

EFFECT OF BLENDED LEARNING AND GENDER ON ESSAY WRITING ACHIEVEMENT OF STUDENTS WITH DYSGRAPHIA IN INCLUSIVE SECONDARY SCHOOLS IN FAKO DIVISION, CAMEROON

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Abstract

The study investigated the effect of blended learning and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools in Fako division, Cameroon. One research question and null hypothesis, guided the study. The study adopted a quasi-experimental research design, specifically, the non-equivalent pre-test, and post-test control group design. The study's population comprised sixty-six (66) form-three students with dysgraphia made up of thirty-four (34) males and thirty-two (32) females in inclusive secondary schools in Fako division of the South West Region. The entire population was used as the study sample. The Essay Writing Achievement Test (EWAT) adapted from the General Certificate of Education Board was used for data collection. The instrument was face validated by five experts. The Essay Writing Achievement Test (EWAT) was trial-tested on a sample of twenty (20) form-three students with dysgraphia in Muyuka sub-division that was outside the sampled area. The reliability of the instrument was determined using Kendall's Coefficient of Concordance which gave an index of 0.75, indicating that it was good for the study. Data collected were analyzed using mean and standard deviation to answer the research question while Analysis of Covariance (ANCOVA) was used to test the null hypothesis at 0.05 level of significance. The findings of the study revealed that blended learning and gender have no significant influence on the essay writing achievement of students with dysgraphia in inclusive secondary schools in Foko-Division, Cameroon. Based on these findings, it was recommended among others, that school in Fako division in particular and Cameroon in general should integrate blended learning approaches in their curriculum to support students with dysgraphia, utilizing digital tools and resources to complement traditional teaching methods.

Keywords: Blended learning, gender, essay writing achievement, students with dysgraphia

Introduction

In the evolving landscape of education, effective writing skills are crucial for academic success. Writing is the process of representing language in a visual form, using an established set of symbols such as letters, numbers, and punctuation marks to convey meaning. These skills are essential for communication, academic performance, and future professional opportunities. Students develop writing skills through practice, instruction, and feedback provided by teachers. While some students acquire these skills quickly, others find writing particularly challenging. This is especially true for students with dysgraphia, a specific learning disability that affects a person's ability to write coherently and legibly. Dysgraphia can impact a student's ability to perform in school and undermine their confidence in their academic abilities. Inclusive education systems aim to cater to the diverse needs of all students, ensuring that every learner, regardless of their challenges, receives a quality education. In the inclusive secondary schools of Fako Division, Cameroon, the need to address the unique requirements of students with dysgraphia is paramount. Teachers, especially those in special education, must identify students with writing challenges and implement suitable programs to meet their individual needs. Blended learning, which combines traditional classroom instruction with online and digital learning activities, offers a potential strategy for improving the writing skills of students

with dysgraphia. By integrating various teaching methods and tools, blended learning can provide personalized and adaptive learning experiences that accommodate the diverse learning styles and paces of students. Additionally, understanding the role of gender in educational achievement is crucial, as it may influence how students respond to different instructional methods and interventions. This study explores the effect of blended learning and gender on the essay writing achievement of students with dysgraphia in inclusive secondary schools in Fako Division, Cameroon. Hence, by examining these factors, the research aims to provide insights that can enhance instructional strategies and support for these learners, ultimately contributing to their academic success and overall well-being.

Learning disability is a condition that affects learning. According to Fletcher, Lyon, Fuchs, and Barnes (2018), learning disability is a neurological disorder that affects a person's ability to process and understand information. In the same vein, Sleeter (2018) defined learning disability as a disorder that affects a child's ability to absorb, process, analyze or store information. Learning disabilities manifest in different ways such as dyscalculia (disability resulting in performing mathematical calculations), dyspraxia (a disorder that affects gross and fine motor skills), dyslexia (a disability that primarily affects reading and writing skills), and dysgraphia (writing disorder that impede written making it illegible, coherent, and organized). This study however, is focused on dysgraphia.

