The Impact of Technology Integration to Students Engagement and Achievement in English and Mathematics in MUBI South Local Government, Adamawa State

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ABSTRACT: This study examines the impact of technology integration on student engagement and achievement in English and mathematics in Mubi South Local Government Area of Adamawa State. The study adopted survey research design. The study randomly sampled 250 SS II students from total population of 14,982 SS II in Mubi South LGA, Adamawa State. Data was collected through questionnaire and were analysed using mean, standard deviation as well as t-test analytical tool. It was found that students from highly technology integration schools had high level of academic engagement: significantly than those from less technology integration school. Students from highly technology integration schools had high level of academic achievement significantly than those from less technology integration school. Likewise, there is no significant difference between the academic engagement as well as academic achievement of male and female students when exposed to technology integration in both English language and mathematics. The study concluded that technology integration is highly important for student engagement and achievement in schools as well as catered for gender difference among students. The study recommended more training for teachers, provision of necessary facilities for technology Integration and partnership between government agencies and software developers for various educative applications.

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1. INTRODUCTION

Technology integration is the use of technology resources – computers, mobile devices like smartphones and tablets, digital cameras, social media platforms and networks, software applications and the internet among others, in daily classroom practices, and in the management of school activities. Recent evidences (Hamilton-Hankins, 2017; D'Angelo, 2017 and Esoswo, 2017) have shown that globally there are instinctively use of technology which cut across all racial, ethnic, religious, political, and gender boundaries and it is not limited to a specific age group.

Mathematics and English language are major subjects for all secondary schools students in Nigeria. The integration of technology into education could position the engagement of the students regarding the subject as well as enhancing their achievement in mathematics and English Language as well as other subjects. Academic achievement is generally a pedagogical terminology used while determining learner's success in formal education and which is measured through reports, examinations, researches and ratings with numerous factors (Yusuf & Adigun, 2010). Essentially, the national policy on education (2013) has identified secondary school achievement according to school subjects which are classified as either core or elective subjects. Academic achievement also refers to how well a student is accomplishing his or her tasks and studies (Linderman, 2012).

The trend of poor achievement of senior public secondary school students in Adamawa State has been confirmed by the West African Examination Council (WAEC). The WAEC result analysis for the years 2013, 2014, 2015, 2016, 2017, 2018 and 2019 show the following statistics of the achievement of student in senior school certificate examination in Adamawa State.

Effort to improve the students' performance made case for integrating technology into education system. However, the intrusive feature of technology makes many educators to cast doubt on its efficiency of training today students. Technology integration may not be a total cure for deficiency in student achievement, for instance Sam-Kayode and Salman (2016) cited negative sides of technology which include changing the way students think, the way students feel, placing their priority and the way teachers monitoring their students' progress. It is not out of place to suspect technology integration to these subjects (English language and mathematics) could contribute further to the learning problems, since learner may focus more technology rather than contents offers by the technologically based instruction. Thus, it becomes paramount important for one to be wondered whether the integration of technology to teaching and learning of English and Mathematics could contribute to the poor achievement or not. This study therefore, determines the impact of technology integration on engagement and achievement of senior secondary school students in English and Mathematics in Mubi South Local Government Area of Adamawa State, Nigeria.

Statement of the Problems

Despite the importance of technological integration in the education system in this digital era, many secondary schools at the start of 21st century are very traditional in their approach in teaching of English and mathematics. Most of schools are still teaching their students using pen and paper methods, while many other schools in the developed and developing nations have surpassed earlier stage of technological integrations. This shows the initial gaps among students from technological integrated schools and those from traditionally based teaching methods. The actual impact of technological integration on the learners' engagement and achievement in education has been repeatedly attracting mixed reactions and opinions. Some argued that using technology lead to over exposure of students to uncontrolled information, which lead to distraction, misinformation and poor performance in core subjects. Meanwhile, some maintained that integration of technology into teaching and learning has led to higher level of engagement and improve academic performance. It has also changed the ways in which people think, go about gaining new knowledge, communicate, collaborate, and problem-solving.

