



ANALYSIS OF STUDENTS' ATTITUDE ON THE USE OF CD BASED INSTRUCTIONAL MATERIALS IN TEACHING AND LEARNING PROCESSES: A CASE OF THE OPEN UNIVERSITY OF TANZANIA

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Abstract:

Compact Disc (CDs) based instructional materials in Open and Distance Learning (ODL) institutions deemed to be useful mode of delivery as it is essential in addressing the gaps between knowledge and technology. Like other ODL institutions globally, the Open University of Tanzania (OUT) adopted the use of the named instructional technology for its students. However, little is known about students' attitudes on the use of CD based instructional materials in the teaching and learning at OUT. This paper set out to explore students' attitude on the use of CD based instructional materials in the course of teaching and learning at OUT. The study was conducted in three regional centers of Tanga, Kilimanjaro and Morogoro and was guided by Technology Acceptance Model (TAM) developed by Davis in 1989. Survey design with quantitative method was used to collect and analyze data. Data collected through questionnaires was analyzed with the use of Statistical Package for Social Sciences (SPSS). The study findings revealed that majority of students (68%) had positive attitude towards the use of CD based instructional materials in the course of teaching and learning due to the perceived usefulness of this mode of delivery. However, few students (32%) had negative attitude towards the use of CD based instructional materials because of the different emerged challenges involving lack of access to computers, skills of interacting with electronic devices such as computers as well as electricity connectivity and reliability. The study concludes that OUT should utilize the use of both hardcopy and soft copy materials (CDs) to cater for learners preferred mode of delivery. Nevertheless, learners need to be encouraged to use CD based instructional materials so as to cope with the rapid changes in Information and Communication Technology.

Keywords: open and distance learning, CD based instructional materials, attitude and usage.

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1. Introduction

The rapid changes of globalization which are followed by the development of information technology brought technological advancement in the world of education. Previously, education could only be done in a class or a specific place with the presence of teachers and students. In today's era of globalization, everything has changed (Jasul, 2010). Currently, learners have greater control over their learning as they are allowed to study when and where suits them best; at their own pace and in their own environment with absence of the teacher (Commonwealth of Learning, 2003, Culatta, 2013).

The outdoor learning and face-to-face learning is now possible with the help of a fast-growing Electronic Learning (E-learning) technology. Many of the essential elements of eLearning have been evident in higher education since the early 1980s when the first computers became a financially viable option for universities (McMullan et al 2011). E-learning can be referred to as the design, development and delivery of instructional materials by electronic devices, such as computers, mobile, CDs and DVDs (Daniel and Mackintosh, 2009). E-learning instructional materials are more wide spread throughout University education worldwide. This is in line with UNESCO's policy paper for change and development in higher education which urges higher education institutions to make greater use of the advantages offered by the advancement of communication technology to improve the provision and quality of their education (UNESCO, 1995).

Besides, higher learning institutions adopted E-learning as an educational and training tool for a variety of reasons including: cost savings, institution reusability, learner flexibility and creativity and interactivity (Shee and Wang, 2008). Universities such as Indira Gandhi National Open University (IGNOU), United Kingdom Open University (UKOU), National Open University of Nigeria (NOUN), Zimbabwe Open University (ZOU) and the Open University of Tanzania (OUT) use a range of e-learning materials including CDs and DVDs in teaching and learning (Commonwealth of Learning report, 2016: Kaputa and Mpezeni, 2016: Kambira, 2011). The Open University of Tanzania has introduced the use of CD based instructional materials since 2009 as a strategy to address the challenges of print-based study materials. Thus, from 2011, the University stopped completely the printing of new books and learning modules and instead soft copy study materials in interactive CDs are used (OUT 2018).

Despite the adoption of CD based instructional materials in ODL institutions, students complain on the use of this technology because they have been used to hardcopy materials and that some of them consider the introduction of CD modules to be the end of their dream to become graduates (Kaputa and Mpezeni, 2016). Given the situation in Tanzania where majority of the OUT students are scattered far and wide in remote rural areas where accessibility of computers and power is a major challenge, this evolution seemed to cause challenges to students (URT, 2003; Bakari, 2009). In this context, it was seen as critical to understand how the students reacted on these

resources. The paper therefore, focused on the assessment of ODL students' attitude on the use of CD based instructional materials in the teaching and learning process at OUT.

