

## Effect of Adaptive Learning Technique on Students' Locus of Control in English Language Narrative Essay Writing In Nigeria

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### Abstract

Previous research findings have indicated the nexus between students' locus of control and academic achievement in various school subjects and in various locations. The objective of this study was to investigate the effect of using adaptive learning intervention to enhance locus of control in English language narrative essay among students in Nsukka Education Zone of Enugu State, Nigeria. The study adopted a non-randomized control design that involved a pretest, posttest and follow-up measures. 138 secondary school students were participants in the study. The students were randomly assigned to intervention group (n=70) and no-intervention group (n=68). The Narrative Essay Writing Locus of Control Intervention (NEWLCI) and Narrative Essay Writing Achievement Test (NEWAT) were used for data collection. Data were analyzed using Analysis of Covariance at 0.05 probability level. Results indicated that ALT appreciably improved the locus of control of students in the intervention group compared to their counterparts in the no-intervention control group. There was also a statistically significant interaction effect of ALT and location on students' mean locus of control in English narrative essay writing. The improvement was also maintained throughout the duration of the follow-up evaluation. Adaptive learning intervention can be used to improve locus of control as it significantly enhanced English language students' locus of control in narrative essay writing. It was recommended that English language educators and all professionals involved in language educators should be knowledgeable in utilization and application of adaptive learning intervention procedures for effective integration and professional English language instructional delivery.

**Keywords:** *English Language, Essay Writing, Adaptive Learning, Adaptive Writing, Locus of Control.*

### INTRODUCTION

The need for English language learning as a means of global communication has been reinforced over the years. Invariably, acquiring English as a second language in Nigeria has become compulsory since it has become expedient for learners' global participation and for effective understanding and communication in the language. This underscores its instruction at the primary, secondary and tertiary institutions in Nigeria. English language instruction starts from teaching the letters of the alphabet to the phonemes, the vocabulary, semantics, grammar and gradually, the instruction focuses on the four linguistic skills of the English language which are listening, speaking, reading and writing. For the purpose of this study, attention will be paid to the writing skill which is the last of the four skills.

Writing is a complex but meticulous process of creating and conveying one's thoughts, ideas, meanings and perspectives to a target audience for different purposes such as personal, professional and academic purposes. Manchon (2022) states that writing is multifaceted, dynamic and context-independent process that involves the creation of written texts for various purposes, drawing on linguistic, cognitive and social resources. Corroborating Manchon's statement, the National Council of Teachers of English (NCTE, 2022) adds that apart from being a dynamic process, writing is also iterative, multi-modal and it equally involves creating and communicating meaning through various forms, modes and technologies for various purposes and audiences. And from Fisher & Frey's (2023) standpoint, writing is viewed as an act of communication that requires writers to consider purpose, audience and context as they use language to convey ideas, tell stories and explore perspectives. The above definitions point to the fact that writing is significantly multifaceted, explorative, dynamic, and purpose-driven. It essentially involves creation and conveyance of meaning to specific audience for personal, professional and/or academic reasons. This multifaceted nature of writing introduces diversification that manifests in various types of writing such as essay writing, report writing, memoirs, speeches, letter writing and summary writing. These forms of writing require adequate knowledge of writing skills such as knowledge of punctuation, paragraphing, use of tenses, spelling, sentence construction, vocabulary and grammar.

It could be deduced from the above discussion that writing is a fundamental linguistic skill which cannot be neglected especially if efficacious and result-oriented communication is targeted. Consequently, its importance transcends the framework of the academic environment to the larger world. For instance, apart from being a requisite skill for success in school (from pre-primary to tertiary level of education), writing is an indispensable skill for professional development, entrepreneurship, dissemination of diverse information, documentation, research, advancement, personal growth and even for success in the business and work place. By implication, writing impacts almost every aspect of human endeavour.

Many scholars have supportive views to the above perception about the writing skill. Norman and Spencer (2005) is of the opinion that the ability to communicate through writing is central to academic success and it is essential for successful participation in the work place and in a democratic society. This notion may have informed Lin and Maarof's (2013) consideration of writing as one of the most important skills in any academic setting and may have reinforced (Gohar & El-Ghool, 2016) assertion that writing skill is a predictor of academic success and a basic requirement for participation in civic life and in the global community. Nevertheless, researchers such as Lee (2020), Kormos (2020), Manchon (2022) and Tseng (2022) and Okafor (2023) have acknowledged that despite the crucial role of the writing skill, it is a very difficult skill to be learned by most students because of the linguistic, meta-cognitive and psychomotor processes involved in writing activities.

