

The Effect of Flipped Instructional Model on Business Education Students' Interest and Achievement in Word Processing

Augustina Chinweoke Anyigor-Ogah^{1*}, Professor Benedette E. Okoli¹

¹ Faculty of Education, Department of Business Education, Ebonyi State University, Abakaliki, Ebonyi State, Nigeria

*Corresponding Author: austking4real@yahoo.com

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Abstract: *The study investigated the effect of the flipped instructional model (FIM) on business education students' interest and achievement in Word Processing. The research design used in the study was the quasi-experimental design which required no randomization as the groups (treatment and control) were used intact. The population of the study comprised 117 final year business education students offering Word Processing from seven public Universities in South East, Nigeria. Four Universities were selected through the purposive sampling technique. The selected schools were further subjected to a simple random sampling technique to assign them into groups of two schools each. One group was selected as the treatment and the other as the control group. The treatment group comprised 33 male and female students and the control group comprised 35 male and female students, making the total sample size 68 business education students offering Word Processing as a course. Data were collected with the aid of two instruments, the Word Processing Achievement Test (WPAT) and the Word Processing Interest Inventory (WPPII). Kuder-Richardson Estimate (K-R 20) was used in testing WPAT and it yielded a reliability index of 0.97, while Cronbach alpha of 0.72 was obtained from the reliability testing of WPPII. Two research questions and two null hypotheses were developed to guide the study. Research questions were answered using mean and standard deviation while hypotheses were tested at an alpha level of 0.05 using ANCOVA. The results revealed that flipped instructional model was more effective than the conventional instructional model in enhancing students' interest and achievement in Word Processing. Again, there is a significant difference in the mean interest scores and in the mean achievement scores of students taught word processing using FIM compared to those taught using conventional model.*

Keywords: flipped instructional model; business education; interest; achievement; word processing

1. Introduction

The overall purpose of education is simply the intellectual, physical, and emotional integration of an individual as a relevant social being in the development of human resources. It is a tool for self-realization, development, and actualization. Educating the next generation needs to start from the school level. Word processing, which is a course in business education discipline, is one of such courses taught to learners. Business education, a parent of word processing is concerned with the acquisition of pedagogical and professional competencies in industry and education necessary for personal use; for entry into the business world as an employer, employee, or self-employed, and for effective participation in the educational industry as professional business education teachers (Ubulum & Dambo, 2016). Nwosu (2016) noted that

business education enables the learner to acquire vocational, personal-use, consumer-business, and social-economic competencies, which allow them to live well and contribute to national development. Therefore, business education simply refers to the intellectual as well as vocational instructions offered to learners for personal survival and contribution to the overall national development. Business education with word processing as a subset course is one of the vocational courses offered in Universities. Word Processing is a mandatory course offered in the Business Education programme for Office Technology and Management (OTM)/Secretarial Education.

Word processing is the automation of document production, which involves the manipulation of characters, words, sentences, and paragraphs to produce office communication in form of letters, memoranda, messages, documents, reports, proposals, manuals, mailing labels, and newsletters (Amah, 2018). Word processing is a software package that helps to edit, print, and save the document for future retrieval and reference. Microsoft office word is the most commonly used word processor. A Word processor allows the user to organize and present text on a page or several pages. Agomuo in Egbunefu, Amadi & Aruchi (2018) noted that a business education student requires Word Processing skills to be able to utilize Microsoft Word features effectively for the production of reports, memos, and every other written-word document. Word processing knowledge is important as they constitute the basic skills that will usher students into effective use of other software application.

Although Word Processing is considered one of the graduation requirements for students of Business Education (Office Technology and Management (OTM) option /Secretarial education option according to the Nigerian University Commission benchmark for the business education programme, yet observation shows that students' interest and performance in Word processing in South East Universities seems not to be satisfactory. Anyigor-Ogah (2022) observed from some Universities (UNN, ESUT, EBSU, and AE-FUNAI) that between the 2016/2017 – 2018/2019 academic session, 601 students of the four (4) institutions above took Word Processing examination. However, out of the 601 students, only 9.65% of them made an A grade, 16.14% had a B grade, 22.46% C while 28.79% and 22.96% made D, and F grades respectively.

