



Effect of Webinar Multimedia Platform on Students' Academic Performance in Selected Educational Technology Concepts in University of Ilorin

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ABSTRACTS

The study investigated the effect of Webinar Multimedia Platform in selected Educational Technology Concept on Students' Academic Performance in the University of Ilorin. A descriptive study design was adopted for the measurement of respondent's opinions on the issue related to webinar multimedia tools and students' academic performance. The study population constitutes 50 students in the Educational Technology Department at the University of Ilorin considering t-test statistical tools. The findings of the study revealed that (i) There was no significant difference between the performance of undergraduates taught selected educational technology concepts using Webinar and those that were taught with the conventional lecture method in favor of the experimental group; (ii) There was no significant difference in the mean score's performance of male, and (iii) female students that were exposed to Webinar, (iv) The students that were exposed to Webinar had positive reactions toward the use of Webinar, and (v) There was no significant difference between male and female students' reactions towards the use of Webinar. The study concluded that Webinar was used and found effective for learning the selected Educational Technology concepts. The two hypotheses that were tested were retained. Based on the findings, the researcher recommends that Webinar is a very effective supplementary tool that will enhance students' academic performance.

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1. INTRODUCTION

In education, students thrive in an environment where they are allowed to experience and interact with the curriculum, and all students should have the opportunity to take part in their learning. The Greek philosopher Aristotle has said that man is a social animal by nature and by necessity; this means man can't survive in isolation, he must satisfy certain natural basic needs to survive, and therefore, human beings interact with each other daily. The term 'Education' has been interpreted by different people in different ways. The United Nations Educational, Scientific and Cultural of Europe refer to it as formal schooling or to lifelong learning. Crow and Crow refer to it as the acquisition of knowledge, skills, and attitudes. Education is nothing, but the training of people's minds in a particular direction to bring about desired changes. Education provides a man the tools to improve the quality of life in modern society both economically and sociologically starting from promoting gender equality to reducing poverty. Shamsideen (2016) suggests that "Education is the primary agent of transformation towards sustainable development since it increases people's capacities to transform their visions into reality".

Etymologically speaking, the word Education is derived from the Latin word "Educare" meaning "to raise" and "to bring up". According to few others, the word 'Education' has originated from another Latin term "educere" which means "to lead forth" or "to come out". These meanings indicate that education seeks to nourish the good qualities and draw out the best in every individual. Some other educationists believe that the word 'Education' has been derived from the Latin term "educatum", meaning something which is imposed from outside. It is external growth through activities and experience. The teacher, through education, provides instructions and gives direction to mold these abilities. From the above meaning of education, it is revealed that education is needed for a progressive society and targeted to bring overall prosperity to the individual by unfolding his potentialities. Education is a relentless process of becoming.

Being in school is not the same as learning, this means, learning is a lifelong process. However, education and schooling are temporary. Education is at the center of building human capital. The latest World Bank research shows that the productivity of 56% of the world's children will be less than half of what it could be if they enjoyed complete education and full health. One big reason the learning crisis persists is that many education systems across the developing world have little information on who is learning and who is not. Education needs to aim to do more than prepare young people for the world of work, it needs to equip students with the skills they need to become active, responsible, and engaged citizens. Students need to be able to interpret information, form opinions, be creative, communicate well, collaborate, and be resilient. Evidence shows that for students to learn, they need good teachers, but many education systems pay little attention to what teachers know, what they do in the classroom and some cases whether they even show up.

Fortunately for many students, despite all challenges, some dedicated and enthusiastic teachers defy the odds and make learning happen with passion, creativity, and determination. Given the essential role they play, addressing the learning crisis, all teachers must be excellent in their communication skills. No matter how knowledgeable a teacher is, if they can't convey what they know to the students in a way that is not only understandable but engaging, the knowledge itself is useless. All teachers must be motivated to do their best and are equipped with what they need to teach effectively. Moreover, Teachers need to integrate technology into instruction in this 21st Century. Education reform will have full benefits of high-quality

teachers, the effective use of technology, improved management of education systems, and engaged and prepared learners.