1.1 Purpose and Objectives of the Paper

The central purpose of this paper was to assess attitude of students on the use of CD-based instructional materials in teaching and learning at the Open University of Tanzania. Specifically, the paper sought to achieve the following objectives.

- To explore students' attitude on the use of CD based instructional materials in the course of teaching and learning at OUT
- To examine the extent to which students use CD based instructional materials in the course of teaching and learning at OUT

1.2 Research Questions

The following research questions were used to guide the collection of data for this paper.

- What is the attitude of OUT students on the use of CD based instructional materials in the course of teaching and learning?
- To what extent do OUT students use CD based instructional materials in the course of teaching and learning?

2. Literature Review

2.1 An Overview of Open and Distance Learning (ODL)

Open and Distance Learning (ODL) is considered as an approach to learning that focus on freeing learners from the constraints of time and place while offering other flexible learning opportunity through media and other open educational resources including printed study material; Online study materials; CD based instructional materials; Audio taped study materials; Video and computer Teleconference and mobile communication systems (Reuben, 2011). In this mode of education delivery there is high potential for transcending barriers that are caused by distance, time and age thus giving the learner the autonomy in deciding what, when and how to learn best (Komba, 2009).

ODL reflects both the fact that all or most of the teaching is conducted by someone removed in time and space from the learner and that the mission aims to include greater dimensions of openness and flexibility, whether in terms of access, curriculum or other elements of structure (UNESCO, 2002). In ODL, a student is supplied with self-instructional materials in the form of print, audio-video cassettes, CDs, recorded and broadcast, computer-based or mobile based as well as directed to various reference books through libraries and then left to study alone (Maritim et al, 2011; Reuben, 2011 & COL, 2003). Thus, the learner is in face-to-face with learning materials and not with the teacher in a real classroom and as such the learning materials themselves define what is to be learnt, provide information, and give examples (COL, 2005). Seeletso, (2015) added that learning in ODL is in students' hands and the teacher

is “within” the instructional materials. Open and distance learning therefore plays an important role in the creation of the global knowledge-based society.

2.2 An Overview of CD Based Instructional Materials in ODL

Instructional materials are different forms of learning materials that distance learners use to break the distance between the learners and the teachers (Culatta, 2013). It can be in form of books or printed materials, instructional CDs, computer based (online) material, television broadcast material, radio broadcast material, mobile based materials or combination of these various forms (Maritine et al, 2011, Negeri, 2013). In advanced countries and universities around the world, the use of TV, Videos, Computer and Compact Disc have been practiced as teaching devices to enhance and maximize the time for teaching and learning process (Carbonel, 2016). For example, Interactive compact disk (CD) instructional materials create the smooth process of teaching and learning and eventually students become curious in learning process (Hashim, 2015).

Aramide and Bolarinwa (2010) declared that instructional materials make the teaching and learning process easy, more meaningful and understandable. In this case, instructional materials used in ODL need to be attractive and effective to the user to encourage retention and even motivation for learners to continually use them (Seeletso, 2015).

2.3 Students' Attitude towards the Use of CD Based Instructional Materials

Students' attitude on the use of any technology in the course of teaching and learning can be associated with the perceived usefulness or ease of use as propounded by Davis, (1989) in his Technology Acceptance Model (TAM). In the course of attitude, TAM takes forward the idea that an individual's actions can be predicted from a number of known variables which constitute two factors: perceived ease of use and perceived usefulness. Perceived ease of use is defined by Davis (1989) to be the degree to which an individual believes that a particular system would be free of effort while perceived usefulness is the degree to which an individual believes that a particular system will enhance job performance. The acceptance and usefulness of any mode of delivering is guided with varied person's attitude that can range from individual to community. The model however, was significant in assessing students' attitude on the use of CD based instructional materials in the course of teaching and learning at OUT.

A study done by Adewole-Odeshi (2014), on the attitude of students towards e-learning in South-West Nigerian Universities revealed that, students had positive attitude towards e-learning because they found the system easy to use and useful for their course work and therefore they had the intention to use an e-learning system. The findings were further supported by (Barlett & Strough, 2003; Buzzell et al., 2002; Kim & Kim, 2005) on the effect of instructional methods. Their studies revealed that, students' attitudes towards instructional methods were becoming more favorable after they were exposed to new technology-based instructional materials. Furthermore, a study by Wiksten et al. (2002) on the effective use of multimedia technology in athletic training

education, reported that students' attitudes towards the CD-ROM software were favorable and students would use this type of educational resource.