Dysgraphia is a writing disorder that affects students' ability to write well. According to Chung, Patel, and Nizami (2020) it is a language-based disorder that affects students' ability to organize thoughts in the mind and express them on paper in the form of an essay. This means students with dysgraphia encounter problems with processing language and organizing thoughts that makes it difficult to write coherently and accurately. Hopcan and Tokel (2021) on their part, defined dysgraphia as challenges students' encounters in writing as expected of their age, ability, and intelligence. In similar vein, Faust (2016) perceived dysgraphia as a transcription disorder that affects handwriting, orthographic coding, word processing, and finger sequencing. In the context of this paper, dysgraphia is a disorder that affects writing skills in the form of an essay. The causes of dysgraphia cannot be fully understood, because it varies from one student to another. According to Mustapha (2022), environmental factors adversely affect students' experience such as inadequate exposure to early literacy activities, and limited access to writing materials may cause writing difficulties and contribute to dysgraphia. The author holds that differences or anomalies in brain structure and function, particularly in areas that involve motor control, language processing, and spatial perception, can cause reading problem. In like manner, Curtin Willis, and Enneking (2019) are of the view that dysgraphia may have a hereditary component, and individuals with a family history of dysgraphia may have a higher risk of developing the condition.

Dysgraphia can affect a student's daily life in a variety of ways. According to Kelly, and Kelly (2018), Darweesh, Elsady, Reifaie, and Sidhom (2020), and Feifer (2022), dysgraphia can impede illegible handwriting, inconsistent letter size, and poor spatial planning on paper. Other effects of dysgraphia according to the authors include spelling, word spacing, and overall ability to put thoughts and ideas on paper. Dysgraphia can contribute to poorly academic achievement especially tasks that require writing (Ukwueze & Island, 2015). Students with dysgraphia can be identified in inclusive secondary schools in Fako-division, Cameroon.

Inclusive education is the process of ensuring that all students including those with disabilities are provided with meaningful and equitable access to quality education. According to Namanyane, and Shaoan (2021), inclusive education is an instructional model that aims to enable all students, regardless of the challenges they face, to be included in age-appropriate general education classes in their neighborhood schools. In like manners, Subban, Woodcock,

Sharma and May (2022) defined inclusive education as the opportunity for every student with or without disabilities to learn together in the same class and institutions with appropriate support networks. This is true because without appropriate support networks, some of the students especially those with dysgraphia may not progress in schools like their peers. Placing students with and without dysgraphia in the same classroom has a lot of benefits. According to Mark (2014) includes creating an environment for interaction, developing good relationships among students, improves social skills and good behaviour through interaction with peers. In addition, Westwood and Graham (2013) reaffirm that students with dysgraphia are likely to become socially accepted by peers, learn tolerance, and become more accepting of others' differences. Therefore, an inclusive classroom provides opportunities for the development of appropriate attitudes toward students with varied disabilities most especially in writing essay writing.

Essay writing achievement is the ability to conduct a coherent and persuasive argument within the structure of an essay. Anggini (2022) is of the view that essay writing achievement involves the skills of organizing ideas logically and coherently, providing smooth transitions between paragraphs, and ensuring that the essay can be easily followed and understood by the reader. It incorporates the demonstration of reflective skills, including the capacity to analyze and evaluate information, identify relevant evidence, and develop insightful interpretations and conclusions (Mehta & Al-Mahrooqi, 2015). Therefore, it involves demonstrating a capacity for original thought, creativity in presenting ideas, and the ability to offer fresh perspectives or insights on writing. Therefore, essay writing achievement is the ability to effectively write that which is a crucial aspect of communication and learning. The various types of essay writing include; descriptive, expository, argumentative, comparative, persuasive, and narrative essays that are taught using the traditional teaching approach. The traditional teaching methods contributed to the poor essay writing skills among students with dysgraphia. These according to Kormos, and Smith (2023) include; exclusively face-to-face teaching, poor organizational skills, poor seating arrangement, and poor self-control practices. According to the authors, these teaching strategies are traditional because they are predominantly based on the use of chalk, blackboard, and textbooks which are teacher-centered. The traditional approach did not help students with dysgraphia in essay writing and contributed to their poor essay-writing skills.