Considering the difficulty, complexity and challenges which acquiring the writing skill poses to learners, it behooves English language teachers to train learners to know the nitty-gritty of writing, especially the essay writing, if they must become independent, creative and successful writers who can take responsibility of their writing in any examination including the English language examination. Wang (2005) observes that teaching essay writing is a hard nut to crack for many teachers even though it is the most assessed of the four language skills given that virtually all the other subject areas require responses given in written form. According to Wang, teachers spend their whole time providing corrections to students' essays, but students' writings still remain pitifully poor and grammatically incorrect. This students' poor and pitiable

writing could be as a result of the complexity they encounter in the essay writing process in areas such as punctuation and spelling, use of language, organization, expressions, grammar and other mechanics of writing. Due to this complexity, many students, therefore, tend to display lack of locus of control and negative attitude towards the writing skills especially in this era of technology and as a result, the performance rate of students in essay writing especially in external English examinations keep declining. According to Senel (2018), another reason for this poor performance could be because writing, before now, is taught as a mechanical skill, which invariably causes fatigue, decrease in motivation and consequently, failure in essay writing. An essay is loosely used term for a writing that asserts the author's opinion about a given topic. It is a piece written usually from the writer's own point of view. An essay is written to convince someone of something or to inform the reader about a particular topic (Components of a Good Essay, 2019). There are different types of essays especially those assessed in English language internal and external examinations in Nigeria. These are the descriptive, narrative, expository and argumentative essays. The central focus of this study is on the narrative essay writing.

A narrative essay is a form of writing that generally recounts a real or imaginative past event. It tells a story or gives detailed account of an event or incident as witnessed by a person (fiction) or an imaginative exploration of something one has not experienced (non-fiction). Oji (2011) states that a narrative essay is a type of writing that tells an imagined story or a real story. This form of essay writing makes use of the past tense form of verb in presenting what had been experienced. Events in narrative writings are arranged in chronological order, which is made up beginning story, middle story and end story. One major technique employed in a narrative essay is imagery. This technique is used to sustain the readers by creating suspense and desire to read on. The technique has the capability to create a mental picture of what had happened in the readers' mind so that they feel as though they were in the scene of the incident. Examples of narrative essay topics are as follow: *"An Experience I will never forget"*; *"A memorable day in my life"*; *"A robbery attack I witnessed"* or a story that illustrates certain sayings, for instance, *"A stitch in time saves nine"* and *"All that glitters is not gold"*.

Some key skills are needed in order for one to have a good narrative essay. These skills can also be termed the basic conventions of writing. Some of these narrative essay writing skills include knowledge of grammar, spelling skills, punctuation, adequate vocabulary, and paragraphing, good choice of words, diverse sentence construction and usage, and correct use of tenses. When these elements are explicitly taught before the actual writing exercises, students put them into practice by writing at varying levels. Also, these elements are assessed by English language teachers using indices such as content, organization, expression and mechanical accuracy especially at the external examinations conducted by the West African Examinations Council (WAEC) and the National Examinations Council (NECO). The ability to address the topic is examined under content. Organization involves correct use of punctuations and paragraphing. While the right choices of words and their right application is tested under expression, spellings, use of tenses and other mechanics of writing are examined under mechanical accuracy. It is quite unfortunate that most secondary schools students do not score half the marks allotted to these various essay assessment indices.

At the secondary school level, students are believed to have transited from the basic literacy skill to suit their everyday need for expressing themselves in writing. So, students are often assessed in essay writing to determine their literacy development over time and their ability to skillfully, logically and coherently present and communicate their ideas and thoughts

in writing. However, most students do not perform satisfactorily in these areas. According to WAEC Chief Examiner's Reports (2020-2024), students have continued to perform poorly in English language especially in the aspect of essay writing. The report attributed the poor performance of students to the use of pidgin English and shorthand, illogical and unbalanced presentation of ideas, poor understanding of the essay questions and errors in grammar, spellings and punctuations. Apart from the above reasons, the technique employed in teaching essay writing skills in senior secondary schools appear to contribute to students' poor achievement in essay writing.

The conventional or traditional technique used for teaching writing in secondary schools is Modelled Writing Technique (MWT). The Department of Education and Training (DET, 2018) notes that MWT gives students room to observe a proficient writer go through the process of putting down thoughts and ideas in writing. DET further explains that in using MWT in the classroom, the teacher assumes the position of the proficient writer. The process of writing is taught through modelling. The teacher models the writing skill by thinking aloud the ideas, writing the ideas on the board and then creating a written text. The students are to listen and observe the whole process.

MWT seems not to have yielded much fruit in producing independent and skillful writers and it has not proven to be fully effective in inculcating the desired writing skills as evidenced by WAEC Chief Examiner's Report in the last five years. This is because there are varying learning characteristics for each individual learner. Research has shown that knowledge or information is processed and it is represented in diverse ways hence, learners prefer using different types of learning materials in distinct ways (Gohar & El-Ghool, 2016). This is why there is need for an alternative innovative technique especially technology-based technique, that is capable of catering for the individual student's writing needs thereby making up for the lapses of the conventional MWT. A technology-based technique for teaching essay writing is important in order to provide students with a more personalized or adaptive approach to learning writing especially in this century where technology is the hub. One of such technology-based techniques is the Adaptive Learning Technique (ALT), which provides a learning environment that attempts to reduce students' writing difficulties and also meets the unique learning needs and styles of individual students.