Despite students' positive attitude towards technology use in education, still some hold negative attitude towards the technology. For instance, a study conducted by Price et al. (2005) which assessed educational outcomes among students learning with traditional lecture versus CD-ROM revealed that students preferred traditional lecture method of instruction to CD-ROM instructional materials.

2.4 Students' Use of CD Based Instructional Materials in the Learning Processes

Most literature reviewed revealed that, the use of e-Learning technologies to support learning and teaching activities is very low in Africa including Tanzania. The reasons behind could be resistance to change, lack of knowledge, skills, limited time, lack of ICT facilities such as computer, and awareness of the importance of e-Learning in teaching and learning practices (Mugwanya et al., 2011 and Ndonje, 2013). Njenga & Fourie (2010) added that, low awareness of e-Learning issues and learners reluctance to use ICT for learning purposes in Tanzania were the factors for poor usage of the technology. Equally, a study done by Nyandara, (2012), on challenges and opportunities of technology based instruction in open and distance learning observed that, in Tanzania CD-ROMs are not much used because of the limited facilities to read those CDs, while in China they are not much used because they have other alternative technology to use.

It is evident from the literature reviewed that most studies conducted concentrated on students' attitude in e-learning materials in general but little has been done to its components including CD based instructional materials in Tanzanian context. Henceforth, the paper managed to explore OUT students' attitude on the use of the said technology and add knowledge on the existing literature.

3. Methodology

3.1 Study Design

The survey research design was successfully employed in this study. This design was chosen so as to capture varied information from large samples of the population and its effectiveness in data collection. According to Creswell (2012), this is a useful design to use when researchers seek to collect data quickly and economically, study attitudes and opinions and survey geographically dispersed individuals.

3.2 Research Approach

Quantitative research approach was used in collecting data on the attitude and the extent to which OUT students use CD based instructional materials in the course of learning. The likert scale with four and five points was used in attesting the students' perceived usefulness and the extent to which CD based instructional materials were used.

3.3 Study Area

The study was conducted in three OUT regional centers namely: Tanga, Kilimanjaro and Morogoro. The three regional centers were selected purposely in order to allow the researcher to obtain representation from different parts of Tanzania.

3.4 Target Population

Population is defined as the totality of any group of units which have one or more characteristics in common to that of interest to the researcher (Omari, 2011). In this study, the target population involved OUT undergraduate and non degree students from three selected regional centers because they are the main users of the technology.

3.5 Sample Size and Sampling Technique

Convenience sampling technique was used to obtain 120 OUT students from sampled regional centers. The technique was used to select students because of their homogeneity as they are not confined in one area. Getting them depended on their convenient accessibility and availability to the centre. Kalton (1983) defines convenience sampling as a sample in which elements have been selected from the target population on the basis of their accessibility or convenience to the researcher.

3.6 Data Collection Methods

In the course of this paper, questionnaire survey method was used to obtain information concerning students' attitude and the extent to which students use CD based instructional materials. Data captured through questionnaire were analyzed by using Statistical Package for Social Sciences (SPSS).

4. Findings and Discussion

The findings on the analysis of OUT students' attitude on the use of CD based instructional materials were presented and discussed according to two objectives of: students' attitude and actual usage of CD based instructional materials in the teaching and learning processes.

4.1 Findings

4.1.1 Students' Attitude on the Use of CD Based Instructional Materials

In the light of students' attitude, the researcher was interested to explore the way OUT students reacted on the use of CD based instructional materials in the course of teaching and learning. Before embarking to targeted objective, the researcher first acknowledged students' awareness concerning CD based instructional materials because awareness may drive students to have either positive or negative attitude in using the technology.

The respondents were asked if they were aware about the use of CD based instructional materials or not. The findings revealed that majority of respondents 88

(73%) were aware of the use of CD based instructional materials in the teaching and learning process at OUT while 32(27%) were not aware as indicated in Figure 1.