The quest for the best approach to ameliorate the high failure in essay writing caused by traditional teaching methods was reported by the chief examiner subject report on students' failure during the General Certificate of Education (GCE) and the success of blended learning recorded in other fields of study and different countries motivated this study. Blended learning is an educational technique that utilizes online platforms and face-to-face teaching. Nwankwo, Ugwu and Ngwu (2020) in agreement with the above assertion, perceived the method as an educational technique that joins online teaching materials and interaction opportunities with traditional location-based teaching methods. These authors further added that these learning methods are more than just adding computers to the classroom, but changing the way both teachers and students approach learning. In the same vein, Smith (2015) in agreement with these assertions stated that blended learning is the use of online sites to deliver part of the curriculum while the teacher facilitates instruction. In addition, students in a blended learning environment learn part-time online but benefit from in-person instruction and supervision to maximize their own needs (Powell, Watson, Staley, Patrick, Horn, Fetzer & Verma, 2015). In the context of this paper, blended learning is an approach or technique that joins the best practices of the traditional teaching method with the online teaching method by providing personalized and differentiated instruction to students with dysgraphia with challenges in essay writing.

Although there are challenges associated to teaching using blended learning which are; chosen the right technology, availability of the technology, unrealistic internet access, and time consuming for preparation and delivery (Mekdessi, Makdissi, & Moucachar, 2021). However, there are a lot of benefits associated with the blended learning technique including; providing students with 24/7 access to online learning resources, allowing students to customize their learning path based on their individual needs and preferences (McCarthy, Liu, & Schauer, 2020). The author added that using a variety of learning formats such as videos, interactive activities, keeps content engaging and motivating for students, facilitates collaboration through online discussion forums enhances progress. Another issue that is very important to this study is gender. Gender refers to the roles, attributes, and values assigned to men and women by culture and society. Gender according to Bonvillain (2020) is described as personality traits, attitudes, behaviour, values, relative power, influence role, and expectation that society ascribes to the two sexes on a differential basis. In the same vein, Bullough, Guelich, Manolova, and Schjoedt (2022) perceives gender as a sociocultural construct and is based on the individual's biological expectations that are based on whether they are male or female. Furthermore, Ahmed (2017) informs that gender means having a deep knowledge of the culturally assigned roles, responsibilities, privileges and opportunities, and constraints for both genders (male or female). Therefore, one can logically asserts that gender is important in the educational system as it has an effect on essay writing achievement among students with dysgraphia in inclusive secondary schools.

An examination of the classroom shows that women and men continue to be socialized in ways that run counter to gender equality. Al-Saadi (2020) agrees with the opinion that girls achieve more than boys when learning foreign languages. However, the view Reilly, Neumann, and Andrews (2019) contradicted such assertions that there is no significant difference between the overall performance of men and women in essay writing with blended learning as a technique of instruction. This led the researcher to further investigate the effects of blended learning and gender on essay writing achievement of students with dysgraphia. The theory that guided this study is the social constructivist theory of cognitive development propounded by Vygotsky in 1978. Vygotsky's theory emphasizes the social nature of almost all learning. The theory states that much of human cognition is initially modeled for individuals by other people in the social environment, including learning institutions. He particularly emphasized the role of social interaction in learners' development. Vygotsky suggested that when a learner is assisted by a more knowledgeable person in learning how to do something the learner was previously unable to do in the course of the interaction, such support is called scaffolding. This support is gradually removed as learners become able to complete or perform a specific task and, more importantly, think in ways previously unknown to them. Based on these ideas, blended learning and gender could contribute to the essay writing achievement of students with dysgraphia since the content is relevant, realistic, and engaging in an inclusive learning environment. Based on the above literature, the thesis statement for this paper is centered on the methods, research question, research hypothesis, results, discussion, implications of the finding, conclusion; and recommendations.

Purpose of the Study

The general purpose of the study was to investigate the effect of blended learning and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools in Fako division, Cameroon. Specifically, the study sought to:

1. examine the interaction effect of blended learning and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools.

