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ICT Competence of Polytechnics-Based LIS Students in the use of Online Discussion Forum

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ICT COMPETENCE OF POLYTECHNIC-BASED LIS STUDENTS IN THE USE OF

ONLINE DISCUSSION FORUM

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Absract

Online discussion forum (ODF) as an effective pedagogical tool for learning and knowledge construction, designed to make the learning process robust and all-encompassing. It is also expected to facilitate faster and smooth access to learning aid and for individualisation of learning. In spite of its enormous benefits, previous studies have shown that students do not make use of ODF as expected due to factors largely attributed to low level of awareness and perception without recourse to the role of ICT competence could facilitate sustained usage and promote acceptance among students. This study, therefore, investigated ICT competence on the use of ODF among Library and Information Science (LIS) students in selected Nigeria Polytechnics.

Technology Organisation Environment Theory (TOE) (Fleischer, 1990), Media System Dependency (MSD) (Ball-Rokeach and Defleur, 1976) and Technology Acceptance Model (TAM) (Davis, 1989) provided the framework, while the descriptive survey design of correlational type was used. The population comprised all ND II LIS students in eight Nigerian polytechnics offering LIS as a course. Six hundred and thirteen (613) students were enumerated in the eight polytechnics in Southwestern, Nigeria. The instrument used were ODF ($\alpha = 0.87$) and ICT competence ($\alpha = 0.84$). Data were analysed using descriptive statistics, Pearson Product Moment Correlation and Multiple Regression at 0.05 level of significance.

Majority of the respondents were males (53.4%) while most of the students were found within the age brackets of 21-25 years (44.6%) with a mean age of 22.8+/-1.05. Google Answers Box ($\bar{x}= 1.86$) and Experts-Exchange ($\bar{x}= 1.52$) were the mostly used ODF by the students but with low frequency of use ($\bar{x}= 2.48$). Further, the level of ICT competence of LIS students was moderately high ($\bar{x}= 2.92$) on ODF use. There was a strong, positive and significant influence of ICT competence of LIS students ($r = 0.318$) on ODF use. Finally, ICT Competence have significant influence on ODF use among LIS students in selected Nigerian Polytechnic ($F (3, 563) = 88.581, p < 0.05$). Also, the relative contribution of each variable measured in beta weights gives ICT competence ($\beta = 0.206, p < 0.05$) .

ICT Competence is a vital influencer of online discussion forum use by LIS students in Polytechnics. Government and polytechnic authorities should take cognisance of these factor for optimal and efficient use of ODF.

Keywords: Online Discussion Forum, ICT competence, LIS students in Nigerian polytechnics

Word count: 388

Introduction

Online discussion forum is a web-based application that brings users with shared interest and mind-set together. Members of the ODF have the privilege to post messages to the discussion threads, interact and receive feedback from colleagues and instructors with the aim of creating a deeper understanding of the subject matter being discussed (Alabo & Emmah, 2018). This web-based online platform provides a virtual space for learners to engage in social interactions and at the same time, post ideas, discuss and debate with others

There are a range of online tools available to support the use of online discussion forum participation. One of such tools is the asynchronous online discussion forum - a tool frequently embedded within institutional virtual learning environments.

There are several types of fora and these include: open forum where learners participate freely on a loosely-guided agenda; loosely-structured forum where learner's complete specific tasks individually and share on the forum, and cooperative task-based forum where learners work in small teams using the forum to complete an assignment (Moanes 2016). These fora can support different approaches to learning. Markel (2001) stated that for open forum, participation may be limited to asking for information and, therefore, the learner is technically participating.

According competence refers to the ability resulting from an individual's knowledge, skills, characteristics and attitudes to carry out work to achieve success (Kopaiboon et al., 2014). Competence is made up of knowledge, skills, and attitudes. In this case, ICT competence can be described as knowledge, skills, and ability to use ICT for gathering, processing and presenting information in support of activities of groups of students. Albirini (2016) also described ICT competence as knowledge, skills and ability to take advantage of ICT for gathering, processing and presenting the information. Kopaiboon et al. (2014) also stated that individual who are regarded as ICT competent or having ICT competence would participate more actively in an online discussion forum. Students who are ICT competent can also reproduce necessary documents, proffer solutions to problems, choose proper ICT tools for problem-solving and effective work, collect and share information in ethical manner, proper and regular training, attitude and skills.