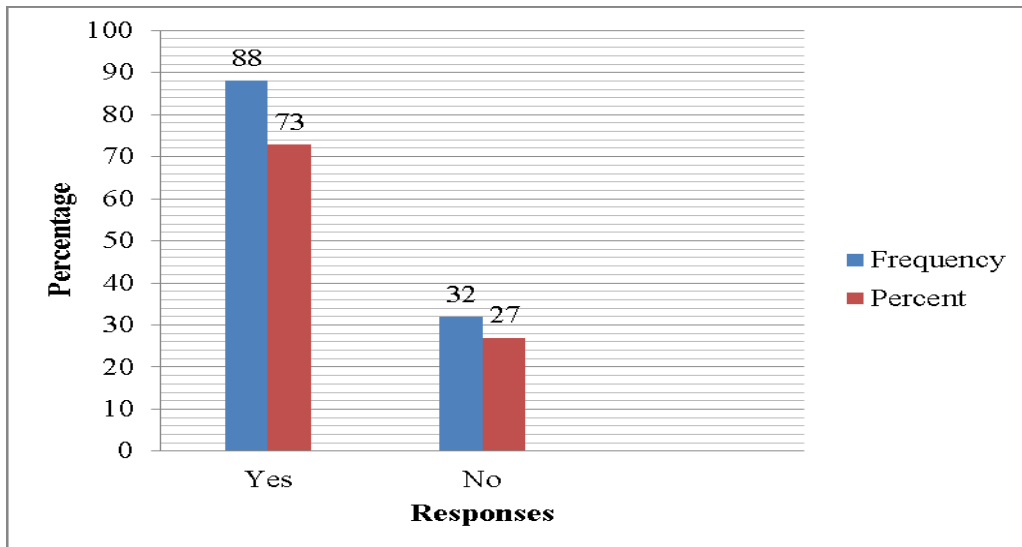


Figure 1: Respondents Awareness on the Use of CD Based Instructional Materials (Source: Field data, 2018)

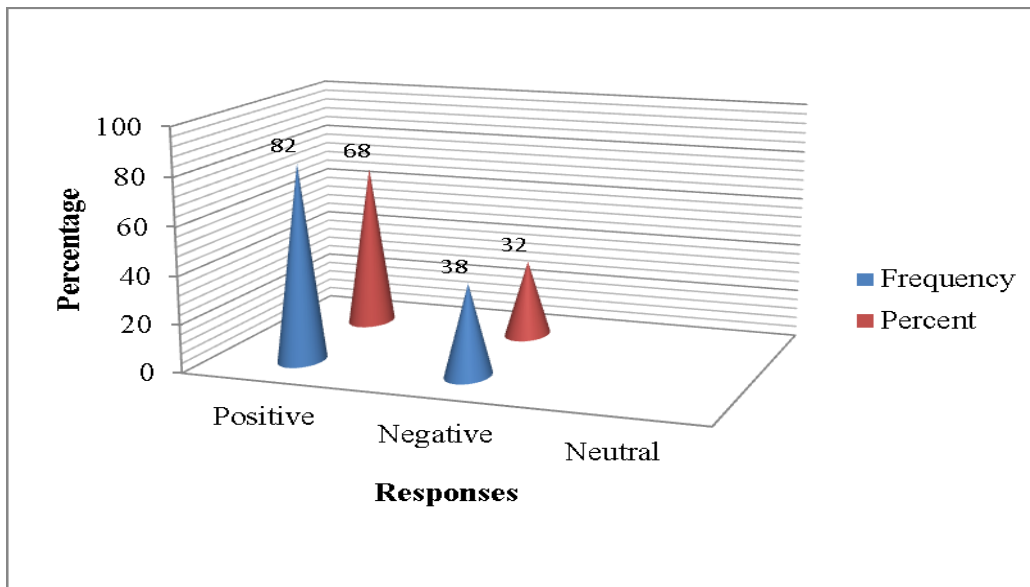


Figure 2: Respondents' Attitude on the Use of CD Based Instructional Materials (Source: Field data, 2018)

The first research question of this study explored students' attitude on the use of CD based instructional materials. The findings indicated that, 82(68%) of the respondents from the study area had positive attitude towards the use of CD based instructional materials compared to 38(32%) who had negative attitude against CD based instructional materials as shown in Figure 2 above.

