



# **Effect of Edmodo on Senior Secondary School Students` Achievement in Marketing in Udenu Local Government Area of Enugu State, Nigeria**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

The objective of this study was to investigate the effect of Edmodo on the academic achievement of senior secondary school students in the field of marketing within the Udenu Local Government Area of Enugu State. The research was conducted with the guidance of three research inquiries and three hypotheses. The study utilized a quasi-experimental research approach known as the pretest-posttest non-equivalent control group design. The study encompassed the complete population of 123 senior high school II students, consisting of 78 men and 55 females, who were pursuing a Marketing course in the study region. The study included a total of 51 participants, with 26 individuals (15 males and 11 females) assigned to the experimental group and 25 individuals (12 males and 13 females) assigned to the control group. The classrooms that remained undivided in both institutions were utilized. The research employed the Marketing Achievement Test (MAT) as the chosen instrument, including a set of 20 objective questions, each offering four response

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alternatives labeled A-D. The instrument's dependability was assessed using the Kuder-Richarson 20 (K-R 20) method, yielding a reliability coefficient of 0.83. This indicates that the device demonstrated a satisfactory level of reliability. Extraneous variable such as subject interaction, teacher bias and others were controlled in the study. The study questions were analyzed using mean and standard deviation scores, while the hypotheses were examined using Analysis of Co-Variance (ANCOVA). The study's findings indicate that students who were instructed in marketing through the use of Edmodo had higher levels of accomplishment compared to those who were taught using traditional methods. It is recommended that educators include the use of developing educational technology, such as Edmodo, into their instruction of Marketing, while simultaneously reducing reliance on traditional teaching methods. A conclusion was reached.

*Keywords: Edmodo; achievement; marketing; gender.*

## 1. INTRODUCTION

Edmodo is an educational platform that has been specifically developed to enhance instructional practices and foster active student engagement within the context of online learning [1] According to Hourdequin,[2] Edmodo instructional technology is considered an academic platform that facilitates two-way interaction between teachers and learners. According to available data, it has been reported that this particular platform is utilized by a substantial number of over 81 million persons. According to Al-Kathiri (2015), Edmodo was developed as an educational platform with the primary objective of promoting substantial significance. Based on the research findings, the adoption of Edmodo, a platform initially developed by Jeff O'Hara and Nick Borg in 2008, has been widely welcomed by educators, learners, educational institutions, and parents as a tool to enhance the process of acquiring information. According to Holland and Muilenburg (2011), kids in grades K-12 regard Edmodo educational technology as a distinctly educational platform, but Facebook does not possess the same feature.

The Edmodo educational technology platform enables instructors to submit various educational materials such as notes, videos, assignments, quizzes, and links on the website. These resources may be shared with students and parents who want to engage in the online classroom environment. According to Curran-Sejkora [3] the Edmodo educational technology platform provides students with the option to collaborate in groups and engage in collaborative tasks assigned by their professors. The Edmodo educational technology facilitates a two-way exchange of information and engagement between teachers and learners, distinguishing it from other platforms like Facebook and Whatsapp. Hence, it has the potential to be

efficacious in instructing social science disciplines at the senior high school level. According to Mills and Chanra [4], there is evidence to suggest that the use of Edmodo instructional technology has been linked to beneficial outcomes in terms of student performance and the interaction between students and instructors. Furthermore, students have the capability to engage in a multitude of virtual classroom activities that closely mirror those seen in traditional face-to-face educational settings. The inherent potentials associated with the use of Edmodo as an educational technology indicate that it is an efficacious tool, particularly when the focus is on reducing interpersonal interactions.

