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Undergraduate Awareness and Perception on the Use of Digital Collaborative Tools in Facilitating Learning in Selected Universities within the Ilorin Metropolis

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ABSTRACT

The study identified the Digital Collaborative Tools used for learning among undergraduates; (i) determined undergraduates' awareness on the use of these tools for learning; (ii) ascertained undergraduates' perception of their use for learning; (iii) identified challenges faced on the use of Digital Collaborative Tools for learning; (iv) ascertained coping strategies of integrating these tools for learning in Ilorin metropolis; and (v) examined the influence of gender on undergraduates' awareness of Digital Collaborative Tools for learning in Ilorin metropolis. The research adopted a descriptive research design of the survey type. The population is comprised of all undergraduate students in the Ilorin metropolis. A stratified random sampling technique was used to select 200 students and a researcher-designed questionnaire was used to elicit objective responses from the subjects. Frequency counts, percentages, and mean scores were used to analyze the research questions while t-test and Analysis of Variance (ANOVA) were employed in testing the hypotheses. The findings of this study were that Digital Collaborative Tools were used for learning among undergraduates. The study recommended that male and female teachers are to redirect their focus on the utilization of digital collaborative tools for learning.

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1. INTRODUCTION

Digital Collaborative Tools are web-based technologies such as Facebook, WhatsApp, Twitter, Instagram, LinkedIn, Vibe, Google Docs, Youtube, Myspace, Flickr, Blog, Wikis, Google Hangouts, Edmodo, Socrative, Projeqt, Thinglink, TED-Ed, Ck-12, ClassDojo, eduClipper, Storybird, Animoto, Kahoot, ebuddy, Instant Messaging, Yahoo Messenger, EarthLink, AOL, Google Earth, Tumblr, Wikipedia, Wikidot, WordPress, Skype, Google, Hangouts, Wikis, Blogs, Microblogs, and multimedia sharing tools that allow users to connect to the internet to create and share content with other users (Schwartz, 2012). In recent years, the world has been introduced to educational technologies which have greatly contributed to the evolution of learning in higher education among which is social networking.

The 21st century has seen a rise in the development of social networking sites (Thelwall & Kousha, 2015). In today's highly competitive learning world and given the development of the 21st century, social media is becoming an integral part of life especially in the domain of education as schools and lecturers are integrating it into the classroom. It is, therefore, no secret that social media is at the center of most people's lives. It is one of the educational technologies used in the modern world today. It is becoming more significant for billions of people every day and it holds an alternative pathway to responsive education especially since it influences how we live, work, and more than ever, how we learn.

In the past, the only way people communicated was through face-to-face contact and the written word. This changed with the invention of the telephone and subsequent modification of other technologies which are used today. The invention of technology like Digital Collaborative Tools has changed and greatly contributed to the evolution of continuous learning. With the advent of modern technology, Digital Collaborative Tools are becoming one of the fastest means of communication with many users. Digital Collaborative Tools have become more significant for learning in higher education, as students daily engage with it for their satisfaction, read or listen to the news amongst others. Digital Collaborative Tools has also grown to be a top platform for market research and decision-making process but also, it is a top platform for learning in Cameroonian higher education. Today, everybody uses social media starting from the youngsters to the middle-aged group. For example, Twitter has about three hundred million users, while Facebook has over 1.4 billion users. WhatsApp on the other hand has about one billion users engaging the app daily, while Instagram has about 800 million users. YouTube has over 1.3 billion users with over five billion videos watch daily (Ghaisani et al., 2017).

Points out that if we acknowledge the fact that learning has evolved with the use of technology, we could spend more time developing new methods of learning rather than complaining about the changes because learning reflects reality and can provide learning insights. Digital collaborative tools refer to the means of interaction among people in which they create, share, and/or exchange information and ideas in virtual communities and networks. A group of internet-based applications that build on the ideological and technological foundations of Web2.0. It allows the creation and exchange of user-generated content and depend on mobile and Web-based technologies to create highly interactive platforms through which individuals and communities share. It creates, discusses, and modifies user-generated content (Kaplan & Haenlein, 2010).

Digital Collaborative Tools create an Awareness future for communication for long-life learners, a countless array of internet-based tools and platforms that increase and enhance the sharing of information. This new form of media makes the transfer of text, photos, audio, video, and information in general increasingly fluid among internet users. Internet users

continue to spend more time with collaborative sites than any other type of site. They appear in many forms including blogs and microblogs, forum and message boards, social networks, wikis, virtual worlds, social bookmarking, tagging and news, writing communities, digital storytelling and scrapbooking, video-sharing, and podcasts portals.