Thus, it is evident that investigation into effect of technological integration on the students' engagement and performance in secondary schools is ongoing, therefore, there is need for further studies to make clarification on the actual effect of technological integration as noticeable increasing in our schools today on the engagement and performance of senior secondary schools students, especially, in English and Mathematics. Also, to the best knowledge of the researcher, none of the study has been conducted regarding the effect of technological integration on students' engagement and performance in the Adamawa state, especially in Mubi South local government area of Adamawa state, where numbers of public secondary schools are less in number technology use for teaching and learning and most private secondary schools are noticeable improve on their use of technology for teaching and learning.

Purpose of the Study

The main purpose of this study is to determine the impact of technology integration to student engagement and achievement in English and Mathematics in Mubi South Local Government Area of Adamawa State. To achieve this purpose, the following specific objectives are drawn to;

i.   Determine the impact of technology integration on the engagement levels of students in English Language and mathematics in Mubi south LGA, of Adamawa state

ii.   Determine the impact of technology integration on the academic achievement of students in English Language and mathematics in Mubi south LGA, of Adamawa state

iii.   Determine the impact of technology integration on the engagement levels of male and female students in English Language and mathematics in Mubi south LGA, of Adamawa state

Research Questions

The following research questions are formulated to guide the study:

1. What is the difference between the level of academic engagement of students in English language and mathematics when exposed to technology integration and those without technology integration?
2. What is the difference between the academic achievement of students in English language and mathematics when exposed to technology integration and those without technology integration?
3. What is the difference between the level of academic engagement of male and female students when exposed to technology integration?

Hypotheses

The following null hypotheses are formulated for testing at $p \leq 0.05$.

H_{01}: There is no significance difference between the level of academic engagement of students in English and mathematics when exposed to technology integration and those students without technology integration

H_{02}: There is no significance difference in the academic achievement of students in English and mathematics when exposed to technology integration and those students without technology integration

H_{03}: There is no significance difference in the level of academic engagement of male and female students in English and mathematics when exposed to technology integration

Significance of the Study

This study focuses on impact of technology integration on students engagement and achievement in both English language and Mathematics. The findings from this study are expected to help, educationists, students and curriculum developer for English and Mathematics. This is to understanding the need to improve on technology integration to enhance the students' learning outcomes in respect to cognitive and social skills of academic achievement and attitude to both English and mathematics respectively. Specifically, the finding from this study is expected to expose both English language and mathematics teachers to novel approach of teaching their subject using integrated technology to enrich their instruction.

The findings of this study will provide a guide for curriculum planners to understand the effect and need to integrate technology into curriculum to encourage its adaptation during curriculum implementation. The findings from this study will serve as eye opener for the students to be aware of the importance of technology integration rather than exercising technophobia. This will also enhance their appreciation of their personal digital devices such as mobile phone, laptop, iPad among others that the students might be wrongly used. Through the study students could know that the digital devices can aid their understanding and interest in both English language and Mathematics.

2. METHODOLOGY

Research Design

The study adopts a survey research design. Onwumere (2009) states that the survey research design is one in which the researcher does not aim to control or manipulate any of the variables under investigation. In this study, the survey research design is deemed suitable because the study investigate opinion, attitude, activities and characteristics of students in relation to the impact of technology integration on student engagement and achievement in English and mathematics in Mubi South local government area of Adamawa State.

Area of the Study

The study is conducted in Mubi south Local Government Area (LGA) of Adamawa state. Mubi south consist of Three Districts, namely; Gude, Mugulbu and Nassarawo. It lies on latitude 1011'14.64‖ N and longitude 13°23'44.74‖ E. It covers a land mass of about 419.6 square kilometers with a Population of 193, 392,500 people (2006 National population Census of Federal Republic of Nigeria official Gazette, 2016 projected). Mubi south is bounded by Republic of Cameroun to the north, Maiha Local Government to the west, Hong Local Government to the south and Mubi north Local Government to the East. The major food crops cultivated

in the area are Maize and sorghum, cash crop cultivated in the area includes groundnuts, Cowpea, Irish potatoes among others.