Therefore, this study aims at investigating the influence of ICT competence ODF use among Library and Information Science (LIS) students in selected Nigeria Polytechnics.

Objectives of the study

. The objectives of the study include:

1. identify the types of online discussion forum available for use of Polytechnic-based LIS students in Nigerian,

2. examine the ICT competence of LIS students in the use of Online discussion forum in selected Nigerian Polytechnics;

3. examine the influence of ICT Competence on online discussion forum use among Polytechnic-based LIS students in Nigerian.

Hypothesis

The null hypothesis was tested at 0.05 level of significance

1. ICT competences have no significant influence on online discussion forum use among Polytechnic-based LIS students in Nigerians.

Literature Review

The use of online discussion forum (ODF) has emerged as a common tool and an effective way of engaging students outside the classroom (Balaji & Charkrabarti, 2016). ODF as an e-learning platform that provides students with priviledge to post messages to the discussion threads, interact and receive feedback from other students and instructor. Hence, creates a deeper understanding of the subject matter being discussed. In education, ODF have been deployed to complement traditional learning techniques such as lectures and tutorials (Dube, et al., 2016). Online discussion forum harmonises with the educational philosophy that makes communication a necessary tool and fundamental mechanism for effective learning. It was discovered that the interaction of the learners with both human and inanimate objects were essential for the quality of their learning experience. It can enrich the process of knowledge exchange among participants and has positive effects on the students' performance. Consequently, online discussion forum can be successful in enhancing collaborative learning by attracting students to participate and interact (Harman & Koohang, 2015).

Online discussion forum as a form for learning through networking provide opportunities for students to seek, obtain, and share information with beneficial impact on teaching and learning process (Nor et al., 2016). The forum can improve student's ability to lead a discussion or to think critically to contribute productively or respond to a given discussion. It

can improve student problem solving skills and competitive spirit among their peers. Neil and Maria (2017) present a model of online discussion forum as a student-centred peer e-learning environment. They stated that the model positions the student expert/facilitator at the centre of the learning event and the instructor, one step removed from the process, as overseer of the dialogue.

Alzahrani (2017) stressed that the online discussion forum encourages students to work together and share learning experiences as they learn from each other through social interaction in the forum. Examples of online discussion forum include: google answers box, reddit, askubuntu, quora, experts-exchange among others. It seems the use of this forum depends largely on the ICT competence of the intending users. Accordingly, ICT competence has been a very significant demand in the present educational system. Nigerian Federal Government recognises primarily the importance of education and in its National Policy on Education (2004) adopted education as an instrument of national integration, socioeconomic development and technological growth. Despite this laudable policy, Nigeria's education system had suffered untold hardships in the last two decades. According to Seungbum et al. (2011), ICT competence can be seen from the operation and usage of computers to mastering software applications. Similarly, Walcott et al. (2011) noted that ICT competence appears to be synonymous with ICT skills, computer competences, computer skills, computer ability and computer literacy. Kim and Lee (2013) described ICT skills as those necessary "for living in modern information-based society. It is the mastering of application software (word processing, presentation, spreadsheet and Internet) and being able to use information well.

Albirini (2006) sees ICT competence as knowledge, skills and ability to take advantage of ICT for gathering, processing and presenting the information. ICT competence has been used by scholars in different dimension. Similarly, Kim and Lee (2013) described ICT competence as ICT skills necessary for living in a modern society and also Seungeun et al. (2011) stated that the term is a mastery of application software and being able to use information well. Poelmeans et al. (2012) noted that the research domain is characterised by the scattered and overlapping use of the terms, such as ICT skills, computer skills, computer ability, computer knowledge, computer or web fluency to mention a few. Aesaert et al. (2013) further described ICT competences from an operational perspective, as an integrated, hierarchical structure of skills is taken into account. This means that ICT competences refer to higher-order learning processing competences that integrate technical and application skills.