4.1.2 Reasons for Positive Attitude in Using CD Based Instructional Materials

The reasons for the positive outlook in CD based instructional materials shown by the respondents from the study area were associated with the perceived usefulness of this mode of delivery. A four points likert scale was used to measure the perceived usefulness of the said technology as indicated in Table 1.

Table 1: Respondents' Judgment on the Level of Perceived Usefulness of CD Based Instructional Materials (N=120)

Perceived usefulness	Regional Centers											
	Tanga n=50				Kilimanjaro n=40				Morogoro n=30			
	Great extent	Some extent	Less extent	Not at all	Great extent	Some extent	Less extent	Not at all	Great extent	Some extent	Less extent	Not at all
Increase Performance	7 5.8%	20 16.7%	17 14.2%	6 5%	9 7.5%	13 10.8%	11 9.2%	7 5.8%	2 1.7%	15 12.5%	5 4.2%	8 6.7%
Opportunity to acquire new knowledge	12 10%	28 23.3%	7 5.8%	3 2.5%	12 10%	14 11.7%	7 5.8%	7 5.8%	5 4.2%	15 12.5%	3 2.5%	6 5%
Easy to access materials	11 9.2%	17 14.2%	12 10%	10 8.3%	7 5.8%	13 10.8%	10 8.3%	10 8.3%	5 4.2%	13 10.8%	3 2.5%	9 7.5%
Increase Creativity and interactivity	13 10.8%	23 19.2%	8 6.7%	6 5%	13 10.8%	13 10.8%	7 5.8%	7 5.8%	6 5%	14 11.7%	6 5%	4 3.3%
Easy to carry and store	21 17.5%	18 15%	8 6.7%	3 2.5%	14 11.7%	12 10%	5 4.2%	9 7.5%	15 12.5%	10 8.3%	1 0.8%	4 3.3%
Increase flexibility in learning	8 6.7%	19 15.8%	14 11.7%	9 7.5%	9 7.5%	12 10%	9 7.5%	10 8.3%	9 7.5%	6 5%	5 4.2%	10 8.3%

Source: Field data, 2018

The findings from Table 1 indicated that there was consensus over the matter as majority of the respondents agreed on the usefulness of CD based instructional materials. To some extent the technology increased performance in learning process (Tanga: 16.7%; Kilimanjaro: 10.8% and Morogoro: 12.5%) and increased opportunity to acquire new knowledge (Tanga: 23.3%; Kilimanjaro: 11.7% and Morogoro: 12.5%). Also students agreed that learning materials were easily accessed through CD based instructional materials to some extent (Tanga: 14.2%; Kilimanjaro: 10.8% and Morogoro: 10.8%). Furthermore, CD based instructional materials increased creativity and interactivity (Tanga: 19.2%; Kilimanjaro: 10.8% and Morogoro: 11.7%). In the same line, OUT students believed that CD based instructional materials were easy to carry and store to a great extent (Tanga: 17.5%, Kilimanjaro: 11.7% and Morogoro: 12.5%). Additionally, CD based instructional materials increased flexibility in learning to some extent (Tanga: 15.8%; Kilimanjaro: 10%).

The Table further shows that a significant number of students negatively perceived the use of CD based instructional materials as not being useful in the course

of teaching and learning at all. Students believed that CD based instructional materials do not increase Performance in the learning process (Tanga: 5%; Kilimanjaro: 5.8% and Morogoro: 6.7%); do not provide opportunity to acquire new knowledge (Tanga: 2.5%; Kilimanjaro: 5.8% and Morogoro: 5%) and are not easily accessed (Tanga: 8.3%; Kilimanjaro: 8.3% and Morogoro: 7.5%). Moreover, CD based instructional materials do not increase creativity and interactivity in learning (Tanga: 5%; Kilimanjaro: 5.8% and Morogoro: 3.3%); are not easy to carry and store (Tanga: 2.5%; Kilimanjaro: 7.5% and Morogoro: 3.3%) and they do not increase flexibility in learning (Tanga: 7.5%; Kilimanjaro: 8.3% and Morogoro: 8.3%).

4.1.3 Reasons for Negative Attitude towards the Use of CD Based Instructional Materials

The reasons for the negative attitude in CD based instructional materials pointed out by the respondents from the study area were associated with the perceived disadvantages of this mode of delivery. Among the reasons mentioned were: Lack of access to computers, difficult to access CDs, inappropriate skills to use CDs, electricity connectivity and reliability as indicated in Table 2.