Population of the Study

The target population of this study consists of all SS II Maths and English students of Senior Secondary School in Mubi South, Adamawa state. The SS II is chosen for the study because the class is stable; which means that it is neither facing the problem of being freshly enrolled into SS I nor preparing for final year school examination as those in SS III. There is a population of 14,982 SS II students across private and public secondary schools in Mubi South LGA, Adamawa State.

Sample and Sampling Techniques

Students from four senior secondary schools in Mubi South Local Government Area, Adamawa State participated and served as sample in the study. Simple random sampling technique was used to select four school out of 11shcools. Intact classes was used as respondents to the questionnaires.

Instrument for Data Collection

The instrument for data collection was Mathematics/English Engagement and Achievement Questionnaire (MEEAQ). The MEEAQ contain 32 items, sectioned into four (Section A – D). Section A comprised of two item on age and gender of respondents, while Section B comprises of 8 items focused on level of technology integration in schools. Also, Section C comprises of 20 items, focus on level of student's engagement.

Each item is scale in 5-point Very High (VH), High (H), Moderate (M), Low (L) and Very Low (VL). Also, section D focused on level of Mathematics and English achievement comprises of 12 items, scale on 4-point, Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagreed (SD).

Reliability of the Instrument

The reliability of the instruments (MEEAQ) was determined using Government Day Secondary School Damare and Concordia College Yola Adamawa State. The schools selected for the pilot test are different schools in term of locality but have similar characteristics with the sampled schools for the study. The remaining items on MEEAQ after face and content validation were trial tested on 40 SSII students selected at random from both schools. The results from trial testing were used for item analysis. The reliability of the test items was computed using Cronbach Alpha. The choice of Cronbach Alpha was because it is very appropriate for determining the degree of reliability of standard test. After scoring the test, a reliability of co-efficient was determined and reliability coefficient of 0.83 was obtained. Thus, the MEEAQ was considered reliable, since the obtained co-efficient of reliability was greater than 0.70, based on argument by Sambo (2008) that any co-efficient of reliability greater or equal to 0.70 is considered reliable and sufficient for empirical study.

Method of Data Collection

The data for this study was collected using the MEEAQ instrument. The instruments were administered to SS II students in the sampling schools after seeking proper permission from school principals. Mathematics and English teachers were served as research assistants.

The scripts were collected after administration, grade and sorted for analysis.

Method of Data Analysis

The data collected in the study were analysed using descriptive statistics to answer research questions and inferential statistics to test the hypotheses. The research questions were answered using mean and standard deviation while the hypotheses were tested using analysis of t-test statistics at 0.05 level of significance run at SPSS (Statistical Package for Social Science) version 20.

3. RESULTS AND DISCUSSION

Research Question 1: What is the difference between the level of academic engagement of students in English language and mathematics when exposed to technology integration and those without technology integration?

Table 1: Mean Rating of Respondents on Level Academic Engagement in Respect to Technology Integration in their Respective Schools

S/n	Items	Tech IntSch (n=125)		Tech IntSch (n=125)	
		Mean	Std. Dev	Mean	Std. Dev
1	Time spending on school related task	2.9	0.82	3.7	0.69
2	Interest in schools activities	2.0	0.16	3.5	0.14
3	Involvement in academic activities	2.4	0.02	3.6	0.11
4	Effort to avoid dropping out	2.8	0.83	3.6	0.18
5	Extent of observing school rules	2.5	0.98	3.8	0.90
6	Your punctuality in school	2.9	0.95	3.8	0.85
7	Extent of adhering to classroom norms	2.4	0.17	3.5	0.28
8	Ability to avoid disruptive behaviour	2.5	0.42	3.7	1.05
9	Effort to follow teachers instruction	2.5	0.03	3.6	0.75
10	Reaction to classmates during classroom activities	2.4	0.47	3.5	0.79
11	Sense of belonging to schools	2.6	0.01	3.6	0.01
12	Mastery of difficult skills	2.1	0.47	3.6	0.78
13	Ability to ask question while in class	3.9	0.76	3.6	0.92
14	Effort to learn new thing while in class	2.7	0.75	3.7	0.15
15	Readiness to participate in classroom debate	2.8	0.22	3.4	0.46
16	Willingness to join classmate in solving assignment	2.9	0.60	3.6	0.33
17	Effort on self-study while away from school	2.4	0.39	3.5	0.32
18	Ability to seek something new	2.7	0.44	3.5	0.68
19	Readiness to share idea with other classmate	2.9	0.85	3.4	0.41
20	Willingness to meet teachers for more clarification	2.8	0.82	3.5	0.85
	Grand value	2.7	0.51	3.6	0.53