Methodology

Descriptive survey designs whose purpose is to describe the relevant aspects of the phenomena of interest was adopted. The population comprised 613 National Diploma (ND)II students in the eight polytechnics offering LIS out of the nineteen (19) polytechnics located in Southwestern, Nigeria where total enumeration was further employed to cover all of them.

Presentation of Result and Analysis

A total of 613 copies of the questionnaire were administered on LIS students in selected Nigerian Polytechnics. However, 589 copies were returned with 567 valid and usable for analysis, giving a response rate of 92.5%.

Table 1: Demographic distribution of LIS students in selected polytechnics in Southwest, Nigeria

Demographic Characteristics	Frequency	Percentage (%)
Name of Polytechnic		
Federal Polytechnic Ede	73	12.9
Federal Polytechnic, Ilaro	56	9.9
Yaba College of Technology, Lagos	74	13.1
Osun State College of Technology, Esa-Oke	62	10.9
Oyo State College of Agriculture and Technology, Igbo-Ora,	75	13.2
Rufus Giwa Polytechnic, Owo	65	11.5
Adeseun Ogundoyin Polytechnic, Eruwa	80	14.1
The Polytechnic, Ibadan	82	14.5
Gender		
Male	303	53.4
Female	264	46.6
Age (Years)		
16 – 20	201	35.4
21 – 25	253	44.6
26 – 30	83	14.6
31 years and above	30	5.3

Source: *Research Field Survey 2022*

The information contained in Table 1 showed that The Polytechnic, Ibadan had the highest number of LIS students 82(14.5%) who participated in the study. This was followed by LIS students from Adeseun Ogundoyin Polytechnic, Eruwa where 80(14.1%) participated in the study, while LIS students from the Oyo State College of Agriculture and Technology, Igbo-Ora were next in rank in terms of participation in the study with 75(133.2%). The polytechnic

with the lowest number of LIS students' participation in the study was Federal Polytechnic Ilaro 56(9.9%). This was attributed to the number of LIS students' enrolment in the study population. This means that most of the LIS students in the population of the study participated with at least 10% representation.

Also, it was revealed that the gender distribution shows that male students constituted (53.4%) while female students constituted 46.6%. This implies that there were more male LIS students than their female counterparts in the selected polytechnics in South-west, Nigeria. Additionally, age distribution of the respondents showed that majority (44.6%) of the respondents were between 21 and 25 years. This was followed by those between 16 – 20 years (35.4%) while the least category of respondents were those above 31 years of age (5.3%). The mean of their age distribution was 21.37 with standard deviation of 3.26. This means that most of the LIS students in selected polytechnics in South-west, Nigeria were young adults.

It was deduced from the results on demographic characteristics of LIS students in selected polytechnics in South-west, Nigeria that the distribution of the respondents used in the study was homogenous and not gender-biased, cut across school ages and representative of the target population as they were able to respond appropriately to the questions raised in the study.

Research question one: What are the various types of online discussion forum that are used by Polytechnic-based LIS students in Nigerian?

Table 2: Type of online discussion forum used

Types	Used		Not used		$\bar{x}$	δ	Rank
	Freq.	%	Freq.	%			
Google Answers Box	483	85.2	44	14.8	1.86	0.37	1st
Experts-Exchange	303	53.4	264	46.6	1.54	0.52	2nd
Quora	206	36.3	361	63.7	1.44	0.48	3rd
Ask Ubuntu	249	43.9	318	56.1	1.43	0.50	4th
Reddit	224	39.5	343	60.5	1.40	0.49	5th