Research Question

The following research questions guided the study;

1. What is the interaction effect of blended learning and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools?

Hypothesis

H₀₁: There is no significant interaction effect of blended learning and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools.

Methods

The study adopted a quasi-experimental research design, specifically, the non-equivalent pre-test, and post-test control group design. The study's population comprised sixty-six (66) form-three students with dysgraphia made up of thirty-four (34) males and thirty-two (32) females in inclusive secondary schools in Fako division of the South West Region. The entire population was used as the study sample. The Essay Writing Achievement Test (EWAT) adapted from the General Certificate of Education Board was used for data collection. The instrument was face validated by five experts; one each from the fields of Special Needs Education, Educational Psychology, and Measurement and Evaluation, while the remaining two came from English Language Education, all from the Faculty of Education, University of Nigeria, Nsukka. The Essay Writing Achievement Test (EWAT) was trial-tested on a sample of twenty (20) form-three students with dysgraphia in Muyuka sub-division that was outside the sampled area. The reliability of the instrument was determined using Kendall's Coefficient of Concordance which gave an index of 0.75, indicating that it was good for the study. Data collected were analyzed using mean and standard deviation to answer the research question while Analysis of Covariance (ANCOVA) was used to test the null hypothesis at 0.05 level of significance

Results

Research Question: What is the interaction effect of blended learning and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools?

Table 1: Pretest and post-test mean interaction effect of method and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools

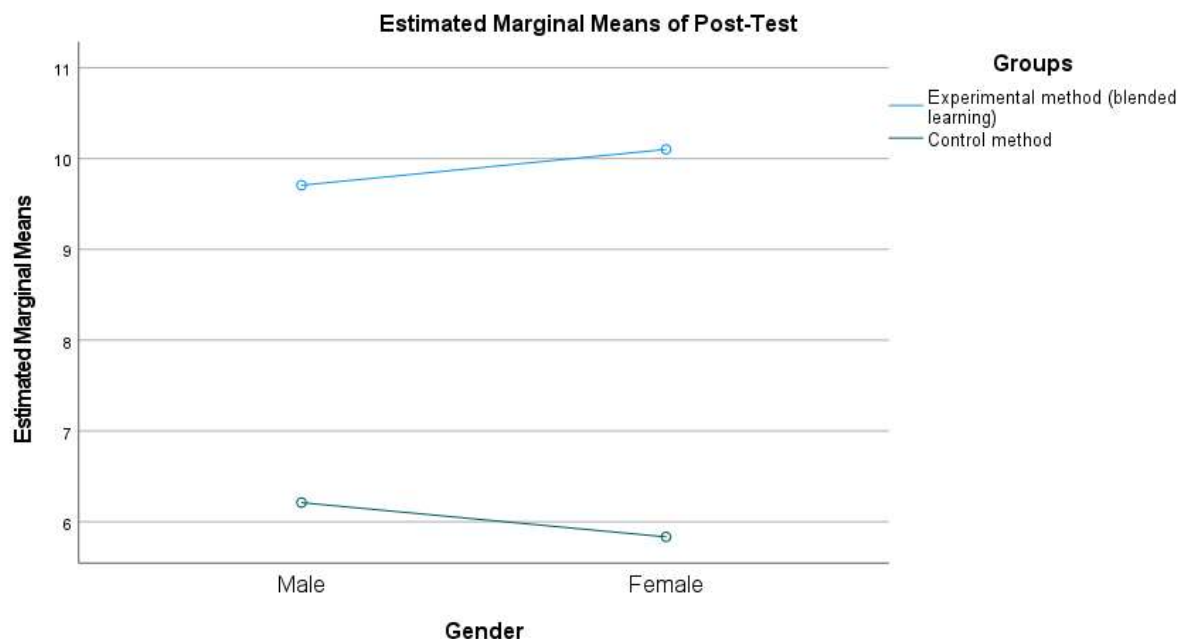
Instructional Methods	Gender	N	Pretest		Posttest		Mean Difference
			\bar{X}	SD	\bar{X}	SD	
Experimental (Blended learning)	Male	21	4.52	1.69	9.33	2.31	4.81
	Female	19	5.26	1.41	10.37	1.98	5.11
Control group	Male	11	5.64	1.57	6.73	1.27	1.09
	Female	15	4.47	1.30	5.53	1.19	1.06