Adaptive Learning Technique (ALT), also known as adaptive teaching, is a teaching and learning technique that provides personalized learning for students. ALT is technology-based and it is one of the advancements in the development of technologies that can support instruction in various aspects of English language, writing inclusive. ALT is the newest and most influential breakthrough in educational technology in the last many decades and will have a remarkable effect in the ways in which formal education will be provided in the future and as such, its use in the field of education is expected to grow exponentially in the near future (Sabur & Geoffrey, 2020 & Kurt, 2021). Adaptive techniques can be used in writing instruction through software and technologies developed for this purpose. These technologies can enable teachers to drive writing instruction through advanced digital learning. They also provide steady, guided practice, detailed feedback and personalized pacing of individualized instruction. And as the student progresses through the writing lesson, the software assesses their mastery of the concept and presents him with a new writing task. The software can provide evaluation and explanation of the students' writing errors. Adaptive technique of teaching essay writing can also be through integrating social media into writing instruction, making students work visible in the real world or even offering opportunities for multimedia projects.

The concept of adaptive learning takes its root from the fact that each learner has a unique and distinct learning make-up and that individualized learning aligned to this learning make-up can enhance improved learning outcomes. Sabur and Geoffrey (2020) are of the opinion that with ALT, learners are provided with their own individual learning paths depending on how much they already know, how much they need to know and the amount of time they need to comprehend a particular concept. This is because ALT utilizes technology-based pedagogical tools such as computers to provide customized learning paths to engage each learner thereby making learning more effective. With ALT, learners are made to adapt to a learning process according to their individual learning needs or interests. This could be why Oxman and Wang (2014) define adaptive learning as a learning process where the contents taught or the manner in which such instruction content is presented adapts or differs based on individual learners' responses. Kaplan (2021) explains that ALT is a teaching-learning technique which uses computer algorithms to orchestrate interaction with the learner and deliver customized resources and learning activities to address each learner's unique learning needs and interests. Despite the personalized learning offered by ALT, its content for teaching narrative essay needs to be considered. However, Kurt (2021) suggests that contents that have a large portion of automatic grading are the ideal for using ALT and such contents could use a few subjective activities such as essay writing. Kurt's suggestion indicates that ALT aids and supports teachers in teaching writing and giving writing instructions.

In secondary schools, learners are usually exposed to the same course contents in a pace that is consistent to the whole class in spite of their different comprehension levels, but the fact still remains that each individual has his or her own unique pace of learning including distinct comprehension spans. So, when a group of learners is made to learn narrative writing at the same rate, the result is that while some may understand and learn better and faster, others may lag behind. This is because individuals have varying learning styles and should be made to learn better in a way that is consistent with their individual learning styles. This is what adaptive learning does. It takes learners along a personalized learning path. One important thing about adaptive learning is that learners are actively involved in the learning process. Adaptive learning technique can, therefore, be used to make students to be actively involved in learning the English language narrative writing and can also, as noted by Isa (2012), boost students' achievement and locus of control in writing skills. What the foregoing implies is that ALT is an active and learner-centered learning technique that enables learners to monitor their own learning and select the most suitable learning contents and strategies that will enable them learn maximally for enhanced achievement and locus of control. It is the intention of this study to ascertain the viability of enhancing students' achievement and locus of control in narrative essay writing using ALT.

Studies such as Gohar and El-Ghool (2016), Choudhury and Borooah (2017), Crowley (2018), Bello (2021) and Kurt (2021) have harped on the efficacy of ALT in improving students' achievement and locus of control in essay writing. For instance, Gohar and El-Ghool (2016) carried out a study on the effect of designing an adaptive learning environment on developing EFL undergraduate students' writing skills and usability using ALT. The result indicated that adaptive online learning environment led to enhancement of EFL students' writing skills and students found the technique usable for learning and interaction with peers and instructor. Also, while Crowley's (2018) study showed a statistically significant difference in students' achievement when exposed to ALT, Kurt's (2021) study indicated that the benefits of exposing students to ALT included developing students' self-confidence as a result of individualized and descriptive feedbacks given by the teacher (this according to Kurt, benefits



their meta-cognition), possessing greater learning autonomy and independence (since lessons are planned specifically towards their individual needs), students becoming more motivated and more participative (as they engaged in their own learning) and consequently, showing higher consistent degree of perseverance. Such consistent level of perseverance could be propelled by a learner's locus of control.

A person's belief in the cause(s) of his success or failures plays a key role in determining and influencing their academic achievement. Locus of control (LOC) informs this belief. LOC is an aspect of personality psychology and also an expectancy variable which refers to a person's belief about what brings about their specific or general life events whether negative or positive. A person's locus of control can be internal or external. It is internal when there is a belief that one can control one's own life. It is the degree to which people believe that they, as opposed to external forces, have control over the outcome of events in their lives. People with internal locus of control believe in the own ability and efforts to achieve success. They also believe that they have full control of their destiny. On the other hand, external locus of control is a belief that one's life and decisions are controlled by outside or external factors. They attribute their lives' events and experiences to factors outside them. Such external factors include fate, chance and luck. This study will focus on internal locus of control.