The results on Table 1 reveal the respective rating of students on level of academic engagement due to level of available technology in their respective schools. The results show that those students from schools with less technology integration rated all the items on the table below 3.0. (Mean Rating 2.0 – 2.9). However, those students from high technology integration schools rated all items on the table above 3.0, which implies that their engagement rate is high (mean rating 34 – 37). This result shows that technology integration in schools increases the students engagement rate by enhancing the time spending on school task, raise students interest in school activities, promote punctuality, support ability to follow teachers instruction. Technology integration also allows mastering of difficult skills and ability to contribute during lesson. Other positive sides of technology integration include self-study, sharing of idea with classmate as well as seeking new knowledge even while at home.

Research Question 2: What is the difference between the academic achievement of students in English language and mathematics when exposed to technology integration and those without technology integration?

Table 2: Perspective of Students on Effect of Technology Integration in Their Schools on Academic Achievement in English Language and Mathematics

S/n	Items on Achievement in Mathematics/English	Tech IntSch (n=125)		Highly Tech IntSch (n=125)	
		Mean	Std. dev	Mean	Std. dev
1	My ability to solve mathematical expression has improved due to video clip and other technologies	1.8	0.72	3.6	0.18
2	My understanding of figures in mathematics has improved due to interactive applications	2.1	0.78	3.8	0.38
3	Provision of e-library in my schools responsible for my ability to prove mathematical theories	2.6	1.44	3.6	0.33
4	The use of smartphone applications provided by my schools guide us on hand-on practices of mathematical equations	1.5	0.18	3.6	0.31
5	I consider my mathematical understand excellent since I can solve any mathematical models or equation using recorded video clips	1.6	0.52	3.6	0.10
6	Difficult and complex mathematics are no longer my worry since there are applications and devices that simply the task for my understanding	2.5	1.04	3.8	0.69
7	My level of understanding of English language has increased over the period due to technology in my school	1.3	0.27	3.5	0.56
8	My school put technology in place which enhanced our oral English	2.4	1.30	3.6	0.02
9	My pronunciation of words and vocabularies has improved due to audio-clips provided by my school	2.5	0.18	3.6	0.31
10	The use of smartphone applications provided by my schools has increased my identification of words and meaning	1.2	0.04	3.7	0.38
11	The use of modern technology as provided by my schools has enhanced my comprehension of short storage and passages	1.9	0.13	3.4	0.06
12	My letter writing ability has improved as results of consistent replay of video clip	1.5	0.13	3.7	0.52
	Grand Value	1.9	0.6	3.6	0.3

Table 2 presents the respective perception of sampled students on the effects of technology integration on their academic achievement in mathematics and English language. The results showed that for those students from school with less technology integration all items were rated below 3.0 (mean rating 1.2 – 2.5), while those students from school with high technology integration rated all items above 3.0 (mean 3.4 – 3.8). This implies that those students from schools with high technology integration have ability to solve mathematical expression better than those from other schools. Also, due to technology integration students were able to identify figures and shapes as well as gaining experiences in proving mathematical theories. The result on the Table also prove that technology integration in schools enhances oral English, pronunciation of words as well as determination of meaning of words.

Research Question 3: What is the difference between the level of academic engagement of male and female students when exposed to technology integration?