Digital Collaborative Tools facilitate learning and interaction and they have been stated to be very important within the online educational framework for developing meaningful learning experiences. However, Digital Collaborative Tools remain a concept that has not often been researched especially within asynchronous learning. Many countries in the world have been driven to rethink their educational system to be competitive. The various higher institutions in Nigeria have made it a necessity for their undergraduate to have laptops in order to be able to perform certain activities in the course of study, such as sourcing the internet for tangible information in the quest to working on the assignment, research, studying and so on. Nevertheless, Undergraduate have varieties of gadgets to supplement the laptops they have, which they might not be able to bring to class due to their size. Digital collaborative tools are nothing but the tools that allow undergraduates, to explore, share, engage and connect with instructors and content in meaningful ways that help them learn. [Kaplan and Haenlein \(2010\)](#) have examined awareness and perception of digital collaborative tools in facilitating learning but none of these studies have focused on using a holistic approach by selecting universities in Ilorin metropolis for their studies. Most prior research on collaborative tools and technologies has focused on individual adoption; this study, though, sees collaboration tools from the perspective of their effective use at the team- collaboration level perspective.

The following research questions were raised to guide the study:

- (i) what are the Digital Collaborative Tools used for learning among undergraduates in the Ilorin metropolis?
- (ii) what is the level of undergraduates' awareness of the use of Digital Collaborative Tools for learning in the Ilorin metropolis?
- (iii) what are the perceptions of undergraduates on the use of Digital Collaborative Tools for learning in the Ilorin metropolis?
- (iv) what are the challenges facing the use of Digital Collaborative Tools for learning in the Ilorin metropolis?
- (v) what are the coping strategies for integrating Digital Collaborative Tools for learning in the Ilorin metropolis?
- (vi) what is the influence of gender on undergraduates' awareness of Digital Collaborative Tools for learning in the Ilorin metropolis?

The following null hypotheses will be formulated and tested at a 0.05 significant level.

- (i) Ho1: There is no significant influence of undergraduates' awareness on the use of digital collaborative tools for learning based on gender in the Ilorin metropolis.
- (ii) Ho2: There is no significant influence of undergraduates' perception on the use of digital collaborative tools for learning based on gender in the Ilorin metropolis.

2. METHOD

The study adopted a descriptive research design of the survey type. Survey was used for this study because it enables the researcher to collect the required information about undergraduates' awareness and perceptions of Digital collaborative tools in facilitating learning in selected Universities in Ilorin. The population for this study comprised of all undergraduate students in the Ilorin metropolis and the targeted population is the University of Ilorin and Al-Hikmah University undergraduate students. A random sampling technique

was used to select students in 5 faculties in each of the selected Universities ranging from 100level to 400level. A stratified random sampling technique was used to select students from each of the faculties listed above to bring the total number of samples to 200. The data presented provide a summary of the major characteristics of the respondents that were involved in the study. The questionnaire was directed to the respondents to ensure that necessary information was captured and measured accurately. Out of the 200 copies of the questionnaire that were administered, all were properly completed and returned at a return rate of 100%. This was further used for the analysis in this study.

3. RESULTS

The demographic status of respondents by gender was presented in **Table 1**. It showed that male respondents were 118 with 59.0% while 82 (41.0%) were female.

Table 2 represents the demographic status of respondents by their Academics level. The majority of the respondents were undergraduates from 200 levels with 76(38.0%). Respondent from 100 levels were 60 (30.0%) respondents. Respondents from 300 levels were 25 (12.5%). The least number of respondents were respondents selected from 500level with 19 (9.5%). They are all 200 respondents.

Table 3 shows the distribution of the respondents by their age, 70 respondents representing 35.0% representing 21-25 years 35.5 representing 15-20 years while the remaining respondents were 63 representing 31.5.

Table 1. Distribution of respondents according to gender.

Gender of Respondents	Frequency	Percent	Cumulative Percent
Male	118	59.0	59.0
Female	82	41.0	100.0
Total	200	100.0	

Table 2. Distribution of the respondents by level.

Level	Frequency	Percentage
100level	60	30.0
200level	76	38.0
300level	25	12.5
400level	20	10.0
500level	19	9.5
Total	200	100.0

Table 3. Distribution of respondents based on their age.

Age of the Respondents	Frequency	Percentage
15-20years	67	33.5
21-25 years	70	35.0
26years and above	63	31.5
Total	200	

3.1. Research Question One: what are the Digital Collaborative Tools used for Learning among Undergraduates in the Ilorin Metropolis?