Note: N = Number of Respondents, \bar{X} = Mean, SD = Standard deviation

Results in Table 1 show the interaction effect of method and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools. The result shows that the male students exposed to blended learning (experimental group) had a mean achievement score (\bar{X} = 4.52, SD = 1.69) at pretest and a mean score (\bar{X} = 9.33, SD = 2.31) at posttest. Whereas, the female students exposed to blended learning had a mean achievement score (\bar{X} = 5.26, SD = 1.41) at pretest and a mean score (\bar{X} = 10.37, SD = 1.98) at posttest. The pretests

and pposttest mean difference for the male and female students exposed to blended learning were 4.81 and 5.11 respectively. Furthermore, the result shows that male students in the control group had a mean achievement score (\bar{X} = 5.64, SD = 1.57) at pretest and a mean score (\bar{X} = 6.73, SD = 1.27) at posttest. While their female counterparts had a mean achievement score (\bar{X} = 4.47, SD = 1.30) at pretest and a mean score (\bar{X} = 5.53, SD = 1.19) at posttest. The pretests and posttests mean difference for the male and female students in the control group were 1.09 and 1.06 respectively. Observably, the result shows that female students with dysgraphia had a slightly better essay writing achievement than their male counterparts when exposed to blended learning while the male students in the control group performed slightly better than the females.

Hypothesis One: There is no significant interaction effect of blended learning and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools. Results in Table 2 also show ANCOVA of the interaction effect of method and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools. The result shows that the interaction effect of method and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools is not statistically significant, ($F(1, 65) = .835, p = .365, \eta^2_p = .014$). This is because the associated probability (Sig.) value of .365 is greater than 0.05 level of significance at which the result was tested. Hence, the null hypothesis three (H_{03}) which stated that there is no significant interaction effect of method and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools is not rejected. Moreover, the effect size variance ($\eta^2_p = .014$), indicates that only 1.4% variance in the mean essay writing achievement scores of students is attributable to the interaction effect of method and gender. Thus, the conclusion drawn is that there is no significant interaction effect of the method and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools. The profile plot (graph) is as shown below.



Covariates appearing in the model are evaluated at the following values: Pre-Test = 4.91

Discussion

The study also shows that female students with dysgraphia had a slightly better essay writing achievement than their male counterparts when exposed to blended learning while the male

students in the control group performed slightly better than the females. Further findings revealed that there is no significant interaction effect of the method and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools. These findings to some extent agree with findings from some previous researchers. For instance, the finding tends support to the finding by Zahedi, Batten, Ross, Potvin, Damas, Clarke, and Davis(2021), whose study disclosed that there was no significant interaction effect of instructional techniques and gender on the mean achievement scores of students.

The finding is in line with the finding of the study by Yu (2021) which showed that the interaction effect of instructional approaches and gender on students' achievement was not statistically significant. The absence of an interaction effect between teaching methods and gender on achievement suggests that the benefits of blended learning are consistent across genders. Female students performing slightly better in the blended learning group might indicate they adapt well to the interactive and flexible nature of blended learning. Conversely, males performing better in the control group may suggest they respond better to more structured, traditional methods. Besides, different teaching methods can cater to varying strengths and preferences among students. Blended learning's flexibility might better support females in organizing and expressing their thoughts, while males might benefit from the clear, direct instructions often found in conventional methods. However, blended learning can be a fair and equitable teaching method for both male and female students with dysgraphia in essay writing. Thus, there could be no significant interaction effect of the method and gender on essay writing achievement of students with dysgraphia in inclusive secondary schools as portrayed by the findings of this present study.