A careful analysis of the student's achievement from the observation above, showed that the majority of students had from D – F (51.78%). This is not impressive as such results are clear proof of students' poor learning achievement. Although 601 students participated in Word Processing examination their class attendance was not impressive during the lecture period as only 445 of the students were in the lecture hall during lecture time. This is evidence of students' lack of interest in the course. This unimpressive achievement and consequent lack of interest may be attributed to many factors including the instructional model. The enthusiasm displayed by the learners/lecturers because of the productive instructional model will lead to better achievement and interest in the course. To achieve this requires that Nigeria Universities and Word Processing lecturers should redesign learning in such a way that students learning experience can go beyond the conventional methods. Research has shown that the conventional method lacks a learner-centered approach and as such, it does not bring out the best in students and cannot guarantee their learning capabilities (Campbell, Campbell & Dickinson in Ugwoke, Edeh & Ezemma 2018). The conventional method focuses on remote learning and memorization. The method considered the teacher as a reservoir of knowledge and as one who dishes out knowledge to the learner. Standford in Ugwoke, Edeh & Ezemma (2018), opined that the conventional method commonly used by lecturers in teaching and learning impairs students' interest in learning and leads to frustration, learning difficulties, and in extreme cases

makes students dodge lectures. According to Atueyi (2020), academic institutions are challenged to meet the demand of 21st-century students with learning environments that are well student-centered, self-directed, technology enhanced, and flexible.

One of the teaching models in the education field is the flipped instructional model. Flipped instructional model involves a lecturer posting lecture courseware (text-based, audio, audio-visual, etc.) on the Learning Management System (LMS) and giving the students the opportunity to download, watch supplemental videos, and attempt assignments outside the class setting (Ugwoke, Edeh & Ezeema, 2018). The flipped instructional model encompasses any use of technology to leverage learning in the classroom so that a teacher can spend more time interacting with the students instead of lecturing. This is most commonly done by using teacher-created videos that students view outside class time. It is called the flipped instructional model or flipped classroom because the whole classroom/homework is “flipped”. In its simplest terms, what used to be classwork (lecture) is done at home via teacher-created videos, and what used to be homework (assigned problem) is now done in class. Claire (2020) described flipped model of instruction as the method of moving the lecture outside the classroom via technology and moving homework and exercises with concepts inside the classroom via learning activities. Flipped instructional model on online tools has the advantage of giving students the freedom of choosing the most suitable ways to acquire new knowledge; it prompts the method of imparting knowledge to students outside the classroom as well as the process of internalization of knowledge inside the classroom by lecturers. With this model, students communicate and collaborate through collusion and enter into deeper levels of real-time study inside the classroom (Onojah, Olubode, Adegbija & Babalola, 2019). It is an excellent technique for teaching procedural knowledge (Olaf, Kerres, Svenja, Bond & Katja, 2020), like the application of Word Processing skills.

Different studies have analyzed the effect of flipped instructional model and other methods of instructions regarding interest and achievement. The researchers found Adie (2019) worked with 100 students in Ogoja Local Government Area of Cross River State, Nigeria on effect of mentoring as an instructional approach on secondary school students’ achievement and interest in financial accounting found that mentoring as an instructional approach arouse more interest in the teaching and learning of financial accounting, Yeh, Cheng, Chen, Liao & Chan (2019) worked with 215 elementary students located in a suburban region of a northern city Taiwan on enhancing achievement and interest in Mathematics through Math-Island (Game-based Learning) found that both low – achieving and high – achieving students in the experimental school maintained a high level of interest in mathematics and in the system, Also, Nwanne & Agommuoh (2017) worked with a sample of 97 senior secondary school two (SS11) Physic students from two government-owned secondary school in Imo State, Nigeria on Computer Assisted Instruction (CAI) on students achievement and interest in Physic noted that CAI had significant effects on students interest in Physics, where students in the CAI group achieved more. On the contrary, Wai, Lai & Wing (2019) working with a total of 100 students of Liberal studies worked on the effect of video-based flipped class instruction on subject reading motivation and found that video-based flipped classroom instruction was associated with lower motivation for subject reading.