Digital Collaborative Tools used for learning among undergraduates in the Ilorin metropolis were investigated and the results were presented in **Table 4**. Out of the 200 respondents, 145 (72.5%) used Twitter while 55 (27.5%) do not use Twitter. 149 (74.5%) used Edmodo but 51 (25.5%) do not used. Also, Instagram was used by 134 (67.0%) but not used by 66 (33.0%). Facebook is used by 125 (62.5%) respondents but not used by 75 (37.5%) respondents. 144 (66.5%) respondents used Whatsapp while 56 (28.0%) do not use. The flip classroom is used by 133 (88.66%) respondents and not used by 77 (38.5%) respondents. Google classroom is by 127 (63.5%) respondents but not used by 63 (31.5%) respondents. 115 (57.5%) respondents had E-mail while 85 (42.5%) respondents do not have E-mail. Zoom was used by 132 (66.0%) but not used by 68(34.0%) respondents.

Table 4. Available ITS application software available for instruction.

S/N	Questionnaire Item	N	Yes%	N	No %
1	Twitter	145	72.5%	55	27.5%
2	Edmodo	149	74.5%	51	25.5%
3	Instagram	134	67.0%	66	33.0%
4	Facebook	125	62.5%	75	37.5%
5	Whatsapp	144	66.5%	56	28.0%
6	Flip classroom	133	88.66%	77	38.5%
7	Google classroom	127	63.5%	63	31.5%
8	E-mail	115	57.5%	85	42.5%
9	Zoom	132	66.00%	68	34.0%
10	Moodle	137	68.5%	63	31.5%
11	Podcast	142	71.0%	58	29.0%
12	Skype	114	57.0%	86	43.0%
13	Wikipedia	126	63.0%	74	37.0%
14	YouTube	121	60.5%	79	39.5%
15	Google	131	65.5%	69	34.5%

3.2. Research Question Two: What is the Undergraduates' Awareness of the Use of Digital Collaborative Tools for Learning in the Ilorin Metropolis?

Table 5 reveals clearly that item 6 has the highest mean value of 3.32, meaning that digital collaborative tools make learning more interesting. This was noted to be followed by the mean score of 3.28 against the statement that Digital Collaborative Tools can be used to conduct research. The respondents also believed that Digital Collaborative Tools make accessing library collection easier having a mean score of 3.26. Furthermore, it was revealed that digital collaborative tools are easy to use with a mean score of 3.19. This was closely followed by a mean score of 3.15 against the statement that digital collaborative tools make learning more interactive. However, item 1 which revealed that digital collaborative tools are used for learning had a mean score of 3.00.

Table 5. Undergraduates’ awareness of the use of digital collaborative tools for learning in ilorin metropolis.

S/N	Items	F	Mean	Std. Deviation
1	I have heard of Digital Collaborative Tools.	200	3.00	0.72
2	I am aware that Digital Collaborative Tools are used for learning.	200	3.05	0.71
3	I am aware that Digital Collaborative Tools can be used to conduct research.	200	3.28	0.60
4	I am aware that Digital Collaborative Tools make searching for relevant information a lot easier.	200	3.32	0.49
5	I am aware that Digital Collaborative Tools make accessing library collection faster.	200	3.26	0.54
6	I am aware that Digital Collaborative Tools make learning more interesting.	200	3.32	0.48
7	I am aware that Digital Collaborative Tools encompasses Instagram, WhatsApp, Facebook, Google, Twitter, etc.	200	3.00	0.58
8	I am aware that Digital Collaborative Tools make accessing library collection easier and seamless.	200	3.29	0.64
9	I am aware that Digital Collaborative Tools are easy to use.	200	3.19	0.57
10	I am aware that Digital Collaborative Tools make learning more interactive.	200	3.15	0.55
Grand Mean			3.00	

3.3. Research Question three: What are the Perceptions of Undergraduates on the Use of Digital Collaborative Tools for Learning in the Ilorin Metropolis

Table 6 reveals that it is easy to use Digital Collaborative Tools to communicate was ranked highest having the mean score of 3.97 out of 4. This was followed by digital collaborative tools that make learning easier. We find it easy to do my assignments with the use of Digital Collaborative Tools and that I find it easy to use Digital Collaborative Tools to conduct research. having the means of 3.74, 3.70, and 3.61 respectively. The lowest mean score was 3.35 with the statement it makes learning facilitating through entertainment e.g. fashion, articles, music trends, sport, celebrity gist, etc. However, the grand mean score for perceived usefulness was found to be 3.44. Using 2.5 as the average benchmark, it can then be inferred that undergraduates perceived the use of Digital Collaborative Tools for learning in the Ilorin metropolis positively.

3.4. Research Question Four: What are the Challenges Facing the Use of Digital Collaborative Tools for Learning in the Ilorin Metropolis?