Table 2: Reasons for Negative Attitude in Using CD Based Instructional Materials (N=120)

Reasons	Tanga (n=50)		Kilimanjaro (n=40)		Morogoro (n=30)		Total	
	F	%	F	%	F	%	F	%
Lack of access to computers	15	12.5	11	9.2	9	7.5	35	29.2
Difficult to access CDs	7	5.8	5	4.2	2	1.7	14	11.7
Inappropriate skills to use CDs	12	10	10	8.3	8	6.7	30	25
Electricity connectivity and reliability	11	9.2	11	9.2	10	8.3	32	26.7
Time consuming	5	4.2	3	2.5	1	0.8	9	7.5

Source: Field data, 2018

The findings indicate that lack of access to computer is the major reason that may deter the use of CD based instructional materials 35(29.2%). This was followed by electricity connectivity and reliability 32(26.7%) and inappropriate skills of interacting with e-learning materials such as computers 30(25%). Other reasons reported were difficult to access CDs 14(11.7%) and time consuming 9(7.5%).

4.1.4 The Use of CD Based Instructional Materials in the Course of Teaching and Learning

In response to the CD based instructional materials usage, the respondents were asked whether they use CDs or not. The findings indicated that majority of students 77(64%) use CD based instructional materials unlike minority 43(36%) who do not use as shown in Figure 3.

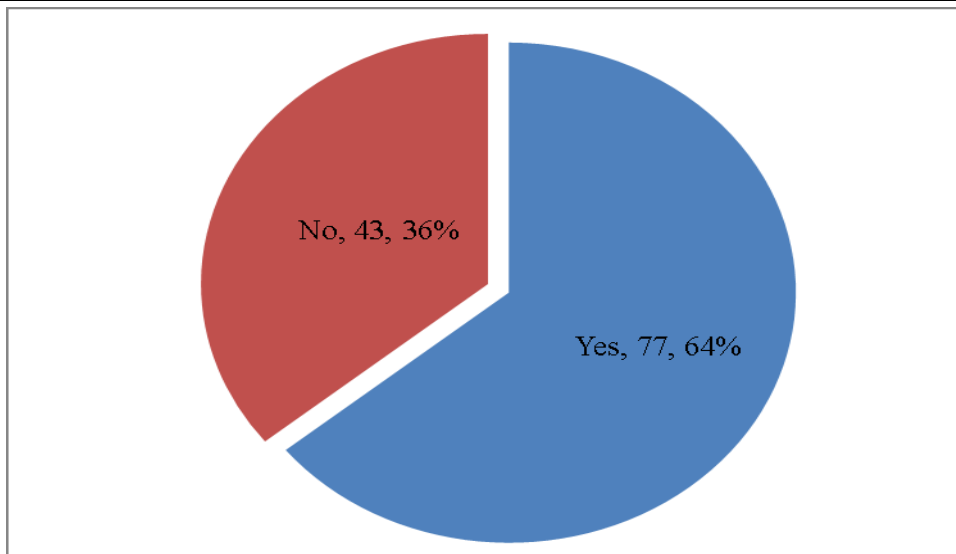


Figure 3: Respondents' Responses on the Use of CD Based Instructional Materials
 (Source: Field data, 2018)

The respondents were further requested to indicate the extent to which they use CD based instructional materials in the course of learning. The responses were classified into five levels of never, rarely, occasionally, frequently and very frequently. Table 3 presents the findings.

Table 3: Respondents' Reaction on the Level of CD Based Instructional Materials Use

Regional Centers	Responses											
	Never		Rarely		Occasionally		Frequently		Very frequently		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
Tanga	19	15.8	17	14.2	4	3.3	6	5	4	3.3	50	41.6
Kilimanjaro	16	13.3	12	10	2	1.7	3	2.5	7	5.8	40	33.3
Morogoro	8	6.7	7	5.8	1	0.8	6	5	8	6.7	30	25
Total	43	35.8	36	30	7	5.8	15	12.5	19	15.8	120	99.9

Source: Field data, 2018

The findings from Table 3 indicated that, the extent to which students use CD based instructional materials varied across regional centers. For instance, 36(30%) students use CD based instructional materials rarely (Only a few times) while only 19(15.8%) use them very frequently (many times a week). Also 15(12.5%) use CD based instructional materials frequently compared to 7(5.8%) who use the media occasionally. However, 43 (35.8%) of the students never use CD based instructional materials in the learning process.