With respect to the study, the researcher found studies in which significant differences were found. Alamri (2019) worked with a sample of 52 students at the College of Education, King Faisal University Alasha, Saudi Arabia worked on students’ academic achievement performance and satisfaction in the flipped classroom in Saudi Arabia and indicated a significant difference in students’ academic performance for the flipped classroom group. All the same, Deygu & Ali (2018) worked with 56 students attending a black sea region

University's Foreign Language school in the fall semester of 2015 – 2016 academic years on the effect of the flipped classroom on the academic achievement and attitude of higher education students noted that flipped classroom had a medium effect on students' academic achievements and attitudes compared to traditional instruction.

On the contrary, the researchers also found studies in which no significant differences were found. Cabi (2018) worked with 59 pre-service teachers in English Language Teaching Programs, and Turkish Language Teaching Programs, studied the impact of the flipped classroom model on students' academic achievement. The result showed that there were no statistical differences between the scores of the two groups. This means that the findings showed that the use of the FC model does not yield significant impacts on increasing the students' achievement. In alike manner, Saunders (2014) worked with a sample of 58 eleventh grade students, 29 girls and 29 boys, who were enrolled in mathematics 111 during the 2013 – 2014 school year on the flipped classroom: its effect on students' academic achievement and critical thinking skills in high school mathematics showed that flipped curriculum was not a significant factor in increasing students' academic achievement. Gerald (2014) worked with a sample of 301 students in Colorado on flipped classroom model for college Algebra: Effects on students' achievement. Found that there was not a significant difference in the scores of students in the two groups, however, students in the flipped sections did score slightly better than students in the traditional sections.

The flipped instructional model can, therefore, be an effective method for teaching and learning in Universities, however, it is yet to be confirmed, that flipped instructional model can enhance students' interest and achievement in Word Processing. This, therefore, needs empirical verification. It is in this light that this study was conducted to ascertain the effect of the flipped instructional model on Business Education students' interest and achievement in Word Processing. Specifically, the study seeks to: (i) Ascertain the effect of the flipped instructional model on students' achievement in Word Processing, (ii) Determine the effect of the flipped instructional model on students' interest in Word Processing.

The following research questions guided the study:

- 1) What is the effect of the flipped instructional model on students' achievement in Word Processing?
- 2) What is the effect of the flipped instructional model on students' interest in Word Processing?

The following null hypotheses were tested at a 0.05 level of significance.

HO₁: There is no significant difference in the mean achievement scores of students taught Word Processing using flipped instructional model and those taught using the conventional model.

HO₂: There is no significant difference in the mean interest scores of students' taught Word Processing using flipped instructional model and those taught using the conventional method of instruction.

2. Methodology

The quasi-experimental research design was used. The design used pre-test and post-test non-equivalent control groups. Six research questions and six hypotheses guided the study. The study was conducted in the South-East of Nigeria. The population for the study consisted of

117 final year undergraduate students in the business education department from the seven public Universities that offer Word Processing as a course in the South East. The sample size was 68 students. Four public Universities (two federal and two state-owned) were selected for the study through purposive sampling techniques. The selected schools were further subjected to simple random sampling techniques in order to assign them into two groups of two universities each. Two instruments were developed by the researcher for the study: They were: Word Processing Achievement Test (WPAT) and Word Processing Interest Inventory (WPII).

During the study, the control group received a conventional method of instruction while the experimental group received instruction utilizing the flipped instructional model. In the flipped instructional model, seven video lesson was developed by th researcher with an average run time of 20 minunites. The shortest lesson was under 15 munitues and the longest was under 40 minutes. They were were create using Electa screen capture software, a web cam, techno CX Air for capturing images and USB micro phone for audio. The reliability of the instruments was established by using Kuder-Richardson Estimates (K-R20) for WPAT and the Cronbach Alpha method was used for WPII and the overall reliability coefficient of 0.97 and 0.72 respectively was obtained. Mean and standard deviation was used to answer the research questions while ANCOVA was used to test the hypotheses.

