating response regarding the structure, organization, screen designs, interactivity, instruction ability and adaptability of the interactive multimedia instructional package (IMIP). A researcher designed questionnaire titled; students' perception 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 instruments were 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 instrument. The package was administered on ten undergraduates from the department of educational technology, university of Ilorin, who were not part of the sample, the students assessed the package and express their view about it. Crobach Alpha was used to determine a reliability coefficient of 0.78. Hence, the instrument was found to be consistent and reliable. Data collected were subjected to relevant descriptive. To answer research question one,

the procedure for design and development of the instructional package was analysed. Research questions 2 and 3 were analyzed by mean rating.

Result

Research question 1:
What are the steps involved in design and development of the Interactive Multimedia Instructional Package (IMIP)?

The design of the Interactive Multimedia Instructional Package (IMIP) was based on the processes of ADDIE model. ADDIE is an acronym for analysis, design, development, implementation and evaluation. The stage in ADDIE instructional design model is adopted in this study. The activities carried out under ADDIE model is outlined as follows:

Analysis: This is the stage where needs assessment, audience assessment, content/objectives specification, selection of authoring/delivery systems and planning of evaluation strategies were determined by the researcher. The need assessment was based on the fact that teaching is enhanced with the use of technology, hence it was concluded by the researcher that instructional content should be designed for use for learners. The authoring tools for the design of the Interactive Multimedia Instructional Package (IMIP) are Microsoft PowerPoint (2010), CorelDraw (4x), Adobe® Dreamweaver.

Design: This is the stage where treatment specification was created in which how the instructional content was delivered to the selected samples. A prototype of the Interactive Multimedia Instructional Package (IMIP) was designed to ascertain its operation on devices like computer and DVD in term of aesthetic and balancing. The script for development stage was then writing and screens were formatted based on the medium to be used.

Development: The design process above was developed through the prototype approach**,** so that the instructional content for the numeracy video instruction can be subjected to evaluation through implementation. The development of the instructional content was done by the utilization of Microsoft PowerPoint (2010), CorelDraw (4x), Adobe® Dreamweaver. The numeracy video instructional package was created with Microsoft PowerPoint (2010). CorelDraw (4x) was used to create the images which was exported as JPEG pictures. Each JPEG picture was imported on each slides of the Ms PowerPoint.

Implementation: with the completion of the design and development of the instructional content for Interactive Multimedia Instructional Package (IMIP). At this stage, students were given a copy of the CD containing the instruction.

Evaluation: at this stage, the efficiency of the Interactive Multimedia Instructional Package (IMIP) was determined.

Research question 2:
What are the experts' ratings of the package on the selected educational technology Concepts?

Table 1
Educational Technology Expert's rating

Item		Mean
A	STRUCTURE	
	The package content is relevant to the selected educational technology concept	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

	Item	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 1s 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, and interactivity and very suitable for instruction.

Table 3

Computer/Telecommunication Expert's rating

	Item	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 with 3. 75, Organisation, 3.67, Screen Design: 3.75, Interactivity, 3.75, Instructional, 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' perception of the effectiveness of the Interactive Multimedia Instructional Package (IMIP)?

Table 4
Analysis of students' perception towards the effectiveness of IMIP

Item	**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 were analysed based on their perception of the effectiveness of the package using 10 criteria 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.

Discussion of Findings

The steps in developing Interactive Multimedia Instructional Package was used to answer research question one. Findings on the steps in the design and development of Interactive Multimedia Instructional Package for educational technology concept showed that using instructional system design procedures by ADDIE in developing Interactive Multimedia Instructional Package was a success and a good initiative for other courses. This finding is in line with the recommendations of Olafare (2011) who reported that development of computer assisted instructional package was successful and helps instructional delivery. The finding is
also in agreement with Singh (2009) study with a suggestion that using a systematic approach such as ADDIE to develop a valid and effective interactive instructional module was still viable.

Findings on how experts and students' perceived reports were positive. This finding agrees with the finding of Laleye (2016) who reported that reaction from the validating team and students' field trial validation revealed that the development of computer assisted instructional package is valuable for learning physics concept in Basic science.

Conclusions and Recommendations

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. Based on the findings of this study, it was recommendations that instructional models should be used to guide the design and development of instructional packages; interactive multimedia instructional package can be adopted as instructional tool for course delivery in universities; and students should make use of instructional packages to enhance their learning.

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