Table 3: Effect of Technology Integration on the Academic Engagement of Male and Female Students in Senior Secondary Schools, Mubi South LGA of Adamawa State

S/n	Items	Male (n=54) Mean	Std. dev	Female (n=71) Mean	Std. dev
1	Time spending on school related task	3.8	0.14	3.1	0.92
2	Interest in schools activities	3.9	0.07	3.6	0.75
3	Involvement in academic activities	3.4	0.75	3.6	0.44
4	Effort to avoid dropping out	3.6	0.35	3.5	0.05
5	Extent of observing school rules	3.7	0.08	3.8	0.24
6	Your punctuality in school	3.7	0.16	3.1	0.73
7	Extent of adhering to classroom norms	3.5	0.62	3.6	0.01
8	Ability to avoid disruptive behaviour	3.7	0.46	3.7	0.13
9	Effort to follow teachers instruction	3.6	0.68	3.6	0.93
10	Reaction to classmates during classroom activities	3.6	0.44	3.5	0.24
11	Sense of belonging to schools	3.7	0.73	3.5	0.85
12	Mastery of difficult skills	3.4	0.66	3.1	0.66
13	Ability to ask question while in class	3.6	0.11	3.5	0.07
14	Effort to learn new thing while in class	3.7	0.19	3.6	0.70
15	Readiness to participate in classroom debate	3.3	0.65	3.4	0.05
16	Willingness to join other classmate in solving assignment	3.8	0.85	3.5	0.69
17	Effort on self-study while away from school	3.4	0.35	3.1	0.31
18	Ability to seek something new	3.5	0.20	3.5	0.05
19	Readiness to share idea with other classmate	3.3	0.73	3.5	0.85
20	Willingness to meet teachers for more clarification on new knowledge	3.9	0.24	3.1	0.07
	Grand value	3.6	0.42	3.4	0.47

The results on Table 3 reveal the respective rating of male and female students on their level of academic engagement due to available technology in their respective schools. The results show that both male and female students rated their academic engagement high with respective mean value greater than 3.0. The mean rating ranged from 3.4 – 3.9 and 3.1 – 2.8 for male and female students respectively. This shows that both male and female students gained academic engagement through technology integration.

Testing of Hypothesis

H_{01}: There is no significance difference in the level of academic engagement of students in English and mathematics when exposed to technology integration and those students without technology integration

Table 4: Result of T-test Analysis on differences between academic engagement of those students from highly technology integrated schools and those from less technology integrated schools

Level of Technology Integration in School	N	Mean	Std. Dev.	Std. Error Mean	t	df	Sig. (2tailed)
Less tech integration	125	2.5	0.74	0.07	12.50	248	0.000
High tech integration	125	3.6	0.42	0.04			

Table 4 presents the outcome of t-test analysis on the difference between academic engagements of those students from highly technology integrated schools and those from less technology integrated schools. The results revealed a t-test value 12.50, at degree of freedom of 248, p-value of 0.000. Since calculated p-value (0.000) is less than hypothetical p-value 0.05, the null hypothesis is rejected. This implies that there is a significant difference in the level of academic engagement of students in English and mathematics when exposed to technology integration and those students without technology integration. More so, the mean values 2.5 and 3.6 revealed for students from less technology integrated schools and those from highly technology integrated school respectively, justify that technology integration enhance students' academic engagement.

H$_{02}$: There is no significance difference in the academic achievement of students in English and mathematics when exposed to technology integration and those students without technology integration

Table 5: Result of T-test Analysis on differences between Academic Achievement of those Students from Highly Technology Integrated Schools and those from Less Technology Integrated Schools

Level of Technology Integration in School	N	Mean	Std. Dev.	Std. Error Mean	t	df	Sig. (2tailed)
Less tech integration	125	1.7	0.45	0.02	5.15	248	.000
High tech integration	125	3.3	0.23	0.03			

Table 5 presents the outcome of t-test analysis on the difference between academic achievements of those students from highly technology integrated schools and those from less technology integrated schools. The results revealed a t-test value 5.15, at degree of freedom of 248, p-value of 0.000. Since calculated p-value (0.000) is less than hypothetical p-value 0.05, the null hypothesis is rejected. This shows that there is a significant difference in the level of academic achievement of students in both English and mathematics, when exposed to technology integration and those students without technology integration. Also, the mean values 1.7 and 3.3 revealed for students from less technology integrated schools and those from highly technology integrated school respectively, implies that technology integration enhance students' academic achievement.