The concept of (internal) locus of control is widely accepted and used in the domain of education. Research indicates that an internal locus of control is more desirable than the external locus of control and persons with internal locus of control are more likely to have higher achievement in any area of life (Nath & Vijini, 2015). Also, the study by Kolb and Kolb (2005) has shown that students learn more through participatory, exploratory and experimental process and as students actively participate in their own learning. This is what is built in learners when they possess internal locus of control. This is also what adaptive learning tries to achieve by tailoring learning towards individual's experiences and needs and allowing learners take control and bear responsibility of their learning. The researcher believes that learners' achievement in essay writing is first and foremost dependent on their ability to take charge of their experience, maximize them and properly harmonize them into a "written whole" that is digestible by one who has not felt, experienced or witnessed the event as them. Consequently, they tend to praise or blame themselves if they do well or fail since they take ownership of their achievement. A student who is aware of himself and is intrinsically motivated will surely learn better and obtain higher scores. This is to say that locus of control plays a key role in producing better, more determined and successful learners which in turn leads to overall achievement in narrative essay writing. This study investigated the effect of adaptive learning technique on students' locus of control in narrative essay writing.

Various studies have been carried out on the nexus between locus of control and students' academic achievement by researchers such as Khir et al. (2015); Abid et al. (2016); Akunne and Anyanmene (2021). Although there were divergent results from these studies, which were conducted in different areas and in different subjects, their findings indicated a significant relationship between locus of control and academic achievement. For instance, while Khir et al. (2015) revealed that with increased level of internal locus of control among students, their hold control of effort for academic achievement will be greatly increased, learning performances of the students with internal locus of control were high and they were more proactive and effective during the learning process (Abid et al., 2016). In addition, Akunne and Anyanmene (2021) found that internal locus of control positively led to high academic achievement among students. In agreement to the findings of the above studies, Ahmed and

Ahmed (2022) and Odo's (2022) studies showed that there was a positive correlation between locus of control and students' achievement as internal locus of control predicted achievement in English language as students who had higher level of academic achievement tend to have higher internal locus of control compared to students with low academic achievement. This study also determined the relationship between students' locus of control and their achievement in narrative essay writing in urban and rural school locations.

School location is a variable the researcher perceives to have an influence on the locus of control of students in essay writing. Location is a topical issue in education which has been greatly perceived as a determinant of students' successes in academic subjects. In this study, location is perceived in terms of the geographical location, level of development evident in the area, population of the people within the place, level of exposure of the populace, accessibilities of basic facilities such as good roads, well equipped and standard hospitals, good schools and availability of such modern technologies to augment available manpower and, according to Gwaza (2019), the environmental condition around the school. The concept of location can mean a particular place or point where people or things live or are situated in the urban or rural settings (Akogwu, 2020). McCracken and Barcinas as cited in Adedokun (2019) note that while urban schools are located in places with over 200,000 people and within metropolis, rural schools are located in country areas situated in villages, outside towns and cities. By implication, the population of people in the urban area outnumbers those of the rural areas and schools can be unevenly distributed within these locations. Studies by researchers such as Khan et al. (2022), Wang et al. (2021), Kim et al. (2020) and Zhang et al. (2020) have indicated that location had a significant influence on locus of control.

School location is a key aspect in terms of determining the quality of teaching and learning because the state of environment and available facilities has great impact on the academic achievement of students (Akogwu, 2020). The author observes that most schools in urban areas in Nigeria are more and better well-equipped than schools in rural areas and also stressed that schools in urban areas are mostly well-staffed with qualified teachers than the schools in rural areas and that there is also less supervision in rural schools because of factors like cost of transportation, bad road and distance barriers. These conditions may contribute to the disparities in locus of control among students in rural and urban areas. It is based on these disparities that this study investigated the influence of school location on students' locus of control in English language narrative writing when exposed to adaptive learning technique. To guide the study, the following research questions were posed:

### **Research Gap and Motivation**

Different studies have been carried out on the nexus between locus of control and students' achievement. However, these studies were carried out in different subject areas using students at various levels of education and also using different variables. Among these studies, the following had been reported: higher achievement among students that have high level of locus of control compared to those with low achievement (Khir et al., 2015; Abid et al., 2016); a positive correlation between students' self-concept, locus of control and achievement in Mathematics (Akunne & Anyanmene, 2021), Biology (Odo, 2022) and in Chemistry (Ejiobi-Okeke & Samuel, 2021); enhancement of academic achievement among undergraduate students of tertiary institutions (Abid et al., 2016, Choudbury & Borooh, 2017, Ejiobi-Okeke & Samuel, 2021; Haidari et al., 2023), locus of control and learning adaptability among college students (Yongmei & Chen (2023) and correlation between locus of control, location, mental health and health-related decision making (Zhang et al, 2020; Wang et al, 2021). Some of these

studies used moderating variables such as gender, interest and self-efficacy. This study used location as moderating variable. Some of the studies were also conducted in the sciences such as in Mathematics, Biology and Chemistry. Conducting this study in the Arts using English language as a subject area is one of the motivations for this study. The studies also differed in area of study, method, and school subject and were conducted in urban locations where students have access to good road network, quality education, online social relationship, more qualified English language teachers and access to Information and Communication Technology (ICT) facilities compared to those students in the rural locations. The effect of this one-sided accessibility to facilities creates a wide margin between achievements in both areas with students in the urban areas achieving higher than their counterparts in the rural areas. It is this wide margin that underscored the need for this study to determine whether rural students' locus of control and achievement could be enhanced when exposed to adaptive learning intervention. The following issues were addressed;

- 1) What is the effect of adaptive learning technique on students' mean locus of control rating scores in English language narrative essay writing?
- 2) What is the influence of location on the mean locus of control rating scores of students in English language narrative essay writing?
- 3) What is the interaction effect of adaptive learning technique and location on students' mean locus of control rating scores in English language essay writing?

