Learners' Perception of National Open University of Nigeria's Online Assessment Courseware Usability'

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Abstract

Computer-based learning and assessment have become very popular throughout the world. This is as a result of the acceptance of Open and Distance Learning (ODL) as an effective mode of education. It has been proved to be cost effective, aside the fact that they are implemented for its various advantages and capabilities. Computer- based applications have been increasingly developed not only for teaching and learning in ODL but also for use in the normal classroom setting. It has also been proved beneficial for students with learning disabilities including slow learners. One of the examples of the computer- based applications is the online assessment used in the National Open University of Nigeria (NOUN). This study is aimed at finding out the perception of the learners in NOUN in relation to the usability of the online assessment courseware being used for their assessment. An instrument termed Learners' Perception of Online Assessment Courseware Usability (LPOACU), was developed and administered on 200 level students from Owerri and Umudike centres of NOUN. A total of 124 respondents returned their instruments for analysis. The result shows that learners have positive attitude and perception towards the usability properties of the assessment courseware.

Keywords: Online assessment, courseware usability, open and distance learners

Introduction

Within a short period, distance education and e- learning have become very popular in every part of the globe. According to Allen and Seaman (2014),

the popularity of distance learning and e- learning is soaring rapidly. Over seven million higher education students are taking at least one online course and / or assessment. This number is growing every year. These days, there are more academic leaders and institutions favouring distance education and e- leaning than in the past years. Allen and Seaman (2014) recorded that the learning outcomes in distance education and e- learning are rated as comparable and often superior to those in the conventional and face- to-face classes. This is because the delivery of instructional content and or assessment is accomplished using courseware or platforms which are called Learning Management Systems (LMS). However, a critical success factor in a quality instructional design and assessment is the usability of the courseware. According to Syazwan et al. (2011), tools based on Information and Communication Technology (ICT), or courseware and LMS face serious usability problems for effective implementation in education and assessment. Researchers and technologists are continuously inventing various applications, tools and courseware's for educational usage. The intention of using technology in education and assessment is not to entirely replace the traditional ways of teaching, learning and assessment, but rather to provide additional aids to learning and assessment. It is also for some areas that require more attention and those which have been identified as needing alternative methods apart from the normal way of teaching and assessment. Although there are so many courseware's for teaching, learning and assessment in the market, in reality, not all are suitable and usable for the learners (Behrouz, Vani and Abdel- Halim, 2009). Therefore, users of assessment courseware's must be sure that the one they want to use has been tested and verified in terms of its usability and effectiveness for delivering the subject to the learners. This is the main criterion for accepting any assessment courseware. Rogers, et al. (2007), have defined effectiveness as how good a product is at doing what it is supposed to do. In making reference to this description of effectiveness, it means that identifying the goal of a particular subject is the very' first task of evaluating effectiveness. In the context of educational assessment, the courseware and other aided learning tools are intended to boost the learners' understanding as well as their performance and or achievement in a particular course or topic (Nokelainen, 2006). There are two major groups of people that can determine the effectiveness and or the usability of an assessment courseware. These are the users, which in this case are the learners, and the experts or the teachers. This determination can be quantitatively or qualitatively. In general, according to

Servet and Albert (2004), an assessment courseware is considered effective and usable when it can produce a good result and a positive impact to the learners. Sekaran (2000) reported that an assessment courseware can be evaluated by comparing students' test results before and after using the courseware. Rogers et al (2007), also reported that in developing an assessment courseware, usability testing is the process that must be considered after completing the application. According to Nokelainen (2006), the goal of assessment courseware evaluation is specifically designed to assess the consistency of the interface and the interaction of the system with the user. But in practice, usability evaluation is done through subjective user experiences with a self-evaluation questionnaire comprising six assessment criteria which are effectiveness, efficiency, safety, utility, learnability and memorability. Based on these criteria, an instrument for this study was developed.