The Edmodo instructional technology platform enables instructors to submit various educational materials such as notes, videos, assignments, quizzes, and links on the website. These resources may be shared with students and parents who want to engage in the online classroom environment. According to Curran-Sejkora [3], the Edmodo instructional technology platform provides students with the option to collaborate in groups and engage in collaborative tasks assigned by their professors. Edmodo educational technology facilitates a two-way exchange of information and engagement between teachers and learners, distinguishing it from other platforms like Facebook and WhatsApp. Hence, it has the potential to be efficacious in instructing social science disciplines at the senior high school level. According to Mills and Chandra [4] there is evidence to suggest that the use of Edmodo instructional technology has been linked to beneficial outcomes in terms of student performance and the interaction between students and instructors. Furthermore, students have the capability to engage in a multitude of virtual classroom activities that closely mirror

those seen in traditional face-to-face educational settings. The inherent potentials associated with the use of Edmodo as an educational technology indicate that it is an efficacious tool, particularly when the focus is on enhancing students' achievement in Marketing.

A comprehensive understanding of marketing is crucial within commerce and trade. According to Cronje, Du-Toit, Motlatla, and Marais,[5] marketing is defined as a set of managerial activities and decisions aimed at effectively addressing the challenges and opportunities presented by a constantly changing business environment. The primary goal of marketing is to develop and deliver a product or service that fulfills consumer needs while simultaneously achieving the objectives of the business and benefiting society as a whole. According to Lamb, Hair, McDaniel, Boshoff, and Terblanche,[6] the concept of marketing involves the anticipation and fulfillment of customer requirements via mutually advantageous exchange procedures while also ensuring profitability and competitive advantage through efficient management practices. According to Iwu, the concept of marketing encompasses interactions, dialogues, and interventions aimed at enhancing the quality of products and services while also seeking to attain various advantages. If one can posit the veracity of this claim, it follows that marketing opportunities include not only the provider of a product or service but also the customer of such a product or service. Consequently, pupils are required to possess a comprehensive understanding of this subject matter. The aforementioned explanation elucidates that marketing entails a dynamic exchange between marketers and consumers, wherein managerial decisions are made to develop valuable products and services, subsequently offering them at accessible prices tailored to specific market segments. Iwu said that marketing is essential for management to provide equitable access to products and services, in addition to the utilization of suitable communication channels to convey product and service information. The attainment of pupils in a particular topic has significant importance.

The term "achievement" is used to describe the attainment of a certain level of proficiency or competence in an academic discipline. Ezeudu, Jolaosho, Yahaya, Opara, and Babalulu [7] posited that academic achievement refers to the attainment of a specific standard by a student in a given course of study. Ugwuanyi [8] posits that

achievement may be defined as the cognitive acquisition demonstrated by a student in their academic pursuits. The definition of achievement under discussion differs from Ajuwa's [9] definition, which holds that academic achievement refers to the successful academic progress a student achieves through their efforts and abilities in a particular subject domain. Idialu [10] defines academic achievement as the measure of the extent to which an individual student, teacher, or educational institution has effectively accomplished educational objectives. In this study, academic achievement is operationalized as the level of performance demonstrated by both male and female students across a range of educational activities, including tasks, assignments, classes, research projects, and programs in which they are able to engage.

Gender is a distinguishing characteristic used to delineate individuals as either male or female. Gender poses several challenges to students' academic achievement, mostly due to the existence of sex roles. This distinction assigns specific tasks to males and females, creating barriers that hinder academic achievement. Gender is often defined as the sociocultural construct that encompasses the social significance and interpretation of one's biological sex, specifically pertaining to the categories of being male or female (Ambe-Uva, Iwuchukwu, & Jibrin .[11] Keightley [12] regarded gender as a concept that pertains to the classification of individuals into male and female categories. Each gender is within the societal context. Bronfenbrenner [13] views gender as a construct that encompasses social distinctions and the dynamics that exist between males and females. The person in issue self-identifies as female. The emphasis on academic achievement in the field of Marketing is applicable to students of both genders. This study aimed to investigate the effect of Edmodo on the academic achievement of senior secondary school students in the marketing field within the Udenu Local Government Area of Enugu State.

The primary objective of this study was to investigate the effect of Edmodo on the academic achievement of senior secondary school students in the field of Marketing within the Udenu Local Government Area of Enugu State, Nigeria. The study focuses specifically on:

- Determine the average achievement scores of students who were instructed in Marketing using the Edmodo

platform compared to those who were taught using traditional instructional methods.