## METHOD

### *Design*

The study adopted a quasi-experimental 2x2 pretest-posttest non-equivalent control group factorial design which involved two groups in four intact classes. The design was represented after Frankel and Wallen (2003); Ali (2006) and Nworgu (2015) which permits that treatment or control research conditions be assigned to selected intact classes. Participants were already in intact classes so, no randomization was carried out because it would disrupt the already existing school structure.

### *Participants*

138 students randomly selected from public secondary schools in Nsukka Education Zone of South East Nigeria participated in the study. The sample size was determined using multi-stage sampling (simple random sampling, purposive sampling and balloting) and statistical test (analysis of covariance). The participants met the inclusion requirements which include being junior students of public secondary schools in the study area; the schools must be located in the urban or rural settings of the study area; being within the age bracket (14 – 19); willingness to participate and possession of mobile phone for communicating with the participants in case of any change in the course of the study. Any student that did not meet the above requirement was excluded. Participants were selected after ensuring that their schools were comparable in terms of facilities, power supply, conducive learning environment, availability of instructional resources and English language teachers and nearness of schools to each other for effective conduct of the study. Other criteria for selection of participants were written completion of the informed consent and availability of participants in the classroom throughout the study period. Figure 1 is the distribution of the participants by group, gender, age, class and state.



Figure 1 indicates that there were two groups: the experimental group which consisted of 70 (96.60%) participants (those taught essay writing using adaptive writing technique) and the control group with 68 (93.84%) participants (those taught essay writing using modelled writing technique). The experimental group had 42 (57.96%) participants from the urban area and 28 (38.64%) participants from the rural area while the control group had 39 (53.82%) and 29 (40.02%) urban and rural participants respectively. These were selected from four intact classes A (20 = 27.60% and 19 = 26.22%); B ((16 = 22.08% and 16 = 22.08%); C (17 = 23.46% and 16 = 22.08%) and D ((17 = 23.46% and 17 = 23.46%); comprising students from Abia 22 (30.36%); Anambra 19 (26.22%); Ebonyi 19 (26.22%); Enugu 60 (82.80%) and Imo State 24 (24.84%). The participants were within the age bracket of 13 – 14 (44.16% and 42.78%); 15 – 16 (34.50% and 33.12 %); 17 – 18 (17.94% and 17.94%). Among the participants, 132 (182.16%) were Christians while 1(1.38%) and 5 (6.90%) were Muslims and traditionalists respectively.

**Figure 1:** Demographic characteristics of the participants

Characteristics	Adaptive Writing Group N (%)	Modelled Writing Group N (%)
<b>Group</b>	70 (96.60%)	68 (93.84%)
<b>Location</b>		
Urban	42 (57.96%)	39 (53.82%)
Rural	28 (38.64%)	29 (40.02%)
<b>Age</b>		
13 – 14	32 (44.16%)	31 (42.78%)
15 – 16	25 (34.50%)	24 (33.12%)
17 – 18	13 (17.94%)	13 (17.94%)
<b>Class</b>		
A	20 (27.60%)	19 (26.22%)
B	16 (22.08%)	16 (22.08%)
C	17 (23.46%)	16 (22.08%)
D	16 (23.46%)	17 (23.46%)
<b>State</b>		
Abia	10 (13.80%)	12 (16.56%)
Anambra	09 (12.42%)	10 (13.80%)
Ebonyi	08 (11.04%)	11 (15.18%)
Enugu	33 (45.54%)	27 (37.26%)
Imo	10 (13.80%)	08 (11.04%)
<b>Religion</b>		
Christianity	67 (92.46%)	65 (89.70%)
Islam	01 (01.38%)	00 (00.00%)
Traditional Religion	02 (02.76%)	03 04.14(%)

Figure 1: Distribution of the participants by group, location, age, class, state and religion

### Measures

*Narrative Essay Writing Locus of Control Inventory (NEWLCI)* that elicited responses from the students on their locus of control in narrative essay writing. NEWLCI was a 20-item researchers-developed instrument structured on a 4-point Likert psychometric symmetric level of strongly disagree (1) – strongly agree (4) to capture the intensity of participants' interest for a given item. Items ranging from 3.50 – 4.00 were scaled as Strongly Agree (SD = 4 points); 2.50 – 3.49 was rated as Agree (3 points), 1.50 – 2.49 was scaled as Disagree (D = 2 points) and 0.50 – 1.49 was rated as Strongly Disagree (SD = 1 point). Items were structured to measure participants' cognitive (seven items), affective (six items) and psychomotor (seven items) as they relate to participants' attraction, action and expression of locus of control in the presence

of object of interest which, in this study, was English language narrative essay writing. The reliability index for NEWLCI was 0.97 using Cronbach's alpha Co-efficient Method.