Information and Communication Technologies (ICT) stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as the necessary software, its storage, and the audiovisual systems, which enable all users to access, store, transmit, and manipulate information. The term ICT is also used to refer to the combination of audio-visual and telephone networks with computer networks through a single cabling or link system.

However, there is no single universal definition of ICT, as the concepts, methods, and applications involved in ICT are constantly evolving on an almost daily basis. The broadness of ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form e.g. personal computers, digital television, email, and even modern-day robots. In the field of education, ICT can be used to enhance the quality and value of education especially when integrated. ICT can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development, and more efficient education management, governance, and administration. ICT includes media of communication (Radio, Television, Tapes, CDs), Information Machines (Computers, Tablets), Telecommunication Technologies and Equipments (GPRS, Satellite Phones and Mobiles).

The application or use of ICT in the Nigerian academic library is justified in that it gives online access to diverse resources that could be transmitted and retrieved. Knowing that ICTs are being continuously updated or introduced and traditional formats are being replaced or supplemented by digital formats (such as e-journals and e-books), (Ashcroft 2005), there is a need for internet access in the Nigerian academic libraries to enable them to key into these online resources, which could be transmitted electronically and thus faster and cheaper.

ICT tools are the latest technology or devices and concepts used among students to students, students to teacher interaction (e.g., Flipped classroom, Mobile apps, and Clickers devices). ICT tools are digital infrastructures such as; Computers, Laptops, Desktops, Data projectors, Software programs, Printers' scanners, and Interactive teaching boxes. There are three essential qualities in using the ICT tools, they are; Creativity, Competitiveness, Collaboration. These qualities make interaction in class between students to students, Students to teacher interaction interesting and fun. There are varieties of ICT tools that can be integrated into education, which include; YouTube, Wikis, Virtual Earth, Webinar, SlideShare, and Google Docs. ICT tools for Education using the teaching tools include; Interactive whiteboard, Computer, Projector, Presentation tools.

More so, there are computing tools, they include; Word processors, Spreadsheets, Presentation software, Database maintenance. There are many advantages of ICT use. For example, with the use of ICT, images or pictures may be used in teaching and improving the retentive memory of students; teachers can easily explain complex instructions and ensure students' comprehension; teachers can create interactive classes and make lessons more enjoyable, which can improve student attendance and concentration. ICT allows distance learners to use online educational materials, get access to them, as well as provides learners with additional resources to assist resource-based learning. Also, with the application of ICT for education, feedback between the teacher and the students is enhanced (Stosic, 2015). The application of ICT in education has made teaching and learning easy in 21st Century education.

The application of ICT to education has made students learn independently to master teaching materials, choose the pace of work, repeat the material that is not sufficiently clear

and track their progress. Interactive multimedia content, especially, provides a great advantage of modern learning over traditional learning. ICT application in teaching and learning also facilitates feedback between the teacher and the students.

The old days of an educational institution having an isolated audio-visual department are gone! The growth in the use of multimedia within the sector has accelerated in recent years and looks set for continued expansion in the future.

(Islam, 2020) described multimedia as any combination of text, graphics, animation, audio, and video delivered and controlled by the computer. Interactive multimedia is non-linear multimedia, that is, any tool that gives control to the user rather than the computer. This shift of control allows for individually customized information flow. These applications center on the user through menu-driven programs, hypermedia applications, process simulations, performance-dependent programs, direct manipulation environments, or combinations of these interactive techniques.

Moreover, multimedia has been relatively successful because it draws upon more than one of the five human senses, utilizing the two fundamental senses vital for information reception – sight and sound. Due to motion and sound, it can also spark attention, interest, and motivation in the process, Mukherjee (2018). Multimedia is also where every type of information can be represented, stored, transmitted, and processed digitally. The information presented through multimedia has better quality and capability, as it can be understood easily. The advanced computer system is a great example of modern multimedia. Multimedia can as well be defined as the field of Computer Science that integrates different forms of information and represents in the form of visual, audio, and audio-visual.