Table 7 reveals clearly that item 5 has the highest mean value of 3.29, meaning It is unsuccessful to use Digital Collaborative Tools for teaching and learning. This was noted to be followed by the mean score of 3.20 against the statement that the use of Digital Collaborative Tools will make my lesson difficult. The respondents also believed that Digital Collaborative Tools discourage students from having a mean score of 3.22.

Table 6. Perceptions of undergraduates on the use of digital collaborative tools for learning in Ilorin metropolis.

S/N	Items	Sum	Mean	Std. Deviation
1	I find it easy to use Digital Collaborative Tools to communicate.	200	3.97	0.72
2	I find it easy to do my assignments with the use of Digital Collaborative Tools.	200	3.70	0.71
3	Digital Collaborative Tools has made searching for relevant information easier.	200	3.44	0.60
4	It makes learning facilitating through entertainment e.g. fashion, articles, music trends, sport, celebrity gist, etc.	200	3.35	0.49
5	It makes the transfer of text, photos, audio, video, and information in general increasingly fluid among internet users	200	2.99	0.54
6	Digital Collaborative Tools make playing educational games easy for learning.	200	2.65	0.48
7	It allows undergraduates, to explore, share, engage and connect with instructors and content in meaningful ways that help them learn.	200	3.50	0.58
8	It makes learning easier.	200	3.74	0.64
9	I find it easy to use Digital Collaborative Tools to conduct research.	200	3.61	0.57
10	It makes accessing library collection easy and accessible.	200	3.39	0.55
Grand Mean			3.44	

Table 7. challenges facing the use of digital collaborative tools for learning in Ilorin metropolis.

S/N	Digital Collaborative Tools	Mean (\bar{X})
1.	I find it difficult to use Digital Collaborative Tools.	3.12
2.	The use of Digital Collaborative Tools will make my lesson difficult.	3.20
3.	Digital Collaborative Tools stimulate students' interest in the course.	3.18
4.	Using Digital Collaborative Tools for learning will be frustrating.	3.06
5.	It is unsuccessful to use Digital Collaborative Tools for teaching and learning.	3.29
6.	Digital Collaborative Tools discourage students.	3.22
7.	Digital Collaborative Tools contribute constructively during class activities.	3.27
8.	Does the school provide Digital Collaborative Tools for learning?	2.99
9.	Digital Collaborative Tools are hard to use.	3.16
10.	Digital Collaborative Tools are time-consuming.	3.14
Grand mean (\bar{X})		3.16

Furthermore, it was revealed that Digital Collaborative Tools contribute constructively during class activities with a mean score of 3.28. This was closely followed by a mean score of 3.27 against the statement that Digital Collaborative Tools contribute constructively during class activities. However, item 3 which revealed that Digital Collaborative Tools stimulate students' interest in the course had a mean score of 3.18. On the general note, the grand mean score for the challenges facing the use of Digital Collaborative Tools for learning in the Ilorin metropolis in Kwara State was 3.16. Using 2.5 as the benchmark, it could be deduced that undergraduates are faced with challenges of using Digital Collaborative Tools for learning in the Ilorin metropolis.

3.5. Research Question Five: What are the Coping Strategies of Integrating Digital Collaborative Tools for Learning in the Ilorin metropolis?

Table 8 reveals clearly that item 4 has the highest mean value of 3.41, meaning I employ an alternative source of power (such as a power bank, solar-powered batteries, etc.) to keep my digital collaborative tools active during prolonged power failure. This was noted to be followed by the mean score of 3.31 against the statement I use my data majorly to access academic resources to reduce spending on internet subscriptions. The respondents also believed that I rapport with friends and teachers to learn how newly introduced digital collaborative tools could be used for learning having a mean score of 3.30.

Table 8. coping strategies of integrating digital collaborative tools for learning in ilorin metropolis.

S/N	Digital Collaborative Tools	Mean (\bar{X})
1.	I use my data majorly to access academic resources to reduce spending on internet subscriptions.	3.31
2.	I am disciplined enough to jettison all social media distractions when using digital collaborative tools for learning.	3.00
3.	I use the mute notification and Do-Not-Disturb (DND) options on my device while learning to avoid distractions.	3.03
4.	I employ an alternative source of power (such as a power bank, solar-powered batteries, etc.) to keep my digital collaborative tools active during prolonged power failure.	3.41
5.	I am open to new experiences such that I readily get up to speed with the new ICT tools used in class.	3.18
6.	I rapport with friends and teachers to learn how newly introduced digital collaborative tools could be used for learning.	3.30
7.	I obtain information from the internet on how best to maximize the usage of digital collaborative tools.	2.64
8.	I undertake computer training sessions to sharpen my skills in applying digital collaborative tools most effectively.	3.20
9.	I adhere to established expectations about the use of ICTs in class to avoid distractions while learning.	3.10
10.	I frequently rehearse the use of seemingly complex digital collaborative tools to gain mastery.	3.23
Grand mean (\bar{X})		3.21