### ***Intervention Procedure***

Data was collected between February, 2024 and March 2025 from participants in the experimental and control group. Two measures (pretest and posttest) were administered on these two participant groups. Four secondary schools (two urban and two rural) that met the study requirements were purposively selected. By balloting, each of the four selected schools was assigned either to the experimental or control category. 70 students from the two schools were randomly assigned to the experimental group while 68 students from the other two schools were assigned to the control group.

The researchers developed two manuals (one for the experimental and the other for the control group) for teaching the essay writing topics and to also guide the research assistants who were earlier trained by the researchers on how to carry out the experiment. Before the commencement of the experiment, a pretest was administered to the participants in the two groups using NEWLCI. This was to determine the participants' initial locus of control knowledge before the treatment and to also compare the two groups with respect to their scores in the pretest. The treatment thereafter commenced. The experimental group was taught using the adaptive writing technique while the traditional modelled writing technique was used for the control group. After six weeks, NEWLCI was administered to the two groups as posttest.

### ***Data Analysis***

Mean scores and standard deviation were used to answer the three research questions posed for the study. The criterion mean for decision-making was 2.50. As a result of non-randomization of the participants, non-equivalent error might have occurred. To control this error, ANCOVA was used to test the corresponding hypotheses at 0.05 level of significance so as to partial out the initial differences between the two groups. The pretest was used as covariates to the posttest scores.

### ***Ethical approval***

The approval for conducting this study was granted by the Research Committee, Faculty of Education at the University of Nigeria, Nsukka (no. FE/EDA/0060). The heads of departments granted the authors written permission to conduct this study. Participants' written informed consent was also obtained. The authors adhered to research ethics of the American Psychology Association (2010).

## **RESULTS**

Result on Table 1 shows the Pretest and Posttest mean locus of control rating scores of students exposed to English narrative essay writing using adaptive learning technique and those taught using Modeled writing.

The result revealed that the post-test locus of control mean score for students exposed to narrative essay writing using the adaptive learning technique was ( $M = 70.52$ ,  $SD = 4.39$ ) and adjusted mean of 68.35 while that of students taught with modelled writing technique was ( $M = 58.19$ ,  $SD = 7.38$ ) and adjusted mean of 60.78. Students exposed to English narrative essay writing using the adaptive learning technique had higher locus of control rating scores than those taught with the modelled writing technique.

**Table 1: Locus of Control Rating Scores of Students Exposed to English Narrative Essay Writing Using Adaptive Learning Technique and Modelled Writing Technique**

Technique	N	Pretest Locus of Control		Posttest Locus of Control		Adjusted Mean
		$\bar{X}_1$	SD <sub>1</sub>	$\bar{X}_2$	SD <sub>2</sub>	
Adaptive Learning	70	61.60	6.01	70.52	4.39	68.35
Modelled Writing	68	53.21	9.28	58.19	7.38	60.78

Results on Table 2 reveal the influence of school location on senior secondary school students' locus of control in narrative essay writing using adaptive learning technique and modelled writing technique. The result revealed a posttest locus of control mean score of (M = 66.87, SD = 6.35) and an adjusted mean of 64.47 for urban students, while the rural students had a posttest locus of control mean score of (M = 62.39, SD = 10.22) and an adjusted mean of 65.42. Rural students, therefore, had higher locus of control than their urban counterparts in English narrative essay writing.

**Table 2: Locus of Control Rating Scores of Students According to Location**

Location	N	Pretest		Posttest		Adjusted Mean
		$\bar{X}_1$	SD <sub>1</sub>	$\bar{X}_2$	SD <sub>2</sub>	
Urban	70	62.09	5.61	66.87	6.35	64.47
Rural	68	52.31	8.92	62.39	10.22	65.42

Results on Table 3 show the interactive effect of technique and location on senior secondary school students' locus of control in narrative essay writing using adaptive learning technique and modelled writing technique. Results revealed an adjusted mean score of 70.29 for urban students who were exposed to narrative essay writing using adaptive learning techniques, while their rural counterparts had an adjusted mean score of 70.81.

Urban students who were taught with the modelled writing had an adjusted mean score of 57.69 while their rural counterparts had an adjusted mean score of 58.81. The results do not suggest the ordinal interaction effect between instructional technique and location on students' locus of control scores in English essay writing. This was because, at all levels of location, the adjusted mean scores were higher for the adaptive learning technique.

**Table 3: Interaction Effect of Adaptive Learning Technique and Location on Students' Mean Locus of Control Rating Scores in English Language Essay Writing**

Technique	N	Adaptive Learning		N	Modelled Writing	
		$\bar{X}$	SD		$\bar{X}$	SD
Pretest						
Urban	42	64.29	3.97	39	59.46	6.19
Rural	28	58.18	6.47	29	45.39	5.96
Posttest						
Urban	42	70.67(70.29)	4.26	35	62.31(57.69)	5.39
Rural	28	70.33(70.81)	4.61	29	53.04(58.81)	6.23
Total						
Observed Mean		70.52	4.39		58.80	7.19
Adjusted Mean		68.35			60.78	