3. Results

3.1.1 Research Question 1

The summary of data analysis using Word Processing achievement test scores were presented in Table 1.

Table 1: Effect of Flipped Instructional Model on Students' Achievement in Word Processing

| Method | \bar{x} | SD | N |
|--------------------------------------|-----------|-----------|----------|
| Flipped (Treatment) Method | 64.15 | 11.74 | 33 |
| Conventional (Control) Method | 46.60 | 10.43 | 35 |

The result presented in Table 1 showed that flipped instructional model yielded a mean achievement score of 64.15 and a standard deviation of 11.74 while the conventional model yielded a mean of 46.60 and a standard deviation of 10.43.

3.1.2 Research Question 2

Data collected to answer this question using the Word Processing Interest Inventory (WPII) were summarized and presented in Table 2.

Table 2: Effect of Methods on the Mean Interest of Students in Word Processing

| METHOD | \bar{x} | SD | N |
|--------------------------------------|-----------|-----------|----------|
| Flipped (Treatment) Method | 76.09 | 7.45 | 33 |
| Conventional (Control) Method | 59.77 | 7.05 | 35 |

The mean and standard deviation of students' interest in Word Processing when taught using flipped instructional model as shown in Table 2 was 76.09 and 7.45, while the conventional model had the mean and standard deviation of 59.77 and 7.05.

3.2 Research Hypotheses

3.2.1. Research Hypothesis 1 (HO₁)

Analysis of Co-Variance (ANCOVA) was used as a statistical tool to test data collected for these hypotheses and the results obtained are shown in Table 3.

Table 3: ANCOVA Summary Result of Students' Achievement Scores by Method and Interaction

| Source of Variation | Sum of Square | DF | Mean Square | F | Sig of F |
|--------------------------|------------------|-----------|----------------|--------|----------|
| Covariates | 2944.236 | 1 | 2944.236 | 36.783 | .000 |
| PREACHIE | 2944.236 | 1 | 2944.236 | 36.783 | .000 |
| Main Effects | 5349.649 | 2 | 2674.825 | 33.418 | .000 |
| METHODS | 5314.197 | 1 | 5314.197 | 66.392 | .000 |
| GENDER | 3.821 | 1 | 3.821 | .048 | .828 |
| 2-Way Interaction | 8.504 | 1 | 8.504 | .106 | .746 |
| METHODS GENDER | 8.504 | 1 | 8.504 | .106 | .746 |
| Explained | 8302.389 | 4 | 2075.597 | 25.931 | .000 |
| Residual | 5042.670 | 63 | 80.042 | | |
| Total | 13345.059 | 67 | 199.180 | | |

The ANCOVA result for **HO₁** in Table 3 showed that the alpha level (0.05) was greater than the significance of F (0.000). Based on the decision rule to reject the null hypothesis when the alpha level is greater than the significance of F, the researcher's decision was to reject the null hypothesis and conclude that there is a significant difference in the mean achievement of students taught using flipped instructional model.

3.2.2. Research Hypothesis 2 (HO₂)

Analysis of Co-Variance (ANCOVA) was used as a statistical tool to test data collected for these hypotheses and the results obtained are shown in Table 4.

Table 4: ANCOVA Mean Interest Scores for Students by Gender

| Source of Variation | Sum of Square | DF | Mean Square | F | Sig of F |
|---------------------|-----------------|-----------|---------------|--------|----------|
| Covariates | 742.485 | 1 | 742.485 | 23.489 | .000 |
| PREACHIE | 742.485 | 1 | 742.485 | 23.489 | .000 |
| Main Effects | 83.952 | 1 | 83.952 | 2.656 | .114 |
| GENDER | 83.952 | 1 | 83.952 | 2.656 | .114 |
| Explained | 862.438 | 2 | 413.219 | 13.073 | .000 |
| Residual | 948.290 | 30 | 31.610 | | |
| Total | 1774.727 | 32 | 55.460 | | |

The result in Table 4 revealed that the alpha level of hypothesis 2 (0.05) was less than the significance of F (0.114). Based on this result the researcher accepted the null hypothesis and concluded that there is no significant difference in the mean interest scores of male and female students taught Word Processing using flipped instructional model.