Keinonen (1998) described usability in general as the ability of a system or a product to effectively and efficiently meet the users' needs and specifications leading to users' satisfaction and adoption. The characteristics of usability are related to (1) the products' design process (2) the product itself (3) the use of the product (4) user's experiences on the product and (5) user's expectations. To Shackel (1991), the usability of a system or equipment is the capacity in human functional terms to be used easily and effectively by the specified range of users, given specified training and user's support to fulfill the specified range of tasks, within the specified range of environment scenarios. While ISO 9126 (1991), defined usability as a set of attributes that bear on the effort needed for use, and on the individual assessment of such use, by a stated or implied set of users, where as Caplan (1994), described usability as a critical aspect of a system/ software design. For the purpose of this study usability is defined as the users' comfort which is experienced in using the system or the product. According to Rosenbaum (1989); Guillemette (1989); Shackel (1991); Dumas and Redish (1993); Nielsen (1993); Rubin (1994) and Nielsen (2000), usability is defined as the measure of the quality of the user's experience with a system, a product or as in this case the assessment courseware depends on the usability attributes.

The attributes of usability as listed by Shackel (1991) are effectiveness, learnability, flexibility and attitude. Nielsen (1993) also listed the usability attributes as learnability, efficiency, memorability, error and satisfaction.

ISO 9241- 11 (1998), reported that the attributes of usability are effectiveness, efficiency and satisfaction. These were later modified by ISO 9126 (2001) as understandability, learnability, operability, attractiveness and usability, compliance. In his own contribution, Quesenbery (2003) did talk about the five Es of usability, which include effectiveness, efficiency, engagement, error, tolerance and ease of learning.

From Rubin (1994), Rosebaum (1989), Guillemette (1989), ISO 9241 (1991), Nielsen (2000) and Holmes (2002), we learnt that the attainment of the usability attributes depends on usability properties which include the ease of use, simplicity, navigability among others. These properties must be designed and built into the system for improved usability. An assessment

courseware can be described as a web- based course management system or platform which can allow the design, development of creative activities and the delivery of courses and assessments through the internet (ISO/IEC9126-1(2001). When we talk about the usability of this courseware, we are referring to various things such as the platform specifications, cover layout, the navigational systems and abilities, the aesthetic qualities and all other qualities which promote user- friendliness. An assessment courseware which contributes to user satisfaction and user friendliness or user acceptance in a positive way influences the learning process. Therefore, the usability of an assessment courseware is very important because it functions as a major stream to the instructional delivery.

A Model of Assessment Courseware Usability

A typical model of assessment courseware usability consists of three components. According to Quesenbery (2003), these are fundamental, appearance and information presentation components. Each of these components is made up of some associated usability properties. These associated properties include:-

(1) **Fundamental Component:** This is the main basis for an assessment courseware usability. It helps the users in the areas of efficiency, satisfaction and learnability. There are six properties of usability to be considered here. These include:

Simplicity: The courseware should be simple, not complicated and straight forward.

Comfort: Every user must be comfortable in using the courseware. User- friendliness: The courseware should be easy, friendly to use.

Control: Users should be in control of what they are doing whenever they are using the assessment courseware.

Navigability: Users should be able to navigate easily and get to other link areas they like when using the courseware.

Load time: Pages should load as quickly as possible in the assessment courseware.

(2) **Appearance Component:** This is the component that helps the users with memorability, error and learnability. The usability properties in this component include:

Recognition: Users should be able to identify as quickly as possible the key point presented for carrying out tasks when they are using the courseware.

Visual appearance: This deals with text boldfacing, italicizing, underlining, font size, link visibility among others. These should be present throughout the courseware.

Consistency: Consistency of appearance, terms, words and actions should be present in and throughout the courseware.

Well organised: The pages are well organised, and structured in and throughout the assessment courseware.

(3) **Information presentation component:** This is the component that assists the users with efficiency, memorability, error and learnability. The four usability properties here are:

Understandability: All information in the assessment courseware should be understandable and easy to read.

Relevance: Information presented in the assessment courseware should be relevant to what the users need to know.

Adequacy: Information presented should be no more and no less than what the users need to have or know.