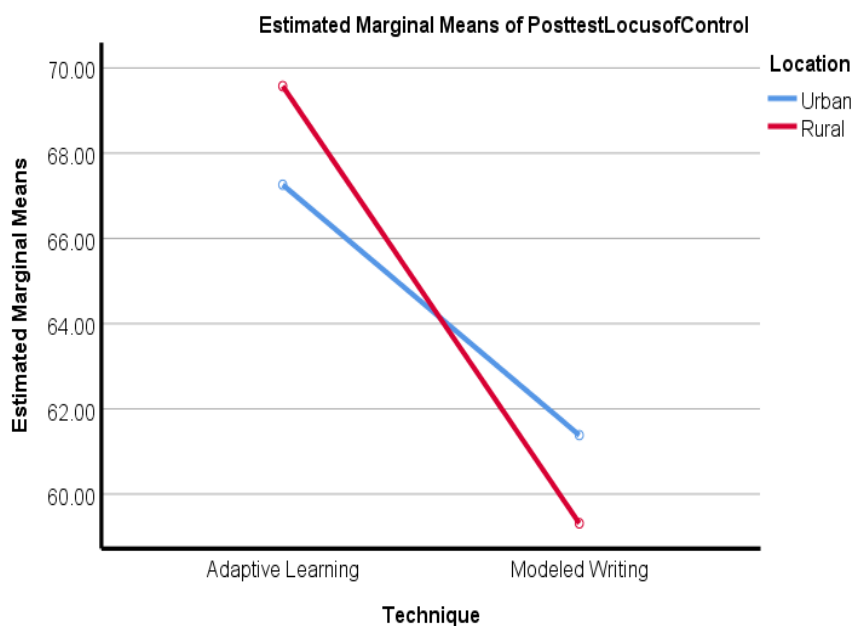
Note: the adjusted mean is in parentheses

Table 4 showed a statistically significant main effect for instructional technique  $F(1,137) = 101.164, p = .000$ , partial  $\eta^2 = .385$ . The null hypothesis, therefore, was rejected, indicating that there was a significant difference in the mean locus of control rating scores of students taught using adaptive learning and those taught using modelled writing. The adjusted mean for adaptive learning was 68.35, while that for the modelled writing was 60.79. The difference was in favour of adaptive learning. Therefore, adaptive learning was superior to the modelled writing in English essay writing. The actual difference in mean scores between the groups was substantial. The effect size, calculated using eta squared, was .385.

**Table 4: Analysis of Covariance of Students' English Language Essay Locus of Control Scores by Adaptive Learning Technique and Location**

Sources of Variation	Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Covariates Pretest LOC	5759.425	1	5759.425	352.584	.000	
Main Effects (Combined)	1866.951	3	622.317	38.097	.000	
Technique	1652.495	1	1652.495	101.164	.000	.385
Location	18.191	1	18.191	1.114	.293	.000
Interaction (Combined)	275.494	3	91.831	5.622	.001	
Technique X Location	144.866	1	144.866	8.868	.003	.061
Technique X Location	.291	1	.291	.018	.893	
Model	7902.169	8	981.771	60.470	.000	
Residual	2107.200	129	16.335			
Total	10009.370	137	73.061			

Table 4 revealed no significant main effect of location  $F(1,137) = 1.114, p = .293$ , partial  $\eta^2 = .000$ . The null hypothesis was not rejected, indicating that there was no significant difference in the mean locus of control rating scores of urban and rural students in English essay writing. The eta-squared statistic (.000) indicated no effect.



Covariates appearing in the model are evaluated at the following values: PretestLocusofControl = 57.7681

**Figure 5: Graph showing interaction effect of technique and location on students' locus of control in narrative essay writing**

Table 4 and figure 5 indicated a significant interaction effect of technique and location  $F(1,137) = 8.868, p = .003$ , partial  $\eta^2 = .061$ . The null hypothesis was rejected. The interaction effect of technique and location on the mean locus of control rating scores of students in English essay writing was, therefore, statistically significant. The eta-squared statistic (.061) indicated a very small effect.

## DISCUSSION

Results in Table 1 showed the difference in the mean locus of control scores of students taught essay writing using adaptive learning technique and modelled essay writing. Students in the experimental group obtained a higher posttest mean locus of control score than their counterparts in the control group. This result showed that adaptive learning boosted students' locus of control in narrative essay writing. This findings support the findings of Ahmed and Ahmed (2022) and Odo (2022) who found that there was a significant correlation between students' locus of control and achievement. The differences in the locus of control scores of the students in both groups could be as a result of personalized learning path which ALT creates for learners. In ALT, students controlled every aspects of their learning process including their paces, styles and in comfortably utilizing their time. Students were also able to visit the content as many times as they wanted in their varied learning paces, which was not the case in the modelled writing technique where the learning time and pace are determined by the teacher. Moreover, apart from paving the way for various learners and learning abilities, ALT learners are made to actively participate in their learning, construct meaning from contents by themselves and take full responsibility of their learning as they interact with learning materials.

The result on the influence of location on students' locus of control in narrative essay writing showed that the urban students had higher posttest locus of control mean rating score than their rural counterparts in English language narrative essay writing. However, in the test of hypothesis, the difference between the two groups was not significant. This mean that location had no significant influence on students' locus of control in narrative essay writing and so, the null hypothesis that location will not have a significant influence on the mean locus of control rating scores of students taught English language essay writing using adaptive learning technique and modelled writing technique was not rejected. In other words, location was not a significant factor in students' locus of control in narrative essay writing. The reason for this might be that both urban and rural students possess high level of confidence and belief in themselves and in their ability to be independent and take charge of their learning. This sense of independence might have been stirred from their inner dispositions. The result of this finding did not agree with the findings of Khan et al. (2022), Wang et al. (2021), Kim et al. (2020) and Zhang et al (2020) whose study showed a significant difference between location and locus of control.

