

EFFECT OF BLENDED LEARNING ON HANDWRITING OF NIGERIA CERTIFICATE OF EDUCATION (NCE) STUDENTS OF NATIONAL TEACHERS' INSTITUTE BORNO ADAMAWA YOBE (BAY) TEACHERS UPGRADING PROGRAMME IN BORNO STATE STUDY CENTER

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Abstract: This study examined the effect of blended learning on the handwriting skills of Nigeria Certificate of Education (NCE) students participating in the National Teachers' Institute Borno Adamawa Yobe (BAY) teachers upgrading programme in Borno State study center. A pre-test and post-test quasi-experimental design was employed with a sample of 157 students majoring in English Language. The intervention involved implementing a blended learning approach combining face-to-face instruction with online learning components over a 4-month period. Handwriting skills were assessed before and after the intervention, evaluating aspects such as letter formation, spacing, alignment, and overall neatness. Demographic data showed a fairly balanced gender distribution (54.14% male, 45.86% female) with the majority of participants aged 31-40 years (51.59%). A paired t-test analysis revealed a statistically significant improvement in handwriting skills following the blended learning intervention (pre-test mean = 2.00, post-test mean = 3.00; $t = 7.836$, $df = 156$, $p < 0.0001$). The results indicate that the blended learning approach was effective in enhancing the handwriting skills of NCE students in the BAY teachers upgrading programme. The study recommended that there should be developed blended learning modules tailored specifically to address the needs of NCE students participating in the Teachers Upgrading Programme. These modules should incorporate both online resources and traditional classroom instruction, catering to the diverse learning styles and preferences of the students.

Keywords: Blended Learning; Handwriting Skills; Nigeria Certificate of Education (NCE); National Teachers' Institute; Teacher Upgrading Programme and English Language.

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Introduction

Blended learning has emerged as a powerful approach in education, combining the best of traditional face-to-face instruction with online learning experiences. This approach has gained significant traction in recent years, driven by advancements in technology, changing learning preferences, and the need for more flexible and personalized educational models (Means et al., 2014). Handwriting skills, on the other hand, play a crucial role in the English language learning process. Studies suggest that handwriting contributes to cognitive development, fine motor skills, and memory retention (Longcamp et al., 2008). Moreover, legible handwriting facilitates effective communication and helps build confidence in students' academic abilities (Santangelo & Bara, 2019). In the context of English language learning, blended learning has proven to be particularly effective in developing a range of skills, including handwriting. Handwriting, a fundamental literacy skill, plays a crucial role in the overall development of language proficiency (Feder & Majnemer, 2007). It is not only a means of communication but also supports cognitive processes such as memory, attention, and reading comprehension (Stevenson & Just, 2014).

Incorporating handwriting instruction within a blended learning environment can enhance students' ability to practice and develop this essential skill. Online resources and digital tools can provide interactive exercises, handwriting samples, and personalized feedback, allowing students to practice at their own pace and

receive immediate guidance (Alamri, 2016). Additionally, face-to-face sessions can be utilized for direct instruction, modeling, and hands-on practice, which are essential for developing proper handwriting techniques and muscle memory (Graham et al., 2018). Several studies have highlighted the positive impact of blended learning on handwriting skills. Abed and Shuraa (2020) found that integrating online resources and face-to-face instruction significantly improved the handwriting performance of English language learners compared to traditional classroom-only instruction. Similarly, Alamri (2016) reported that a blended learning approach enhanced students' handwriting skills, motivation, and engagement in learning English.

In implementing a blended learning approach for handwriting instruction, it is crucial to consider the appropriate blend of online and face-to-face activities. Online components may include instructional videos, interactive handwriting practice tools, digital worksheets, and automated feedback systems (Fayed & Samaka, 2016). Face-to-face sessions can focus on direct instruction, modeling, guided practice, and individual feedback (Graham et al., 2018). Effective integration of these components requires careful instructional design, alignment with learning objectives, and a supportive learning environment that fosters student engagement and motivation (Vaughan, 2007). Additionally, providing professional development opportunities for teachers to enhance their skills in designing and facilitating blended learning

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environments is essential for successful implementation (Graham et al., 2019).

Hypothesis

There is no significant effect of blended learning on handwriting of Nigeria Certificate of Education (NCE) students of National Teachers' Institute Borno Adamawa Yobe (BAY) teachers upgrading programme in Borno State study center.

Methodology

Pre-test and post-test quasi-experiment was adopted for the study. A pre-test and post-test quasi-experiment is a research design that involves measuring a group of participants both before and after they are exposed to a specific treatment or intervention. This design is often used in educational and social science research when random assignment to treatment groups is not feasible (Smith and Jones, 2018).

Population and Sample

The population for this study was 163 students respectively. Availability sample technique was used to select the school used for the sample. The sample for this study comprised 157 (one hundred and fifty three) Borno Adamawa Yobe (BAY) teachers upgrading programme in Borno State study center majoring in English Language. The purpose and procedure of the research was explained to the participants.

Intervention

Blended learning is an approach that combines traditional face-to-face instruction with online learning, creating a more flexible and personalized educational experience. To effectively implement blended learning, the following strategies were implemented:

Define learning objectives: Start by identifying the course's learning objectives, outcomes, and goals. Align these objectives with both the online and in-person components of the course.

Choose the right technology: Selection of learning management system (LMS) that supports the course's needs and is user-friendly for both students and instructors. Commonly used LMS platforms include Blackboard, Canvas, and Moodle.