Educational Implication of the Findings

The findings of this study have some educational implications for students with dysgraphia, the findings will benefit from an improved and more engaging learning experience through blended learning, which can accommodate students' specific needs and learning styles. This is because the study's findings indicate that students with dysgraphia can achieve higher in essay writing achievement test. When exposed to blended learning methods, boosting their confidence and academic success. The study highlights the need for continuous professional development to equip teachers with the skills and knowledge necessary to effectively implement blended learning.

Contribution to Knowledge

This study on the effect of blended learning and gender on the essay writing achievement of students with dysgraphia in inclusive secondary schools in Fako Division, Cameroon, makes several significant contributions to the field of educational research and practice. It enhances the understanding of dysgraphia by highlighting the unique challenges faced by students with this learning disability, particularly in the context of essay writing. This insight underscores the need for tailored instructional strategies to address these challenges effectively. The research also contributes to the growing body of knowledge on innovative educational approaches by examining the efficacy of blended learning. By integrating digital tools with traditional teaching methods, blended learning offers potential benefits for students with dysgraphia, and the study's findings can inform educators and policymakers about these advantages. Additionally, the study explores gender differences in educational outcomes, revealing how boys and girls with dysgraphia may respond differently to blend learning environments. This understanding can help educators develop more gender-responsive teaching strategies that cater to the diverse needs of all students. Moreover, the research reinforces the importance of inclusive education by demonstrating how specific interventions

can improve the academic achievement of students with learning disabilities in mainstream classrooms. These findings guide the development of inclusive teaching practices that ensure equal opportunities for success. By focusing on secondary schools in Fako Division, the study provides valuable context-specific insights that can be applied to similar educational settings, contributing to a more localized understanding of effective educational practices. Finally, the study's outcomes offer implications for educational policy, advocating for the adoption of blended learning approaches and the allocation of resources to support inclusive education initiatives. Overall, this research provides a comprehensive examination of how blended learning and gender influence the essay writing achievement of students with dysgraphia, offering practical recommendations for educators, policymakers, and researchers dedicated to enhancing educational outcomes for all learners.

Conclusion

This study reveals that blended learning, as opposed to traditional teaching methods, does not significantly vary in its impact on the essay writing achievement of students with dysgraphia in inclusive secondary schools in Fako Division, Cameroon. The analysis indicates that blended learning provides substantial benefits that are broadly applicable across different demographic groups, including various genders. Despite some minor variations in performance based on teaching method and gender, these differences were not statistically significant. The findings affirm that blended learning is an effective teaching strategy for improving writing skills among students with dysgraphia. This method, which combines digital tools and traditional instruction, offers a flexible and adaptive learning environment that supports students with diverse needs. The study underscores that the effectiveness of blended learning transcends gender differences, suggesting that this approach can universally enhance the writing abilities of students with dysgraphia. In conclusion, the research supports the continued use and development of blended learning strategies in inclusive education settings. By providing a more individualized and engaging learning experience, blended learning holds the potential to significantly improve educational outcomes for students with dysgraphia, regardless of their gender. This study contributes to the broader understanding of how inclusive teaching methods can be optimized to support all students effectively, reinforcing the value of innovative educational approaches in addressing learning disabilities.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Schools in Cameroon should incorporate blended learning strategies into their curriculum to better support students with dysgraphia. This integration should involve using digital tools and resources alongside traditional teaching methods to create a more flexible and engaging learning environment.
2. Educational institutions should offer comprehensive professional development programs for teachers. These programs should focus on equipping educators with the skills and knowledge needed to implement blended learning effectively, with particular emphasis on addressing the needs of students with learning disabilities.
3. Schools should design and implement targeted interventions tailored to the needs of students with dysgraphia. These interventions should leverage the benefits of blended learning to provide personalized support and address specific writing challenges faced by these students.
4. Educators should be encouraged to adopt inclusive teaching practices that accommodate diverse learning needs. This includes using adaptive technologies and differentiated instruction to ensure that all students, regardless of gender or learning disability, have equitable access to educational resources and opportunities.
5. Further research should be conducted to explore the long-term effects of blended learning on various aspects of academic achievement, including writing skills, for students with dysgraphia.

This research should also investigate how different demographic factors, such as gender and socio-economic status, influence the effectiveness of blended learning approaches.

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