Right to the point: Information presented in the assessment courseware should be concise and right to the point.

It should be noted that all the components are interrelated. They are all critical to the usability of an assessment courseware. They are therefore to be present with their associated factors or properties in the design of an assessment courseware.

Purpose of the Study

The purpose of this study is to find out if the assessment courseware used by the learners in NOUN has the usability functions or properties. Based on this purpose, three research questions are stated and one hypothesis is proposed for verification. These are:

RQ1 - Does the fundamental component of NOUN assessment courseware have the usability properties?

RQ2- Does the information presentation component of NOUN assessment courseware have the usability properties?

RQ3- Does the appearance component of NOUN assessment courseware have the usability properties?

Ho- Learners' perceptions of NOUN assessment courseware are not significantly positive.

Methodology

Research Design

Descriptive survey design was used in this study. An instrument termed

LPOACUQ was administered on the subjects for the collection of information.

Population and Samples

The population comprised all 200 level students of NOUN from Umudike and Owerri Study Centres. Purposive or availability sampling was used to select the subjects. It means that every 200-level student seen from these two centres was given the questionnaire.

Instrumentation

The instrument for the study was developed based on the assessment courseware usability properties. It consists of 14 items and made up of three sections. The first section, on fundamental component of usability has six items. The second section on appearance component has four items. The third section on information presentation component also has four items. The instrument is called Learners' Perception of Online Assessment Courseware Usability Questionnaire. It is in the form of a four- point Likert scale.

Validation of the Instrument

The instrument was subjected to expert validation exercise. It was given to four very senior lecturers in research and educational measurement. They independently validated and returned. The final version of the instrument was got by incorporating the necessary modifications and advice. The instrument was then administered to the students through the student counselors in the two study centres. A total of 124 questionnaires were returned for analysis.

Data Analysis and Results

The analysis of data was carried out based on the research questions and the hypothesis. The research questions were answered using frequency distributions, percentages and mean, while chi- square was used to verify the null hypothesis.

RQ1. Does the fundamental component of NOUN assessment courseware have the usability properties?

Table 1: Usability Properties of NOUN Assessment Courseware

S/N	ITEM	SA.4	A.3	D.2	SD.l	M	SIG.
1	NOUN assessment courseware is simple and straightforward to use.	32, 25.8%	71, 57.3%	17, 13.7%	04, 03.2%	3.06	Sign.
2	I feel comfortable using the NOUN assessment courseware.	20, 16.1%	78, 62.9%	20, 16.1%	06, 04.8%	2.90	Sign.
3.	NOUN assessment courseware easy to use.	40, 32.3%	71, 57.3%	10, 08.1%	03, 02.4%	3.21	Sign
4.	I am always in control of what I do when using the NOUN assessment courseware.	18, 14.5%	69, 55.1%	27, 21.8%	10, 08.1%	2.77	Sign.
5.	I can easily navigate and get to anywhere I want when using the NOUN assessment courseware.	55, 44.4%	65, 52.4%	04, 03.2%	00, 00%	3.41	Sign.
6.	The pages load quickly when using the NOUN assessment courseware. Aggregate mean	26, 21.0%	72, 50.1%	12, 09.7%	14, 11.3% 3.03	2.89	Sign.

Table 1 shows the distribution pattern of the subjects' perception of the fundamental component of NOUN assessment courseware. The frequency distribution, their percentages and the mean distributions are shown. All the items here have their means above 2.50 significant level and are therefore considered significant. This section has an aggregate mean of 3.03. It indicates that the fundamental component of NOUN assessment courseware has six requisite usability properties.

RQ 2. Does the information presentation component of NOUN assessment courseware have the usability properties?

7	The key points presented for carrying out tasks are easily identified.	25, 20.2%	75, 60.5%	16, 12.9%	08, 06.5%	2.94	Sign.
8	Visual appearance properties are present throughout the courseware.	15, 12.1%	68, 54.8%	26, 21.0%	15, 12.1%	2.67	Sign.
9	There is consistency of appearance, terms, words and actions throughout the courseware.	22, 17.7%	65, 52.4%	■30, 24.2%	07, 05.6%	2.82	Sign.