4. Discussions

The result presented in Table 1 showed that the mean achievement of students taught using flipped instructional model yielded 64.15 and a standard deviation of 11.74, while those taught using the conventional method produced a mean and standard deviation of 46.60 and 10.43

respectively. Based on the result of research question 1, it was concluded that flipped instructional model is more effective than the conventional model in enhancing students' achievement in Word Processing. The findings are in line with the study of Nikitova, Kutova, Shevets, Pasichnyk, & Matsko, (2020) who found that students' educational gains from learning the Ukrainian Language through the application of a multimedia textbook based "flipped classroom" learning model are more apparent and far greater than those obtained through a traditional educational model. The finding is also in agreement with Deygu & Ali (2018) who discovered that flipped classrooms had a medium effect on students' academic achievements compared to traditional instruction.

More so, Campbell et al in Ugwoke et al (2018) buttressed that the conventional model of teaching lacks a learner-centered approach and as such it does not bring out the best in students and cannot guarantee their learning capabilities. The learning outcome of every student depends greatly on the type of instructional models employed by the lecturer during instruction. For this reason, an appropriate instructional model influences the degree of learning by students. The flipped instructional model is the most preferred for the above characteristics. Flipped instructional model reduces the distance between a lecturer and his students, and also between students, and other students, as well as improving the learning outcome of the students. In addition, Olaf, Kerres, Svenja, Bond, & Katja, (2020) stated that flipped instructional model is an excellent technique for teaching procedural knowledge. Just like in the teaching of Word processing. The flipped instructional model is a methodology that promotes different skills such as learning to learn before class or learning to do during classroom sessions with traversal presences of cognitive skills such as higher reasoning processes or critical thinking. It is a methodology aimed at making the students the protagonist of their learning. The flipped instructional model has a great capacity to promote pedagogical practices within or outside the classroom setting, and can optimally improve students' academic achievement. This could be ascribed to the active involvement and participation of the students in homework activities and the continuous learning and watching of lecture video clips posted on the telegram platform. Therefore, flipped instructional model is an effective method for teaching and learning Word Processing in Universities as it increases the students' achievement compared to the conventional model.

On the contrary, Cabi (2018) found that the use of the flipped instructional model does not yield significant impacts on increasing the students' achievement. More so, the finding is not in agreement with the study of Saunders (2014) who found that flipped instructional model was not a significant factor in increasing students' academic achievement. The above studies could be attributed to the assertion of Atueyi (2020) that academic institutions are challenged to meet the demand of 21st-century students with learning environments that are well student-centered, self-directed, technology enhanced, and flexible. Following the above assertion, it is not all about flipping the classroom; it is all about putting in place machinery that will ensure that its ideals are realizable through effective teaching and learning. Thus, at any time, there must be a balance between what the lecturer wants to lecture and how he lectures it to ensure comprehension and achievement.

However, the result in Table 3, showed the ANCOVA result of hypothesis 1. The result presented in Table 3, showed that the alpha level of 0.05 was greater than the significance of F (0.000). Based on the decision rule to reject the null hypothesis if the alpha level is greater than the significance of F, the researcher rejected the null hypothesis and concluded that there is a significant difference in the mean achievement scores of students taught Word Processing using flipped instructional model and those taught using conventional model. The findings are

in agreement with Alamri (2019) who discovered a significant difference in students' academic performance for the flipped classroom group. This means that flipped instructional model has the advantage of giving students the freedom of choosing the most suitable ways to acquire new knowledge. It promotes the method of imparting knowledge inside the classroom by the lecturers. With this model, students communicate and collaborate through discussions and enter into deeper levels of real-time study inside the classroom. Moreno-Guerrero et al (2020) concluded that flipped instructional model is a significant factor in increasing students' performance.