4. DISCUSSION

This finding agreed with the earlier findings whose study affirmed that Twitter is beneficial to expand learning communities and to increase participation and engagement. This author further affirmed that this study is highly beneficial to student learning. This study is consistent with the previous findings whose opined study opined that students frequently subscribe to twitters for information access. Undergraduates’ awareness of Digital Collaborative Tools for Learning in Ilorin metropolis. was examined using research question 2 and hypothesis 1. The result of the mean score established that undergraduates are aware of the use of digital collaborative tools for learning in the Ilorin metropolis and there was no significant difference in undergraduates’ awareness on the use of digital collaborative tools for learning based on gender in the Ilorin metropolis. This finding agreed with the earlier findings of Global digital citizen (2017) whose study states that The Digital Collaborative Tools (DCT) has brought dramatic changes in the academe as to its structure, procedures, functions, and even in the

classroom settings. Since the school administrators, teachers and students used varied sets of ICT tools to communicate, disseminate, and manage information and to improve or advance the teaching and learning and they are aware of its usage. The study also agreed with the previous findings whose study affirmed that the approach of collaborating computer-aided learning with more traditional forms can inspire students and empower teachers with the freedom to embrace their changing roles in the industry. The study agreed with the study whose study concluded that group composition based on gender had no significant impact on collaborative learning outcomes. Researchers from one side of the debate believe that single-gender grouping is a better choice than mixed-gender grouping. Some-gender groups produced higher achievement. That although improvements in understanding are independent of the gender composition of groups, single-gender groups function more purposefully than mixed-gender groups. Study contradict this present study whose study stated that a predominance of females in groups is one of the best predictors of group success.

Undergraduate perception of the use of Digital Collaborative Tools for learning in Ilorin metropolis was examined using research question 3 and hypothesis 2. The results of the mean score indicate undergraduates perceived the use of Digital Collaborative Tools for learning in the Ilorin metropolis positively. Also, the result of the hypothesis formulated indicated that no significant difference exists between male and female undergraduates in their perceived utilization of digital collaborative tools for learning. This finding agreed with the findings whose findings perceived that collaborative tool are inter-de-pendent by their mode of usage. The areas of categorization and their uses include: Social Networking Sites (SNS) allows for connection of people with friends and others who work, study, and live around them and even in other countries. Social Bookmarking and Sharing Tools allow users to save and share citations of academic papers amongst researchers. Also, the result of the hypothesis formulated indicated that no significant difference exists between male and female undergraduates in their perceived utilization of digital collaborative tools for learning. This contradicts the previous findings who further reported that participants of male-only groups felt significantly more uncomfortable and disturbed by their groups than male participants in mixed-gender groups. In contrast, female participants felt more comfortable in female-only groups. Due to the limitations and controversial opinions in previous studies, and because most of these studies were focused on analyzing gender difference rather than gender grouping in DCT, we thought it beneficial and necessary to conduct a study to get deeper insights into how gender and gender grouping affect students' learning and attitudes.

The challenges of using Digital Collaborative Tools for learning were examined using research question 4. The findings established that undergraduates are faced with challenges of using Digital Collaborative Tools for learning in the Ilorin metropolis. The study agreed with the previous study whose study stated various challenges that face the use of ICT for learning which include internet downturn, epileptics power supply, and funds. This study could not locate any other findings to support or contradicts this finding.

5. CONCLUSION

The result obtained from the data gathered and analyzed in this study indicated that the majority of the undergraduates use collaborative tools for learning. The study also showed that there was no significant difference in male and female undergraduates' awareness of digital collaborative tools for learning. The study showed that there was no gender barrier or gap as far as the usage of Digital collaborative tools is concerned. Based on the findings and conclusion of this study, the following recommendations were made:

- (i) Male and female teachers are to redirect their focus on the utilization of digital collaborative tools for learning.
- (ii) All teachers should be encouraging the utilization of digital collaborative tools for academic's purposes not to allow hindering their concentration in the classroom.
- (iii) School administrators should ensure adequate power supply and internet facility for easy access and utilization of digital collaborative tools for learning.
- (iv) Secondary school teachers should also help themselves by utilizing the digital collaborative tools majorly for as improper use could lead to distraction, which in return affects their learning.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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