5. Discussion

The study findings revealed that majority of the respondents were aware about the use of CD based instructional materials in the course of teaching and learning. This awareness may have implications with the actual use of the new technologies imposed to learners. The finding agrees with Olasina (2012) who studied students' e-learning

experiences in Nigerian Universities and reported high awareness of e-learning resources among the students. The findings are also consistent with the study by Nwana, (2017) on awareness and usage of e-Learning materials among students of National Open University of Nigeria (NOUN). The study findings exposed that, students were aware of majority of e-Learning materials such as computer, internet and e-mail, videophone systems, teleconferencing devices as well as courseware like CD-ROM, flash memories and slides. Contrary to this, few respondents from the study area were not aware of the use of CD based instructional materials. These are projected to develop negative attitude towards the technology.

The study findings indicated that majority of OUT students had positive attitude towards the use of CD based instructional materials. The higher level of positive attitude is associated with the perceived usefulness of this technology. This is particularly true from the TAM's views of perceived easy to use and perceived usefulness. The finding is in conformity with those of Nassoura (2012) who claimed that University students in developing countries have varying attitudes towards CD based instructional materials but generally their attitudes are positive due to the positive impact on their motivation as well as self-esteem. Similarly a study by Wiksten et al. (2002), reported that students' attitude towards the CD-ROM software were favorable and students would use this type of educational resource.

The findings on the reasons for positive attitude on the use of CD based instructional materials in the course of learning indicated that, many respondents believed that the technology increased opportunity to acquire new knowledge in accessing study materials as well as creativity and interactivity in learning. The perceived advantages of CDs can be linked to the knowledge in interacting with e-learning materials of different format, hence improve performance. On the other hand, a significant number of respondents claimed that CD based instructional materials could not increase performance at all. The findings are supported by Oviatt et al. (2000) who found that, the use of a CD-ROM with students undertaking a course in transnational management was not associated with better examination performance.

In contrast, few respondents from the study area had negative attitude on the use CD based instructional materials. The observed negative attitude were associated with perceived disadvantages of the technology notably lack of access to computers, electricity connectivity and reliability and inappropriate skills to use CDs. Thus, the noted reasons may discourage students to use CD based instructional materials and opt for other modes of delivery including hard copy materials.

With regards to the usage of CD based instructional materials, the findings indicated that, majority of the respondents use this technology. The use of this technology is attributed by accessibility to computers coupled with skills and perceived usefulness of the technology. Contrary to this, Nyandara, (2012), on her study entitled challenges and opportunities of technology based instruction in open and distance learning observed that, in Tanzania CD-ROMs are not much used because of the limited facilities to read those CDs.

It was also revealed that, the degree to which CD based instructional materials were used varied from rarely to very frequently depending on one's preferred learning style. Notwithstanding this stance, many respondents never use the said technology in learning process because of the emerged difficulties in application. The findings are in line to Sharma, Anderson and Taraban, (2005) who reported that despite student access to computer and skills in the use of computers, minor technical problem were sufficiently frustrating to discourage students from using CD- ROM materials.

6. Conclusion

In this study majority of students developed positive attitude on the use of CD based instructional materials in the course of learning. Despite the fact that few respondents had negative attitude in the use of CD based instructional materials, the perceived usefulness outweighs the disadvantages. Thus, in order to continue with this technology at OUT, learners should be encourage to use it so as to copy with rapid changes in information and communication technology. Meanwhile students complaining on the perceived negative attitude on the use of CD based instructional materials should not be ignored as they are the real customers without which the system will fail.

6.1 Recommendations

The study recommends as follows:

- Since students indicated high awareness in the use of CD based instructional materials at OUT, the OUT management should maintain the awareness by regularly reminding the students on the use of CDs during orientation, course registration, application period and face to face sessions. This would make the students hold on to the awareness which they have in CD based instructional materials mode of delivery.
- The OUT management should offer regular trainings on ICT skills so as to support students with inappropriate knowledge or skills in computer usage. This can be achieved by extending ICT training time during face to face sessions.
- The OUT students should be assisted in acquiring computers or laptops at an affordable cost so as to overcome the problem of inaccessibility of computers among them.

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