Additionally, there are different elements of multimedia, which include Text, Images and Graphics, Audio, Video, and Animation. Texts, images, and graphics are three elements static (do not move). whereas the other three elements (i.e. audio, video, and animations) are moving objects or dynamic objects within a multimedia application.

Consequently, apart from the listed elements of multimedia formats used in educational contexts, we have other educational contexts, they are; Webinar and Online meetings, Moodle activities, Blogs, Interactive Content. Webinar: This technology can be particularly useful for programs delivered via distance learning, or, allows lecturers to broadcast a presentation or lecture to students who cannot attend in person. It is also used to bring in guest lecturers who cannot be physically present at the university, or, for an online presentation to prospective students. This presentation can also be recorded for use as a future resource.

One of the ultimate goals of teaching and learning using multimedia is to promote students' motivation and learning interest, which can be practical ways to get them involved. Therefore, the teaching quality will be improved and students' communication can be effectively cultivated, meaning that students' communicative competence will be further developed. It has been observed that there are multimedia applications that can be integrated into teaching.

One of the most common problems facing Nigerian higher institutions today is the usage and utilization of multimedia platforms and ICT tools. Teachers with little or lack of training and experience using the ICT tools may find it difficult in setting up the devices meant to incorporate practicals into their lessons, especially virtual lessons. The irregular power supply is another major challenge, this tends to discourage students from showing full interest in the classroom. Also, plagiarism is very common as many students tend to focus on copy/paste from the internet and find it difficult to generate their ideas.

Research questions are:

- (i) what is the difference in the performance of students taught with Webinar Multimedia Package and those in a traditional setting?
- (ii) what is the effect of the Webinar Multimedia Package on students' academic performance in selected educational technology concepts in the selected?
- (iii) what is the reaction of the students toward learning with the Webinar Multimedia Package?
- (iv) what is the difference in the academic performance of students taught with Webinar Multimedia Platform?
- (v) what is the gender difference in the students' reaction to learning with Webinar Multimedia Platform?

Research hypotheses are:

- (i) Ho1: There is no significant difference in the academic performance of students taught with Webinar Multimedia Platform based on gender.
- (ii) Ho2: There is no significant difference in educational technology students' reaction towards Webinar Multimedia Package based on gender.

2. METHODS

The study adopted the descriptive survey research method as the research design. A survey method for this study is quite appropriate in the measurement of respondent's opinions on the issue related to webinar multimedia tools and students' academic performance. Likert-type items on a four-point scale for closed-ended questionnaires were employed to measure the respondents' perceptions on various issues relating to webinar multimedia tools and students' academic performance. The study population constituted students in the Educational Technology Department at the University of Ilorin Nigeria. Due to the inaccessibility of the entirely verified data, the study population is estimated to be 50 which are students. The target population for this study was 100 Educational Technology Students, they were divided into sections: The experimental group and the Control group. The experimental group constituted 50 Educational Technology Students who took an online test, while the control group constituted 50 Educational Technology Students who used took the conventional test and questionnaires which were designed by the researcher to collect data. 100 level Educational Technology students were used for this study at the University of Ilorin.

This further allowed us to have a manageable sample size for the study as presented in **Table 1**. **Table 1** shows the distribution of the sample for the study. From **Table 1**, the two groups comprised a total of 100 students that were selected as samples for this study. Out of which 50 were exposed to the Webinar Multimedia Platform (Experimental group) while 50 of them were exposed to conventional lecture only (Control group).

The research instruments used for this study were a researcher-designed online test, a conventional test, and questionnaires, which were used to collect data. The online questionnaires titled "Objective Questions on EDT 114 using the influence of Webinar Multimedia Platform to determine Students' Academic Performance in Educational Technology, University of Ilorin" were used to elicit information from the respondents from the selected department. The instrument was also divided into two sections, A and B respectively.

Section "A" comprises personal data of the respondents while.

Section "B" comprises the objective questions.

Table1. Distribution of sample for the study.