- Determine the average achievement scores of male and female students who were instructed in Marketing using the Edmodo platform.
  - Examine the potential interaction effect between the mode of instruction and gender on the average achievement scores of students enrolled in Marketing.
- The study was guided by the below three research questions.
- What is the average achievement scores of students who were instructed in Marketing using the Edmodo platform compared to those who were taught using traditional instructional methods?
  - What are the average achievement scores of male and female students who were instructed in Marketing using the Edmodo platform?
  - What is the potential interaction effect between the mode of instruction and gender on the average achievement scores of students enrolled in Marketing?

The following null hypotheses framed guided the study and were tested at 0.05 significance level.

**Ho<sub>1</sub>:** There is no significant difference in the average achievement scores of students who were instructed in Marketing using the Edmodo platform compared to those who were taught using traditional instructional methods.

**Ho<sub>2</sub>:** There is no significant difference in the average achievement scores of male and female students who were instructed in Marketing using the Edmodo platform.

**Ho<sub>3</sub>:** There is no significant difference in the potential interaction effect between the mode of instruction and gender on the average achievement scores of students enrolled in Marketing.

## 2. METHODS

The study employed a quasi-experimental research methodology, which is recognized as a research design that utilizes non-randomized groups. This approach is typically employed when the researcher is unable to randomly

recruit and assign individuals. The study employed a non-equivalent pre-test and post-test control group design. According to Ali in Jolaosho's (2017) study, a quasi-experimental design is a research methodology that involves the use of non-randomized groups. This approach is employed when the researcher is unable to randomly pick and assign individuals to different conditions. According to Jolaosho [14] quasi-experimental designs often do not include the random assignment of individuals. Instead, intact classes are commonly utilized. The whole classrooms of Senior Secondary School Students II (SSII) in Udenu Local Government Area were utilized. The rationale behind utilizing intact classrooms was to mitigate the potential influence of selection bias among students and to prevent any disruption to the regular instructional process that may arise from rearranging or regrouping students.

The research was carried out in the Udenu Local Government Area (LGA) in Enugu State. The headquarters of the Local Government Area (LGA) is situated at Obollo-Afor. The overall land area included by Udenu Local Government Area (LGA) measures 248 square kilometers. The Udenu Local Government Area is next to the Nsukka Local Government Area. The study encompassed the whole population of 123 senior secondary school II students, consisting of 78 men and 55 females, who were enrolled in the Marketing program within the study region. The study included a total of 51 participants, with 26 individuals (15 males and 11 females) assigned to the experimental group and 25 individuals (12 males and 13 females) assigned to the control group. The classrooms that remained undivided in both institutions were utilized.

The research employed the Marketing Achievement Test (MAT) as the primary instrument. The MAT consisted of 20 items, each including 4 multiple-choice objective questions. These questions were sourced from prior examination papers of West Africa Examination Council (WAEC) school candidates. The instrument underwent face validation by three experts, while the content validity of the instrument was assessed using a table of contents. Two of the participants were affiliated with the Marketing department, while the other one was associated with the Measurements and Evaluation department, all hailing from the University of Nigeria, Nsukka. In order to determine the level of dependability of the research instruments, a pilot study was

conducted in the Oji-River Local Government Area of Enugu State, Nigeria. The rationale behind selecting Oji-River Local Government Area was based on the perception that the schools in Udenu Local Government Area were comparable in terms of educational quality to those in Udenu Local Government Area, which serves as the primary study area. A reliability test was performed to assess the internal consistency of the test instrument, utilizing the Kuder Richardson 20 (K – R 20) method. The reliability of the Marketing Achievement Test (MAT) instrument was found to be high, as shown by a K-R 20 result of 0.83. The data gathering process involved the utilization of pretest and posttest measures. Both the experimental group (Edmodo) and the control group (Conventional) were administered the pretest and posttest instruments. The pre-test was delivered to both groups concurrently at the beginning stage. The participants in the experimental group were subjected to the utilization of Edmodo, whilst those in the control group received instruction using conventional teaching methods. The posttest was delivered to both groups three weeks after the initial assessment. The statistical measures of mean and standard deviation were employed to analyze the three research topics, whilst the three null hypotheses were assessed through the utilization of Analysis of Covariance (ANCOVA). Therefore, the hypotheses with p-values larger than 0.05 were accepted, whereas the hypotheses with p-values less than 0.05 were rejected.