H$_{03}$: There is no significance difference in the level of academic engagement of male and female students in English and mathematics when exposed to technology integration

Table 6: Result of T-test Analysis on differences between Academic engagement of male and female Students from Highly Technology Integrated Schools

Gender	N	Mean	Std. Dev.	Std. Error Mean	t	df	Sig. (2tailed)
Male	50	3.6	0.56	0.08	0.43	123	0.67
Female	75	3.4	0.40	0.05			

Table 6 presents the outcome of t-test analysis on the difference between academic engagements of male and female students from highly technology integrated schools. The results revealed a t-test value 0.43, at degree of freedom of 123, p-value of 0.67. Since calculated p-value (0.67) is greater than hypothetical p-value (0.05), the null hypothesis is not rejected. This shows that there is no significance difference in the level of academic engagement of male and female students in English and mathematics when exposed to technology integration.

Summary of Major Findings

1. Students from highly technology integration schools had high level of academic engagement than those from less technology integration school. Specifically, technology integration enhances the time spending on school task, raise students interest in school activities, promote punctuality, support ability to follow teachers instruction as well as allows mastering of difficult skills (*t-test =12.50, df= 248, p-value=0.000*)

2. Secondary school students from highly technology integration schools had high level of academic achievement than those from less technology integration school. Precisely, the technology integration promotes ability to solve mathematical expression, identification of figure and shape as well as ability to prove mathematical theories. It also enhance oral English, pronunciation of words as well as determination of meaning of words (t-test = 5.15 ,df= 248, p-value = 0.000)

3. There is no significant difference between the academic engagement of male and female students when exposed to technology integration at schools in both English language and mathematics (t-test = 0.43, df= 123, p-value = 0.67).

Discussion

The findings from this study revealed that students from highly technology integration schools had high level of academic engagement than those from less technology integration school. The findings show further that students from schools where technology is being integrated are spending more time on school task as well as having interest in school activities. This may not be unconnected with the fact that technology serves purpose of instructional tool as well as motivator. This agrees with the finding by Anderson and Horrigan (2016) which established significant relationship between level of technology integration and students attention in the classroom. Also, the current study concurs with that by Armier et al. (2016), Bahati (2015); and Auman (2011) that found strong and significant influence of educational technology on students punctuality at school, participation in school activities as well as strong interpersonal relationship.

Though, the current study differed to that by Bista (2015) and Bowman and Akcaoglu (2014) which established distractive effect of technology in the core teaching and learning activities. However, they acknowledged that the problems are not from technology but the implementation and teachers utilization. Also, Esoswo (2017) reiterated that technology application in schools can distract the attention of students as well as taking most lesson time from teachers. It was then recommended that technology meant for education should be customized with no distractive features such as games and funning future that not related to education. Above all, this study has shown that technology integration enhance learners 'engagement especially in mathematics and English language. This support the earlier conclusion drawn by Osgerby and Rush (2015) that technology integration can be used to increase the students participation in the sensitive subjects like

mathematics, English language and other science subjects. Also, Sambo (2015) found that the participation of students in English language is higher when taught using educational technology. Likewise, it was concluded by Sam-Kayode and Salman (2016) that technology can promote punctuality of students at schools as well as allows the students to master difficult skills. Earlier studies by Yusuf et al. (2015); Siddique et al. (2013); and Yusuf and Adigun (2010) and found students are better in skills development in mathematics when exposed to educational technology devices.

The findings from this study showed that secondary school students from highly technology integration schools had high level of academic achievement than those from less technology integration school. This is accordance with the finding by Yusuf et al. (2015) which established that students' performances were significantly when exposed to various educational technology devices. Swayne (2017) found that those schools with necessary technology for teaching and learning promote higher academic performance of their students than those without modern technology. The conclusion by Yunkul and Cankaya (2017) established that schools will no longer responsible for better students' performance if aspect of technology is being taken care of.