S/No	Sample	Gender		Total
		Male	Female	
1	Experimental group	50	50	100
2	Control group	50	50	100
	Total	100	100	100

The conventional tests titled "Objective Questions on EDT 114" were used to test their knowledge on one of the educational concepts in Educational Technology, EDT 114. The instrument was also divided into two sections, A and B respectively. Section "A" comprises the personal data of the respondents, while Section "B" comprises the objective questions. The questionnaire is the main research instrument used for the study to gather necessary data from the sample respondents. The questionnaire is a structured type and provides answers to the research questions and hypotheses therein. This instrument is divided and limited into two sections; Section A and B. Section A deals with the personal data of the respondents while Section B deals with the reaction towards the use of webinars for teaching with the response categories: "Strongly Agree (SA)", "Agree (A)", "Strongly Disagree (SD)", and "Disagree (D)". Options or alternatives were provided for each respondent to pick or tick one of the options.

3. RESULTS

3.1. Research Question 1: what is the difference in the performance of students taught with Webinar Multimedia Package and those in a traditional setting?

Table 2 shows that there was an improvement in the post-test scores of the two groups but the experimental group had a higher mean gain score. For instance, students taught the conventional method had a mean gain score of 0.02 while students taught using the Webinar multimedia package had a mean gain score of 0.06. This implies that there was a difference in the performance of the two groups where the experimental group performed slightly better than the control group. This indicated that the experimental group benefited from the treatment instrument.

Table 2. Mean performance score of the experimental and control group.

Group source	N	Pre-test mean	Post-test mean gain	Mean
Experimental group	50	9.03	9.63	0.06
Control group	50	9.26	9.28	0.02

3.2. Research Question Two: what is the difference in the academic performance of students taught with Webinar Multimedia Platform?

Table 3 indicates both male and female students exposed to Webinar had a mean gain score of 1.12 and 0.06 respectively. This implies that the treatment improved the performance of the students exposed to Webinars irrespective of gender. However, the male students had a better mean gain score than the female students.

Table 3. Mean performance scores of male and female students exposed to webinar.

Treatment	Gender	N	Pretest mean	Posttest mean	Mean gain score
Webinar	Male	25	8.38	9.50	1.12
	Female	25	9.79	9.85	0.06

3.3. Research Question Three: What is the reaction of the students toward learning with Webinar Multimedia Package?

Table 4 shows the responses of students on their attitude towards the use of Webinar. The table reveals that the mean score for each of the ten items on the questionnaire is above 3.0 while the grand mean score of the ten items is 3.73. This indicates that students have a positive attitude towards the use of webinars.

Table 4. Mean scores on students' attitude towards the use of blog.

S/N	Statement	N	SA	A	D	SD	Mean	Decision
1	This webinar was engaging and enjoyable	50	30	20	0	0	4.0	Agree
2	Webinar taught me something which was value	50	27	7	1	0	3.7	Agree
3	My interest in the use of multi-media platforms has increased as a consequence of this webinar	50	19	11	0	0	2.4	Agree
4	I found it easy to interact/submit questions	50	9	6	3	12	3.5	Agree
5	I am more or less likely to ask questions in webinar or live venture	50	15	15	0	0	3.5	Agree
6	I am more or less likely to participate in a future webinar based on experience.	50	19	11	0	0	3.37	Agree
7	Due to the use of a Webinar multi-media platform in the classroom, the interaction between myself and peers was easy	50	12	18	0	0	3.4	Agree
8	I found the use of Webinar Multimedia Platform resources easy to use and operate	50	12	18	0	0	3.4	Agree
9	Use of Webinnar multimedia platform resources is distracting.	50	12	18	0	0	3.6	Agree
10	I Found webinar multimedia platform effective while learning	50	16	0	0	0	3.47	Agree
Grand Mean							3.73	

3.4. Hypotheses Testing

3.4.1. H01: There is no significant difference in the academic performance of students taught with Webinar Multimedia Platform based on gender

To determine whether there was a significant difference in the academic performance of students taught with Webinar Multimedia Platform based on gender. From **Table 5**, it can be deduced that there was no significant difference between male and female students' performance in the use of webinar. This is reflected in the result: $t(48) = 0.00, p > 0.05$. Thus, the hypothesis was not rejected. By implication, the stated null hypothesis was established thus: There is no significant difference in the performance of student taught the use of Webinar based on gender.