### 3. RESULTS

#### 3.1 Presentation and Analysis of Data

##### Research Question 1

What is the average achievement scores of students who were instructed in Marketing using the Edmodo platform compared to those who were taught using traditional instructional methods?

The results reported in Table 1 indicates that the experimental group 1, which received instruction in Marketing through the use of Edmodo, exhibited a pre-test mean accomplishment score of 25.00, accompanied by a standard deviation score of 3.41. Furthermore, the post-test mean achievement score for this group was found to be 70.85, with a standard deviation score of 6.17. The observed disparity in the mean scores

before and after the administration of the exam among the participants who received instruction in Marketing through the utilization of Edmodo was 45.80. The control group, which received instruction in Marketing using the Conventional Method (CM), exhibited a pre-test mean score of 25.28, with a standard deviation score of 3.36. Following the intervention, the group's posttest mean achievement score was 49.52, with a standard deviation score of 5.21. The discrepancy between the average gain in scores from the pretest to the posttest for the group instructed in Marketing using the Conventional Method was 24.24. The findings of this study indicate that the students in the experimental group, who were instructed using Edmodo, demonstrated superior performance on the accomplishment exam compared to the students in the control group, who were taught using the Conventional Method. Therefore, it can be argued that Edmodo is a more effective tool for improving students' academic performance in the field of Marketing.

**Ho<sub>1</sub>:** There is no significant difference in the average achievement scores of students who were instructed in Marketing using the Edmodo platform compared to those who were taught using traditional instructional methods.

The findings shown in Table 2 indicate that a significant F-cal value of 168.152, achievement by a probability of 0.000, was seen in relation to the disparity in average achievement scores between students who were instructed in Marketing utilizing Edmodo and those who were taught using the Conventional Method. Given that the observed probability (0.000) was found to be lower than the predetermined significance level of 0.05, which was established as the threshold for making decisions, the null hypothesis (Ho<sub>1</sub>) was deemed invalid and therefore rejected. The conclusion reached was that there existed a statistically significant disparity in the average achievement scores between students instructed in Marketing through the utilization of Edmodo and those instructed using the Conventional Method.

##### Research Question 2

What are the average achievement scores of male and female students who were instructed in Marketing using the Edmodo platform?

**Table 1. Pre-test and Post–test mean scores of edmodo and conventional method groups in the achievement test**

Group	N	Pretest		Posttest		Mean Gain
		$\bar{x}$	SD	$\bar{x}$	SD	
Experimental	26	25.00	3.41	70.85	6.17	45.80
Control	25	25.28	3.36	49.52	5.21	24.24

\*N = Number of students,  $\bar{x}$  = Mean and SD = Standard Deviation

**Table 2. Analysis of covariance (ANCOVA) of the significant difference in the mean achievement scores of students taught marketing using edmodo and those taught with conventional method and creative arts**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	5852.560 <sup>a</sup>	4	1463.140	44.490	.000
Intercept	3820.760	1	3820.760	113.566	.000
Pretest	55.456	1	55.456	1.648	.206
Method	5657.197	1	5657.197	168.152	.000
Gender	2.386	1	2.386	.071	.791
Method *Gender	4.394	1	4.394	.131	.719
Error	1547.597	46	33.643		
Total	193408.000	51			
Corrected Total	7400.157	50			

**Table 3. Pre-test and Post–test mean achievement scores of male and female students in marketing using edmodo**

Gender	N	Pretest		Posttest		Mean Gain
		$\bar{x}$	SD	$\bar{x}$	SD	
Male	15	24.93	3.45	70.80	5.99	45.87
Female	11	25.09	3.51	70.91	6.71	45.82