Key: $\bar{x}$ = *Mean*; δ = *Standard deviation*

Decision Rule: If mean is 1.0-1.49 = No; 1.50-2.0 = Yes;
Criterion Mean = 1.5

Answers to research question one is summarized in Table 2. The result revealed that LIS students in the selected polytechnics in South-West, Nigeria used some types of various types of online discussion forum (ODF) as indicated by the overall mean score of 1.53, on a scale

of 1-2. Majority of the respondents used Google Answers Box ($\bar{x} = 1.86$) and Experts-Exchange ($\bar{x} = 1.54$). On the other hand, online discussion forum less used by majority of the respondents were Reddit ($\bar{x} = 1.40$), Ask Ubuntu ($\bar{x} = 1.43$) and Quora ($\bar{x} = 1.44$). The result suggests that LIS students in selected Nigerian polytechnics regard various types of online discussion forum as needed to be used in their respective polytechnics. The implication of this result is that LIS students in Nigerian polytechnics affirmed that Google Answers Box and Experts-Exchange were the two mostly utilized types of online discussion forum (ODF) available to LIS students in selected Nigerian Polytechnics. However, online discussion forums such as Quora, Ask Ubuntu and Reddit were least utilised.

Research question two: What are the ICT competences of Polytechnic-based LIS students in the use of online discussion forum in Nigeria?

Table 3: ICT competences of Polytechnic-based LIS students in the use of online discussion forum in Nigeria

	SA		A		D		SD			
Item Training	Freq.	%	Freq.	%	Freq.	%	Freq.	%	$\bar{x}$	δ
I was taught how to type document using word processing packages	283	49.9	114	20.1	91	16.0	79	13.9	2.86	0.84
Seminars are being organised for us on the use of Internet facilities to enhance online discussion forum use	65	11.5	169	29.8	190	33.5	143	25.2	2.07	0.87
I was taught how to send assignments via email	277	48.9	193	34.0	58	10.2	39	6.9	2.74	0.90
Some of our lectures are done via google classroom which is a form of online discussion forum	125	22.0	212	37.4	126	22.2	104	18.3	2.38	0.95
I was trained on information online search	102	18.0	143	25.2	163	28.7	159	28.0	2.31	0.97
Weighted									2.47	0.906
Attitude	Freq.	%	Freq.	%	Freq.	%	Freq.	%	$\bar{x}$	δ
I am satisfied with my participation in online forum because I am ICT competent	281	49.6	174	30.7	63	11.1	49	8.6	3.21	0.95

	Freq.	%	Freq.	%	Freq.	%	Freq.	%	$\overline{x}$	δ
I am satisfied with the respect I receive from my course mate in the forum	151	26.6	300	52.9	80	14.1	36	6.3	3.00	0.81
I have confidence and trust in my colleague when participating in online forum	256	45.1	213	37.6	67	11.8	31	5.5	3.22	0.86
In general, I like participating in online discussion forum due to my ICT competent	205	36.2	255	45.0	97	17.1	10	1.8	3.16	0.76
My participation in online forum is generally interesting due to my ICT skills	196	34.6	249	43.9	68	12.0	54	9.5	3.04	0.92
Weighted									**3.13**	**0.860**
Skills	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**$\overline{x}$**	**δ**
I have prerequisite knowledge of word processing packages and make ODF easy to use for me	331	58.4	151	26.6	49	8.6	36	6.3	3.37	0.89
I can search for information using internet search engine	209	36.9	245	43.2	90	15.9	23	4.1	3.13	0.82
I can effectively navigate through ODF webpages	240	42.3	218	38.4	64	11.3	45	7.9	3.15	0.91
I can upload/download document, picture, files/folders on the web during ODF	231	40.7	218	38.4	73	12.9	45	7.9	3.12	0.92
I can effectively manage email account for easy use of ODF	221	39.0	200	35.3	88	15.5	58	10.2	3.03	0.98
Weighted									**3.16**	**0.904**
Overall weighted mean									**2.92**	**0.890**

Key: Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)
Source: Researcher's Filed Survey 2022
Decision Rule: 1-1.49 = VL (Very Low), 1.5-2.49 = L (Low), 2.5-3.49 = H (High), while 3.5-4 = VH (Very High). **Criterion mean** =2.50