Table 5. Significant difference in the academic performance of students taught with webinar multimedia platform.

Gender	N	X	SD	Df	T	Sig	Remarks
Male	25	13.73	1.486	28	0.00	0.640	Not Sig.
Female	25	13.73	1.624				

3.4.2. H02: There is no significant difference in educational technology students' reaction towards Webinar Multimedia Package based on gender.

From **Table 6**, it can be deduced that there was no significant difference between male and female reaction towards the use of webinar. This is reflected in the result: $t(48) = 0.00$, $p > 0.05$. Thus, the hypothesis was not rejected. By implication, the stated null hypothesis was established thus: There is no significant difference in the reaction of student taught the use of Webinar based on gender.

Table 6. Significant difference in educational technology students' reaction towards webinar multimedia package based on gender.

Gender	N	X	SD	Df	T	Sig	Remarks
Male	25	14.00	1.56	48	0.00	0.640	Not Sig.
Female	25	14.00	1.56				

The instrument of this study was subjected to face validation. Face validation tests the appropriateness of the questionnaire items. In subjecting the instrument for face validation, copies of the initial draft of the questionnaire will be validated by three lecturers in the Department of Educational Technology including the researcher supervisor. They are expected to critically examine the items of the instrument with specific objectives of the study and make useful suggestions to improve the quality of the instrument. Based on these recommendations, the instrument will be adjusted and re-adjusted before being administered for the study. The research supervisor played a pivotal role in ensuring that the consistency of the results was enhanced.

4. DISCUSSION

The result of the analysis of the performance scores of students at pretest and posttest (before and after exposure to Webinar) was examined with research question 2 and hypothesis 1. The result of the mean score indicated that there was a difference between the performance of undergraduates students taught computer using webinar package and those that were taught with the conventional lecture method. Also, the experimental group performed significantly differently from their contemporaries in the control group.

This finding agrees with the earlier findings of [Al Badi et al., \(2011\)](#) which revealed that webinars had positive effects on the students' performance. This finding also agrees with the earlier findings ([Wang et al., 2008](#)), which revealed that webinars significantly improved the performance of students. This finding also agrees with the earlier finding of [Aljumah, \(2011\)](#) which revealed that blogs positively improved the performance of students in composition writing.

This finding, however, contradicts the earlier finding of [McQuarrie et al., \(2013\)](#) From the above findings, it can be deduced that blogs produced a more positive effect on students' performance. The excellent performance of the students exposed to webinars over those taught with conventional lecture methods was to testify to the fact that using webinars is a better approach for learning selected educational Technology concepts. However, as effective as the webinar is, it should not be adopted to replace the conventional lecture method because of the missing real-life teachings which students enjoy in the conventional one. Hence, the webinar should only be used to supplement and complement conventional teachings.

The influence of gender on the performance of undergraduate students when exposed to a webinar package was examined using hypothesis 1 and research question 2. The result of the independent t-test established no significant difference in the performance of male and female students that were exposed to blog. Furthermore, the analysis also indicated that gender did not influence the performance of students in educational technology when they were exposed to webinars. This implies that the treatment improved the performance of the students exposed to webinars irrespective of gender. This study contradicts the previous studies of [Akinoso, \(2018\)](#) whose study indicated a significant effect of gender on students' academic achievement.

The result contradicts the earlier findings of [Wan et al., \(2004\)](#) whose study revealed that there was a gender difference in the performance of students. It also refutes the findings of [Bell et al., 2003](#) which revealed that there was a significant difference in the performance of students based on gender. It also refutes the findings of [Ghavifekr and Rosdy, \(2015\)](#). which revealed that there was a significant difference in the performance of students based on gender when taught with ICT tools. The researcher could not locate any other previous research on the influence of gender on students' performance when taught using Webinar to support or oppose these findings. Therefore, the conclusion of many studies on gender in ICT usage is that gender difference influenced students' performance when taught using ICT-Based Instructional strategies and innovative online tools like webinars.