\*N = Number of students,  $\bar{x}$  = Mean and SD = Standard Deviation

The findings displayed in Table 3 indicate that the male group exhibited a pretest mean accomplishment score of 25.93, accompanied by a standard deviation score of 3.45. Additionally, the posttest mean achievement score for this group was recorded as 70.80, with a standard deviation score of 5.99. The observed discrepancy in mean gain between the pretest and posttest scores for the male group was 45.87. The group of female participants exhibited a mean accomplishment score of 25.09 on the pretest, with a standard deviation of 3.51. On the posttest, their mean achievement score increased to 70.91, with a standard deviation of 6.71. The magnitude of the difference in mean scores between the pretest and posttest for the female group was 45.82. The posttest accomplishment mean was greater than the pretest achievement mean for both male and female students. However, the male group exhibited a bigger mean increase. This observation suggests that Edmodo has seemingly enhanced the academic performance

of both male and female students in the field of Marketing.

**Ho<sub>2</sub>:** There is no significant difference in the average achievement scores of male and female students who were instructed in Marketing using the Edmodo platform.

The findings shown in Table 2 indicate that there is an F-ratio of .071, with a corresponding probability value of 0.791, which pertains to the disparity in the average accomplishment scores between male and female students who were instructed in Marketing through the use of Edmodo. Given that the observed probability (0.791) exceeded the predetermined level of significance and decision threshold of 0.05, the null hypothesis (Ho<sub>2</sub>) was not deemed statistically significant and hence not rejected. Based on the aforementioned findings, it can be deduced that there exists no statistically significant disparity in the average accomplishment scores between male and

female students who were instructed in Marketing through the utilization of Edmodo.

### Research Question 3

What is the potential interaction effect between the mode of instruction and gender on the average achievement scores of students enrolled in Marketing?

The findings displayed in Table 4 illustrate the interplay between the instructional style employed and the gender of students in relation to their average achievement scores in the field of Marketing. The findings indicate that the male group exhibited a pretest mean of 24.93, accompanied by a standard deviation of 3.45. Additionally, the posttest mean for this group was observed to be 70.80, with a corresponding standard deviation of 5.99. The observed discrepancy in mean gain between the pretest and posttest scores for the male group was 45.87. The group consisting of female participants exhibited a pretest mean score of 25.09, accompanied by a standard deviation of 3.51. In the posttest, the same group achieved a mean score of 70.91, with a standard deviation of 6.71. The magnitude of the difference in mean scores between the pretest and posttest for the female group was 45.82. In both groups, the mean accomplishment scores on the posttest were higher than the mean achievement scores on the pretest, with the male group exhibiting a bigger mean increase. This observation suggests that Edmodo has had a positive impact on the academic performance of both male and female students. The findings shown in Table 4 indicate that the male group, which was instructed using the usual teaching approach, exhibited a pretest mean score of 26.50, accompanied by a standard deviation of 3.53. Additionally, the posttest mean score for this group was 49.67, with a standard deviation of 4.33. The disparity in mean scores between the pretest and posttest for the male group was 23.17. The pretest mean score for the female group was 24.15, with a standard deviation of 2.88. The posttest mean score for the same group was 49.38, with a standard deviation of 6.08. The disparity in the average scores of the pretest and posttest for the female group was 25.23. The posttest mean scores for both groups exhibited a higher magnitude than the pretest mean scores. The female participants in the traditional method group had higher scores compared to their male counterparts, indicating the presence of an interaction between the method of instruction and

gender in relation to students' accomplishment in the field of Marketing.

**Ho<sub>3</sub>:** There is no significant difference in the potential interaction effect between the mode of instruction and gender on the average achievement scores of students enrolled in Marketing.

The findings shown in Table 2 indicate that an F-ratio of .131 was found for the interaction impact of technique and gender on students' achievement scores in Marketing, with a corresponding probability value of .719. Given that the observed probability (0.719) above the predetermined significance level of 0.05, which was established as the threshold for making a choice, the null hypothesis (Ho<sub>3</sub>) was deemed acceptable. Therefore, based on the analysis conducted, it can be concluded that there is no statistically significant interaction between the style of instruction and gender in relation to the average accomplishment scores of students in the field of Marketing.