The findings of the study also revealed that the interaction effect of instructional technique and school location on students' mean locus of control scores in English language narrative essay was statistically significant hence, the null hypothesis was not rejected. This implies that the students' locus of control in narrative essay writing was not dependent on technique and location hence, location does not matter as far as interaction effect is concerned in the locus of control of control of students when exposed to adaptive learning technique in narrative essay writing. This lack of significant interaction effect of technique and location could be as a result of assessing both urban and rural students' locus of control concurrently under the same treatment conditions in narrative essay writing. This finding is the same with



Bizimana et al. (2022) who found significant interaction effect of technique and location on students' self-belief but negates that of Adekunle and Olagunju (2016) whose study did not found a significant interaction effect of technique and location.

## LIMITATIONS

Notwithstanding the positive outcomes of this study, caution should be taken in the interpreting the findings of this study to avoid unnecessary generalization of the findings. This is because of the following limitations: the instrument NEWLCI and NEAT were repeatedly used as measures. Potentially, this could cause practice-effect, which is an improvement or change that occurs when participants in a study or experiment become more familiar or get bored with the tasks, procedures or measures being used.

To minimize this effect, future researchers could consider adopting multiple measures such as providing participants with practice sessions before data collection. Secondly, it may be assumed that the period of the follow-up was either insufficient or inadequate. This could lead to latency-effect, which is the time lag between the introduction of an independent variable (cause) and the observation of its effect on the independent variable (outcome).

In future, researchers could consider the extension of the follow-up period or analyze data over time to identify patterns and delays. Also, this study used qualitative research method. Future researchers could explore using mixed method (qualitative and quantitative) research to provide comprehensive insights.

Finally, participants of this study were limited to students in English language education. Future researchers should explore the possibility of including students in Igbo, French, Hausa and Yoruba language.

## CONCLUSION

The study investigated the effect of adaptive learning intervention on secondary school students' locus of control in narrative essay writing. Empirical evidence from the study indicated that adaptive learning technique enhanced students' locus of control in English language narrative essay writing.

Students exposed to narrative essay writing using adaptive learning intervention recorded significantly increased locus of control in narrative essay when compared to their counterparts who were taught narrative essay writing using the modelled writing technique. Students in the urban area had higher locus of control rating scores than their rural counterparts.

However, the difference between the two groups was not significant. Although, the influence of location on students' locus of control was statistically significant, the interaction effect of adaptive learning technique and location on students' mean locus of control rating scores in English language essay writing was statistically significant.

## Implication for Practice

The findings of this study have some implications for practice. Apart from contributing to the existing knowledge in this field, providing empirical evidence and serving as reference material for future study, this study has provided insight and foundation upon which future researchers could design new studies or expand, refine to refute, challenge or corroborate this study's result.

The study has also demonstrated the effectiveness of collaboration and teamwork in a study. Further collaborative research efforts and interdisciplinary research partnership between academic professionals in education, languages, communication, arts and other disciplines are recommended. Teachers, especially English language teachers, need to improve and update their pedagogical, technological and technical skills and embrace innovative classroom instruction instead of limiting themselves to the traditional face-to-face, board, pen and paper approach to instructional delivery. This is necessitated by the concern that adaptive learning intervention requires being computer literate and technology compliant.

Beyond attendance to conferences, workshops and seminars, teachers can update their skills through self-directed learning, participating in webinars, colleague and peer collaboration, mentorship programmes, teacher research groups, developing personal research projects and reflective practice (reflecting on teaching practice and identifying areas of enhancement).

Adaptive learning technique encourages autonomous learning and motivates a great sense of independence in students. This implies that students would be encouraged to spend more time writing and appreciating their writing skills without being under pressure. By so doing, they develop confidence in their ability to solve their own problems thereby taking responsibility for their own learning, developing the right attitude and values for global competitiveness and becoming bold and confident when communicating either in writing or speaking since communication is one of the most valuable 21<sup>st</sup> century skills.

### Recommendations

Based on the findings and conclusion of this study, the following were recommended:

- 1) The findings of the study showed that Adaptive Learning Technique (ALT) had a positive significant effect on students' achievement in narrative essay writing. So, teachers of the English language are encouraged to adopt the adaptive learning technique when exposing students to narrative essay writing in order to boost their academic achievement.
- 2) ALT should be incorporated in all levels of education as a technique for teaching English narrative essay. This is because when learner take full control of their own learning, it creates in them overall independence, confidence and sense of responsibility as they also embrace the learning principle of "DIY" (Do It Yourself). All these lead to increased learners' achievement in narrative essay writing.
- 3) With the awareness of the efficacy of the adaptive learning technique in accounting for increased students' locus of control in narrative essay writing, it could also be tested in other aspects of English language and even in other fields of study. This would aid in proffering solutions to learners' needs in those areas for improved achievement.

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