4. Recommendations

Based on the findings and the conclusion from this study, the following recommendations were made:

1. The Adamawa State Government through the State Ministry of Education should encourage the integration of technology in public secondary schools to ensure better engagement and academic performance of students.
2. The state ministry for education in Adamawa state through its concerned agencies should organised seminars and workshops for Mathematics and English language teachers on ways to utilize technology integration for the positive engagement and better performance of students.
3. The education planner in the state ministry of education Adamawa state should partners with software developers to provide various educative application that can be install on students' smartphone for further study while at home.

5. REFERENCES

1. Anderson, M., & Horrigan, J. B. (2016). *Smartphones help those without broadband get online, but don't necessary bridge the digital divide*. Washington, D.C.: Pew
2. Armier, D. J., Shepherd, C. E., &Skrabut, S. (2016). Using game elements to increase student engagement in course assignments. *College Teachers, 64*(2), 64–72 https://doi.org/10.1080/87567555.2015.1094439.
3. Auman, C. (2011). Using simulation games to increase student and instructor engagement. *College Teaching, 59*(4), 154–161. doi:10.1080/87567555.
4. Bahati, B. (2015). Extending student discussions beyond lecture room walls via Facebook. *Journal of Education and Practice, 6*(15), 160–171.
5. Bista, K. (2015). Is Twitter an effective pedagogical tool in higher education? Perspectives of education graduate students. *Journal of the Scholarship Of Teaching And Learning, 15*(2), 83–102
6. D'Angelo, C. (2017). *The Impact of Technology: Student Engagement and Success.* Unpublished MSc Thesis, University of Ontario Institute of Technology. Dissertations,.
7. Esoswo, F.O. (2017). Issues and Challenges in the use of Information Communication Technology (ICTs) in Education. *Journal ofInformationAndKnowledgeManagement, 2(1),23 – 45.*
8. Hamilton-Hankins, O. J. (2017). The Impact of Technology Integration on the Engagement Levels of T en Second Grade Students in an English Language Arts Classroom. Unpublished PhD Thesis University of Wales
9. http://www.pewresearch.org/fact-tank/2016/10/03/smartphones-help-thosewithout-broadband-get-online-but-dont-necessarily-bridge-the-digital-divide/
10. Linderman, A.J. (2010). *Seventh grade student career aspirations and academic achievement. counsellor education*, Unpublished Master's Theses Texas University.
11. Osgerby, J., & Rush, D. (2015). An exploratory case study examining undergraduate accounting students' perceptions of using Twitter as a learning support tool. *International Journal of Management Education, 13*(3), 337–348. Research Center Retrieved 20th March 2020.

12. Sambo, Y. (2015). Effects of teachers' background knowledge of senior secondary mathematics course contents on students' achievement in geometry. *Journal ofMathematical Association of Nigeria,* 40(1), 134 - 142*.*

13. Sam-Kayode, C.O. & Salman, M.F. (2016). Influence of subject combinations on Senior

14. Secondary School Students' conceptions on Geometry. *The Journal of Mathematical Association of Nigeria.* 41(1), 205-218.

15. Swayne, J.M. (2017). Measuring the Impact of Technology Integration on Student Engagement and Achievement at the Middle Level. Unpublished MEd.D.

16. Yunkul, E., &Cankaya, S. (2017). Student's attitudes towards Edmodo, a social learning network: A scale development study. *Turkish Online Journal of Distance Education (TOJDE)*, *18*(2).

17. Yusuf, M. A., & Adigun, J. T. (2010). The influence of school sex, location and type on student's academic performance. *Journals of Education and Science*, 81-85.

18. Yusuf, T.H., Gambari, I.A. &Balogun, A.S. (2015). *Gender differences in performances of science students across development: Exploring the roles of anxiety, working memory, and stereotype threa*t. Unpublished PhD Thesis, Boston College.