10	The pages are well organised and structured throughout the	21, 16.9%	63, 50.8%	25, 20.2%	15, 12.1%	2.73	Sign.
	Aggregate mean					2.79	

A look at Table 2 indicates that the means for all the items in this section are above 2.50. They are therefore significant. The aggregate mean for this section is 2.79. This shows that the subjects have agreed that the information presentation component of this assessment courseware has all the four usability components required.

RQ 3. Does the appearance component of NOUN assessment courseware have the usability properties?

Table 3: Appearance Component of NOUN Assessment Courseware

11	Information presented in the assessment courseware is understandable and easy to	35, 19.4%	80, 64.5%	09, 07.3%	00, 00.0%	3.21	Sign.
12	Information presented in the assessment courseware is relevant	24, 19.4%	68, 54.8%	24, 19.4%	08, 06.5%	2.87	Sign
13	Information presented in the assessment courseware is not more	19, 15.3%	58, 46.8%	27, 21.8%	20, 16.1%	2.61	sign
14	Information presented in the assessment courseware is concise and right to the point. Aggregate	28, 22.6%	64, 51.6%	23, 18.5%	09, 07.3%	2.90 2.92	Sign.

The mean scores for all the four items in this section as indicated in Table 3, are above 2.50. They are, therefore, significant. The aggregate mean of 2.92 is also significant. It shows that the subjects perceived the appearance component of this assessment courseware to have the requisite usability properties.

Ho. Learners' perception of NOUN assessment courseware is not significantly positive.

Table 4: Learners' Perception of NOUN Assessment Courseware

No.	Chi-square, calculated	Chi- square on the table	df	P	Decision
124	157.48	43.773	39	0.05	Reject Ho.

The hypothesis was tested using the chi-square test. Table 4, shows the results. From this table we notice that the chi- square calculated of 157.48 is greater than the chi- square from the table at 39 degrees of freedom and alpha level of 0.05. Therefore, the null hypothesis was rejected. It means that the learners' perception of the assessment courseware is significantly positive.

Discussion

Based on the results of this study, it is noteworthy to learn that the assessment courseware used by NOUN for the assessment of the learners has all the usability properties. The learners themselves who make use of the courseware have testified that this assessment courseware is effective, friendly and usable. This is quite encouraging, considering the report of Syazwan, et al. (2011), that tools based on ICTs or coursewares face serious usability problems for effective implementation in educational assessment. This result has also confirmed Keinonen's (1998), description of usability saying that it is the ability of a system to effectively and efficiently meet the users' needs and specifications leading to users' satisfaction and adoption. In this case, the learners have agreed that NOUN assessment courseware meets their needs and specifications and therefore gives them satisfaction. This is the reason they have perceived the courseware positively. This is in line with the findings of Nielson (2000), Holmes (2002) and Rogers, et al (2007), who also recommended that the usability properties of the three components, - fundamental, information presentation and appearance be included in the design of any assessment courseware used by ODL learners. Quesenbery (2003) reported significant positive attitude of learners using online assessment courseware, which has been corroborated by the result of the present study. It therefore means that when an assessment courseware has these usability components and properties users feel at ease and comfortable using it. They derive pleasure using it. It is the recommendation that every

assessment courseware used by learners in ODL should be tested for the usability properties and satisfied usable before allowing the learners to use it.

Conclusion

Any assessment courseware which has the usability properties is very interactive and appeals to the learner's interest and satisfaction. Since the learners in ODL do not, most of the time meet face- to -face with their teachers, every technology employed for the purpose of teaching and assessing them must satisfy their interest. The result of this study is quite encouraging. It means that the learners derive pleasure and satisfaction in using the assessment courseware. It is the recommendation of this study that another study be carried out on the effect of using the courseware on the academic achievement of the learners. Also, this study should be replicated in other centres of NOUN, before conclusions and generalisations can be made on the NOUN assessment courseware.

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