Table 3 presented the result of ICT competences of LIS students on online discussion forum use in selected Nigerian Polytechnics which has ICT competences divided into three indicators namely training, attitude and skills. The result showed that under training, the weighted mean score was 2.47 which is a little below the criterion mean of 2.50. This means

that there was low level of training of LIS students on online discussion forum. Specifically, majority of the respondents affirmed a low level of training in the areas of seminars being organised for students on the use of internet facilities to enhance online discussion forum use ($\bar{x} = 2.07$), information online search ($\bar{x} = 2.31$) and having lectures via google classroom which is a form of online discussion forum ($\bar{x} = 2.31$). However, high level of training was reported in the areas of typing document using word processing packages ($\bar{x} = 2.86$) and sending assignments via e-mails ($\bar{x} = 2.74$). It was deduced from this result that the level of training of LIS students on online discussion forum use in selected Nigerian polytechnics was low except in the areas of word processing and sending assignment via mail.

Another indicator of ICT competence examined was attitude as shown in Table 3. The result revealed that majority of the respondents exhibited a high level of positive attitude towards the use of online discussion forum with a weighted mean score of 3.13. For instance, majority of the respondents confirm that they were satisfied with their participation in online forum because I am ICT competent ($\bar{x} = 3.21$), confidence and trust in my colleague when participating in online forum ($\bar{x} = 3.22$) and that they like participating in online discussion forum due to ICT competence.

Further, the result showed that there was high level of skills in using online discussion forum among the LIS students in selected Nigerian polytechnics with a weighted mean of 3.16. Additionally, a greater number of respondents affirmed that they had prerequisite knowledge of word processing packages and make ODF easy to use ($\bar{x} = 3.37$), effectively navigate through ODF webpages ($\bar{x} = 3.15$) and upload/download document, picture, files/folders on the web during ODF ($\bar{x} = 3.12$). It was deduced that most of the LIS students in selected Nigerian polytechnics had a high level of skills in the use of online discussion forum as a result of having the prerequisite knowledge of word processing packages and make ODF easy to use, navigating through ODF webpages, uploading and downloading document, picture, files/folders on the web during ODF and searching for information using internet search engine.

Overall, the weighted for ICT competence of online discussion forum among LIS students in Nigerian Polytechnics in Nigeria was 2.93 which according to the decision rule, is a little above the criterion mean of 2.50. It is therefore concluded that there was a high level of ICT competence of online discussion forum among LIS students in Nigerian Polytechnics in Nigeria most especially for skills and attitude to online discussion forum but with low level of training.

Hypothesis one: ICT competences have no significant influence on online discussion forum use among Polytechnic-based LIS students in Nigeria

Table 4: Correlation analysis showing the influence of ICT competences on online discussion forum use among Polytechnic-based LIS students in Nigerian

Variable	$\bar{x}$	δ	N	*r*	*P*	Remark
ICT competences	43.79	13.352				
			567	0.318	.000	Sig.
	20.08					
Online discussion forum use		7.481				

 Source: Researcher's Filed Survey 2022

The mean recorded under the ICT competences was 43.79, δ = 13.352, while that of Online discussion forum use was 20.08, δ = 7.48. The correlation coefficient obtained was 0.318 with p-value < 0.05. The result showed a moderate positive correlation between ICT competences and online discussion forum use among LIS students in selected Nigerian Polytechnics. The correlation is statistically significant at 5 percent significance level. This means that there is a moderate, positive and significant influence of ICT competences on online discussion forum use among LIS students in selected Nigerian Polytechnics as ($r = 0.318$, N = 567, $p < 0.05$). Based on the results, the null hypothesis one which stated that ICT competences has no significant influence on online discussion forum use among LIS students in selected Nigerian Polytechnics was rejected. This means that ICT competences had significant influence on online discussion forum use among LIS students in selected Nigerian Polytechnics. In other words, an improvement in the level of ICT competences would lead to significant improvement in the online discussion forum use among LIS students in selected Nigerian Polytechnics.