Undergraduate students' attitude towards the use of webinars was examined using research question 4. The result of the mean scores indicated that the students had a positive attitude towards the use of Webinar. [Aydin \(2014\)](#) findings are in line with the result of this study as it revealed that learners had positive attitudes towards using the blog for learning English vocabulary.

From the findings, it could be deduced that integrating Webinars as a supplementary tool for teaching in the College of Education will be a welcomed idea by students. Efforts to make it work should therefore be made by all stakeholders at the higher institution level.

The influence of gender on undergraduates' attitudes towards the use of webinars was examined by research question 5 and hypothesis 3. The results of the t-test established no significant difference between male and female students' attitudes towards the use of webinars. The result contradicts the earlier findings of [Khechine et al., \(2014\)](#) whose studies revealed that there was a significant gender difference in students' attitudes towards the use of webinars. The study revealed that males were more avid consumers of online information than females.

This finding also contradicts the earlier finding of [Ruthotto et al., \(2020\)](#) study that revealed that male students generated more blog posts than their female counterparts. However, the study agreed with the findings of [Shashaani and Khalili, \(2004\)](#), which revealed that there was no gender difference between male and female students in their attitude towards the use of computers.

It can therefore be established that there was no significant difference between male and female students in their attitude towards the use of webinars. Gender should therefore not be considered as a major criterion in the integration of webinars in higher education.

5. CONCLUSION

The conclusion of this study is that there are still many obstacles experienced by students during online learning on students' reading and writing skills, the majority of students have difficulty finding media that can improve students' reading and writing skills and teachers who should provide a lot of learning materials are deemed insufficient for students. The results of

the research show that the average of the results of the pre-test questions given is 83.0% and the average of the results of the post-test questions given is 84.0% and there is a difference of 1.0%. This means that there is an increase after being given a learning video containing tips and tricks to improve reading and writing skills when learning online. Of course, the positive and negative impacts obtained by students are very much related to teachers, teachers must be able to provide media that can improve students' reading and writing skills so that they feel enthusiastic and sufficient with this online learning. The result obtained from the data gathered and analyzed in this study indicated that the webinar covered the selected educational technology concepts. The webinar was used and found effective for learning the selected educational technology concepts. The students taught using webinars and conventional lectures performed better than their counterparts taught using conventional lectures alone. Gender equality performance was also recorded because both the male and female students that were taught using webinars performed equally and the issues of gender influence or difference in students' performance did not arise. The findings showed that there was no significant difference in their performances.

The findings in the research established that students have a positive attitude towards the use of the webinar. The findings also revealed that there was no gender difference in the attitude of students towards the use of webinars. Based on the result in this study, the webinar is a valuable online learning technology that can be incorporated into the undergraduate curriculum of educational technology concepts. It pleased the students because they could learn at any place and anytime. Many preferred learning educational technology concepts using the webinar to the lecture-based approach because it was a different way of learning concepts and it was both fun and challenging.

Blog, therefore, brings about effective learning of educational technology concepts and improvement in the performance of students. This is an indication that it is an interesting and engaging alternative to supplement teaching and learning. The use of conventional instruction is gradually losing its acceptance, and teachings with antiquated materials are no more encouraged. It is hoped that the utilization of webinars for learning educational technology concepts for undergraduate students will allow a better understanding of the concepts and improve students' performance in general. However, the institutions where samples were drawn out for this study are new to a webinar; the findings of this study may be generalizable to other undergraduates in Nigeria where the technology is not well embedded.