Also, the study is not in line with Gerald (2014) who found that there was no significant difference in the scores of students in the two groups; however, students in the flipped sections did score slightly better than students in the traditional sections. The finding of Gerald could be traced to the opinion of Silver, Kogut, Thi, (2019) who contributed that the learning outcome (achievement) of every student depends greatly on the type of instructional model employed by the lecturer during instructions. One of the influencing factors in teaching is the instructional model because the instructional model has a great impact on students' academic achievement.

The result of research question 2 as presented in Table 2 revealed that students taught Word Processing using flipped instructional model obtained a mean of 76.09 and a standard deviation of 7.45, while those taught Word Processing using the conventional model obtained a mean of 59.77 and standard deviation of 7.05. By this result, students taught Word Processing using the flipped instructional model indicated more interest in the subject than those taught using the conventional model. The study is in agreement with Yeh et al, (2019) who found that both low-achieving and high-achieving students in the experimental school maintained a high level of interest in mathematics and the system. The study is also in agreement with Adie (2019) who found that mentoring as an instructional approach arouses more interest in the teaching and learning of financial accounting. Wu, Zheng, Li, & Guo, (2019) pointed out that interest in the academic domain is usually characterized by stable individual trends and attitudes towards academic subjects which may yield deep engagement in learning and thus high academic performance. This means that all activities of teaching and learning should be directed towards meeting up with the interest of the learners that are capable of influencing change in behaviour. Interest is the mother of attention. If students' interest increases in any given course, their attention will also increase; thus giving rise to effective learning and better academic achievement. The implication, therefore, is that Word Processing lecturers should carefully articulate learning activities and environment in such a way that they can capture students' interest because a student with well-developed individual interest has more stored knowledge and stored value for a given course. With more stored knowledge and stored value for a given course, the student is positioned to begin asking curiosity questions that drive knowledge acquisition, consolidation, and collaboration, and that leads to persistence in the achievement.

On the contrary, Wai, Lai & Wing (2019) found that video-based flipped classroom instruction was associated with lower motivation for subject reading. The above finding may be due to the that students' abilities are different. Some students may not like to use a particular method of teaching to learning. For this reason, Standford in Ugwoke et al (2018) added that some method of teaching commonly used by lecturers in teaching and learning impairs students' interest in learning and lead to frustration, learning difficulties, and in extreme cases makes students dodge lectures.

Furthermore, the ANCOVA result of hypothesis 2 presented in Table 4 showed that the alpha level of (0.05) was greater than the significance of F (0.000). Based on the result, the null hypothesis was rejected and the researcher concluded that there is a significant difference in

the mean interest of students taught using flipped instructional model than the conventional model. By implication, flipped instructional model aroused students' interest in Word Processing more than the conventional model. The findings are in agreement with Nwanne & Agommuoh (2017) who discovered that Computer Assisted Instruction (CAI) had significant effects on students' interest in Physics, where students in the CAI group achieved more. The flipped instructional model makes students active participants in the learning process. Instead of merely sitting down to listen to the lecturer, the student is motivated by downloading and watching video lectures at home before lecture time and acquiring new skills in Word Processing. Being a part of the skill development, the ideas live a more lasting impression on the students.

5. Conclusions

The following conclusions were drawn based on the findings of the study:

- (a) The flipped instructional model is more effective in inculcating relevant skills that enhance students' achievement in Word Processing than the conventional model.
- (b) Flipped instructional model aroused more students' interest in Word Processing than the conventional model.

6. Recommendations

In line with the findings of the study, the following recommendations were made:

- (a) Universities and other tertiary institutions should implement the use of flipped instructional models in the teaching and learning process particularly in skill enhancing courses like Word Processing because of its effectiveness in enhancing students' interest and achievement in the course.
- (b) Workshops, seminars, and conferences should be organized by government and institutional authorities to equip lecturers with the needed ICT skills for flipping the Word Processing classroom.

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