Discussion of the finding

Finding of the research question one revealed that LIS students in selected Nigerian polytechnics regard various types of online discussion forum as needed to be used in their respective polytechnics. The implication of this result is that LIS students in Nigerian polytechnics affirmed that Google Answers Box and Experts-Exchange were the two mostly utilized types of online discussion forum (ODF) available to LIS students in selected Nigerian Polytechnics. However, online discussion forums such as Quora, Ask Ubuntu and Reddit were least utilised. It was inferred from this finding that the use of online discussion forum is gradually being accepted by LIS students in Nigerian polytechnics. This finding partly agrees with Balaji and Charkrabarti, (2016) that the use of online discussion forum

(ODF) has emerged as a common tool and an effective way of engaging students outside the classroom. However, the finding disagrees with Dube et al. (2016) that ODF have been deployed to complement traditional learning techniques such as lectures and tutorials (Dube, et al., 2016) as this finding has exposed that although, LIS students used some types of online discussion forum (ODF), other types are not so utilized.

Finding of the research question two revealed that there was a high level of ICT competence of online discussion forum among LIS students in Nigerian Polytechnics in Nigeria most especially for skills and attitude to online discussion forum but with low level of training. Specifically, more than half of the LIS students in selected in Nigerian polytechnics had a high level of positive attitude to the use of online discussion forums. Also, most of the LIS students exhibited a high level of skills in the use of online discussion forum. However, there was a low level of training in the areas of seminars being organised for students on the use of internet facilities to enhance online discussion forum use, information online search and having lectures via google classroom which is a form of online discussion forum. The finding is in agreement with Albirini (2006) that ICT competence as knowledge, skills and ability to take advantage of ICT for gathering, processing and presenting the information. ICT competence has been used by scholars in different dimension. Similarly, the finding corroborates Kim and Lee (2013) that ICT skills are necessary for living in a modern society.

Finding of the hypothesis revealed that ICT competences had significant influence on online discussion forum use among LIS students in selected Nigerian Polytechnics. In other words, an improvement in the level of ICT competences would lead to significant improvement in the online discussion forum use among LIS students in selected Nigerian Polytechnics. This finding lends credence to previous studies by Eger, et al. (2018) who found that students' perceived competence in ICT usage and perceived autonomy related to ICT usage were significantly positively related to their enjoyment of science, interest in broad science topics, science self-efficacy, and epistemological beliefs about science. Similarly, the present finding does not support Amini and Oluyide (2020) that competences in the use of ICT to deepen knowledge.

Summary of Findings

The study investigated the influence of ICT competence on online discussion forum use Polytechnic-based LIS students in Nigeria. The following are the summary of the major findings.

1. LIS students in Nigerian polytechnics affirmed that Google Answers Box and Experts-Exchange were the two mostly utilized types of online discussion forum (ODF) available to them in selected Nigerian Polytechnics. However, online discussion forums such as Quora, Ask Ubuntu and Reddit were least utilised.

2. There was a high level of ICT competence of online discussion forum among the LIS students in Nigerian Polytechnics most especially for skills and attitude to online discussion forum but with low level of training.

3. ICT competences had significant influence on online discussion forum use among LIS students in selected Nigerian Polytechnics. In other words, an improvement in the level of ICT competences would lead to significant improvement in the online discussion forum use by LIS students in selected Nigerian Polytechnics.

Conclusion

The study explored the influence of ICT competence on online discussion forum use by Polytechnic-based LIS students in Nigeria. Online discussion forum use among LIS students was established to be influenced by ICT competence. Consequently, it was established that ICT competence is a significant predictor of online discussion forum use among LIS students in selected Nigerian Polytechnics. It is therefore submitted that for online discussion forum to be optimally adopted and used by students in the polytechnics, there is the need for the government, the institutions, the staff and students to ultilise this factor with a view to fully support the implementation and use of online discussion forum.

Based on the findings of this study, the following recommendations are made:

1. There is the need to create more awareness on different types of online discussion forums available for use by LIS students in Nigerian polytechnics. This would give them the opportunities to explore different types of online discussion forums rather being limited to only two as found in the study.

2. The level of ICT competence of LIS students could be enhanced through further training on ICT skill acquisition embedded in the LIS curriculum of Nigerian polytechnics.

3. Lecturers and librarians need to always encourage the LIS students to use the online discussion forum for knowledge sharing. This could be achieved through virtual departmental seminars, library orientation, students' assignment that requires the use of online resources and project supervision.

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