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

- (i) The Webinar is less expensive to produce, therefore, lecturers should endeavor to develop and utilize webinars to supplement their teaching of educational technology concepts and other courses in the university. This will further increase lecturers' knowledge on innovations in ICT-Based instructional strategies.
- (ii) The webinar is a very effective supplementary tool; therefore, lecturers should supplement their lectures with. This will enhance students' performance positively.
- (iii) The webinar is gender-friendly because it enhanced the performance of both male and female students alike, lecturers should employ webinars to improve students' performance.
- (iv) All stakeholders at the colleges of education level should endeavor to integrate Webinar as a supplementary tool for the teaching of various courses in the university which will be a welcome idea by students since they have a positive attitude towards the use of Webinar.

Universities authorities should provide standard equipment, sufficient internet bandwidth, and ICT training from time to time. This can help in the production and usage of quality instructional Webinars. This will help lecturers produce good quality Webinars easily as at when due.

7. 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.

8. REFERENCES

- Akinoso, O. (2018). Effect of the Use of Multimedia on Students' Performance in Secondary School Mathematics. *Global Media Journal*, 16(30), 1-8.
- Al Badi, A. A., Osman, M. E. T., and Abdo, M. (2020). The impact of virtual writing tutor on writing skills and attitudes of Omani College students. *Journal of Education and Development*, 4(3), 101.
- Aljumah, F. H. (2012). Saudi learner perceptions and attitudes towards the use of blogs in teaching English writing course for EFL majors at Qassim University. *English Language Teaching*, 5(1), 100-116.
- Aydin, S. (2014). The use of blogs in learning English as a foreign language. *Online Submission*, 4(1), 244-259.
- Bell, A. E., Spencer, S. J., Iserman, E., and Logel, C. E. (2003). Stereotype threat and women's performance in engineering. *Journal of Engineering Education*, 92(4), 307-312.
- Dania, P. O. (2014). Effect of gender on students academic achievement in secondary school social studies. *Journal of Education and Practice*, 5(21), 78-25.
- Ghavifekr, S., and Rosdy, W. A. W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science*, 1(2), 175-191.
- Islam, F. S. P. (2020). The Use of Multimedia and its Impact on Bangladeshi EFL Learners at Tertiary Level. *International Journal of Language Education*, 4(2), 150-157.
- Khechine, H., Lakhal, S., Pascot, D., and Bytha, A. (2014). UTAUT model for blended learning: The role of gender and age in the intention to use webinars. *Interdisciplinary Journal of E-Learning and Learning Objects*, 10(1), 33-52.
- McQuarrie, E. F., Miller, J., and Phillips, B. J. (2013). The megaphone effect: Taste and audience in fashion blogging. *Journal of Consumer Research*, 40(1), 136-158.
- Mukherjee, S. (2018). Role of multimedia in education. *Edelweiss Applied Science and Technology*, 2(1), 245-247.
- Ruthotto, I., Kreth, Q., Stevens, J., Trively, C., and Melkers, J. (2020). Lurking and participation in the virtual classroom: The effects of gender, race, and age among graduate students in computer science. *Computers and Education*, 151, 103854.

- Shamsideen, S. A. (2016). Factors responsible for improving low academic performance on adult enrollees in selected literacy centres in ajeromi ifelodun local government area of Lagos state. *Journal of Educational Research and Reviews*, 2(5), 37-42.
- Shashaani, L., and Khalili, A. (2001). Gender and computers: Similarities and differences in Iranian college students' attitudes toward computers. *Computers and Education*, 37(3-4), 363-375.
- Stošić, L., and Stošić, I. (2015). Perceptions of teachers regarding the implementation of the internet in education. *Computers in Human Behavior*, 53, 462-468.
- Wan Chik, W. Z., Salamonson, Y., Everett, B., Ramjan, L. M., Attwood, N., Weaver, R., ... and Davidson, P. M. (2012). Gender difference in academic performance of nursing students in a Malaysian university college. *International Nursing Review*, 59(3), 387-393.
- Wang, S. K., and Hsu, H. Y. (2008). Use of the webinar tool (Elluminate) to support training: The effects of webinar-learning implementation from student-trainers' perspective. *Journal of Interactive Online Learning*, 7(3), 175-194.