## 4. DISCUSSION OF FINDINGS

As seen in Table 1, a disparity exists in the average achievement scores of the two cohorts of students who were instructed in marketing, with one group being taught using experimental/Edmodo techniques and the other through control/conventional methods. The findings of the investigation indicate that students who received instruction through the utilization of Edmodo educational technology had considerably higher performance levels in the Marketing Achievement Test compared to their peers who were taught using traditional instructional techniques. The findings shown in Table 2 provide additional support for the aforementioned conclusion, as they demonstrate a statistically significant impact of Edmodo instructional technology on students' academic performance in the field of marketing. The F-calculated value of 168.152, along with a probability value of 0.000, indicates statistical significance at a confidence level of 0.05, therefore supporting the obtained result. This result aligns with the outcome of a previous research conducted by Qaddumi [15] which demonstrated a notable disparity in the acquisition and retention of students' language abilities, favoring the experimental group (Edmodo). The study conducted by Charoenwet and Christensen [16] supported the aforementioned argument by demonstrating that

**Table 4. Mean and standard deviation of the interaction effect of method and gender on the mean achievement scores of students taught marketing**

Variables			Pretest		Posttest		Mean Gain
Method	Gender	N	$\bar{x}$	SD	$\bar{x}$	SD	
Experimental	Male	15	24.93	3.45	70.80	5.99	45.87
	Female	11	25.09	3.51	70.91	6.71	45.82
Control	Male	12	26.50	3.53	49.67	4.33	23.17
	Female	13	24.15	2.88	49.38	6.08	25.23

\*N = Number of students,  $\bar{x}$  = Mean and SD = Standard Deviation

the implementation of learning activities through the Learning Management System (LMS) known as Edmodo had a substantial impact on enhancing students' self-regulated learning behaviors and overall academic performance. Furthermore, the study also indicated that students exhibited a favorable perception towards the online learning environment. Furthermore, a study conducted by Al-Rabaani and Al-Wahaibi [17] corroborates the aforementioned findings, indicating that the utilization of Edmodo as a pedagogical tool in the instruction of economic geography yields a substantial enhancement in students' academic performance when compared to conventional teaching approaches. The observed outcome may be ascribed to the significant enhancement of the classroom setting facilitated by Edmodo, resulting in a highly favorable and engaging experience for students.

The analysis of the data presented in Table 3 indicates that female students who were instructed in Marketing using Edmodo educational technology achieved marginally higher academic performance compared to their male counterparts who received the identical instruction in Marketing. The findings indicate that there were no further statistically significant differences seen in the average accomplishment scores between male and female students who were instructed in Marketing through the utilization of Edmodo instructional technology. The outcome of this investigation aligns with the research conducted by Attah and Shotayo [18], which indicated that there was no statistically significant disparity in the average accomplishment scores between male and female students in the subject of Physics when instructed through the utilization of Edmodo.

The examination of data from Tables 2 and 4 indicates that there was no significant interaction effect seen in the meaning accomplishment scores of students studying Marketing. The

results of this study align with the findings of Attah and Shotayo [18] which indicated that there were no statistically significant interaction effects between gender and computer self-efficacy on physics success ( $F(1, 206) = 0.11, p > 0.05; \text{partial } \eta^2 = 0.00$ ). The results of this study were consistent with the findings of Jolaosho, Dajan, and Ezeudu [19] who also observed no significant interaction impact on students' success in Economics [20]

## 5. CONCLUSION

The study discovered that Edmodo is effective in enhancing students' achievement in Marketing and does not discriminate based on gender. With Edmodo both male and female students of Marketing can improve in their learning. The attractive nature of Edmodo could be one of the reasons why both male and female students achieved brilliantly in Marketing when used in teaching the subject.

## 6. RECOMMENDATIONS

The following recommendations were made in line with findings of the study.

1. Teachers should be encouraged in using Edmodo in the classroom
2. Government should provide all the necessary facilities that will aid the use of Edmodo in the school.
3. Both the male and female students of Marketing should be encouraged in participating in Edmodo classroom and stop thinking that educational technology is meant for one particular gender.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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