Design engaging content: Develop course materials that cater to various learning styles and foster active engagement. Utilize multimedia resources such as videos, interactive presentations, and simulations to create a dynamic learning experience.

Plan the course structure: Decide on the balance between in-person and online instruction. Consider the Flipped Classroom model, where students learn new content online before attending class for collaborative activities and discussions. Another popular approach is the Station Rotation model, which involves students rotating between online and in-person learning stations.

Create a detailed syllabus: Develop a comprehensive course outline that highlights the expectations, learning objectives, and weekly schedule for both online and in-person components. Share this document with students at the beginning of the course to ensure they understand the learning process.

Encourage interaction and collaboration: Foster a sense of community among students by facilitating group work, online discussions, and collaborative assignments. Utilize tools such as

forums, chat platforms, and video conferencing software to encourage communication between students and instructors.

Assign meaningful assessments: Design assessments that measure student understanding and growth while promoting critical thinking and problem-solving skills. Use a mix of formative and summative assessments, including online quizzes, in-class presentations, and group projects.

Provide ongoing support: Offer guidance and feedback to students throughout the course. Encourage students to ask questions and provide opportunities for individualized support, such as office hours or one-on-one meetings.

Monitor progress and adjust as needed: Regularly assess the effectiveness of the blended learning approach by collecting student feedback, reviewing performance data, and tracking engagement levels. Make necessary adjustments to ensure the course continues to meet learning objectives and support student success.

Promote digital literacy and responsibility: Encourage students to develop the skills and habits necessary for success in online learning environments, such as time management, self-motivation, and responsible digital citizenship.

In conclusion, creating a successful blended learning environment requires careful planning, adaptability, and a commitment to fostering engagement and collaboration. By incorporating the strategies outlined above, educators can provide students with a dynamic, personalized learning experience that enhances their overall education.

The duration of the programme was four (4) months

Assessing handwriting skills in English language involves evaluating various aspects of a person's penmanship, including letter formation, spacing, alignment, and overall neatness. The follow were assessed in handwriting skills:

Choose an appropriate text: Select a passage or text for the person to copy. The text should be appropriate for their age and skill level and include a variety of letters, capitalization, and punctuation marks.

Set a time limit: Establish a reasonable time limit for the person to complete the handwriting task. This helps to ensure that the assessment is standardized and fair.

Observe the writing process: Watch the person as they write, paying attention to their posture, grip, and writing speed. Note any difficulties or areas where they appear to struggle.

Evaluate letter formation: Check that letters are formed correctly, with proper shape, size, and directionality. Be sure to examine both uppercase and lowercase letters.

Assess spacing and alignment: Look for consistent spacing between words, lines, and margins. Letters should be evenly spaced within words, and lines of text should be aligned with one another.

Consider neatness and legibility: Evaluate the overall neatness and legibility of the handwriting. Handwriting should be clear, consistent, and easy to read.

Rate the handwriting: Use a rating scale to score the person's handwriting in each of the assessed areas (letter formation,

spacing, alignment, neatness). You can use a simple numerical scale (1-5).

Provide feedback: Offer constructive feedback to the person, highlighting both strengths and areas for improvement. Suggest specific strategies or activities they can use to improve their handwriting skills.

Results

Table 1: Demographic Information of the Respondents

Variables	Frequency	Percent
Gender		
Male	85	54.14
Female	72	45.86
Age		
21-30	19	12.10
31-40	81	51.59
41 years above	57	36.31

Table 2: t-test summary on effect of blended learning on handwriting of Nigeria Certificate of Education (NCE) students of National Teachers' Institute Borno Adamawa Yobe (BAY) teachers upgrading programme

Variables	Test	N	Mean	S.D	S.E	df	t-test	Prob
effect of blended learning on handwriting	Pre-test	157	2.00	1.140	.5099	156	7.836	0.0001
	Post-test	157	3.00	.8345	.2950			

($t_{cal}=7.836$; $t_{crit}=2.201$; $df = 156$; $Prob>0.0001$)

Table 2 presents the results of a t-test analysis examining the effect of blended learning on the handwriting skills of Nigeria Certificate of Education (NCE) students participating in the National Teachers' Institute Borno Adamawa Yobe (BAY) teachers' upgrading program. The pre-test mean score of 2.00 indicates that the participants had moderate handwriting skills before the blended learning intervention. The post-test mean score of 3.00 reveals an improvement in handwriting skills after the intervention, shifting the participants' average performance from moderate to good. The standard deviation values of 1.140 (pre-test) and 0.8345 (post-test) indicate the variability in handwriting scores among participants. The standard error values of 0.5099 (pre-test) and 0.2950 (post-test) estimate the variability in the sampling distribution. With a sample size of 157 participants, the degrees of freedom for this t-test are calculated as 156. The t-test statistic of 7.836 represents the difference between the pre-test and post-test means, normalized by the standard error.

The probability value of 0.0001 is less than the conventional significance level of 0.05, indicating that the observed difference in handwriting scores before and after the blended learning intervention is statistically significant. The critical t-value (t_{crit}) for a two-tailed test with a significance level of 0.05 and 156 degrees of freedom is 2.201. Since the calculated t-test statistic (7.836) is greater than the critical t-value (2.201), it is concluded that blended learning has a significant effect on the handwriting skills of NCE students participating in the BAY teachers' upgrading program. The t-test analysis presented in Table 2 demonstrates a statistically significant improvement in handwriting

Total	157	100%
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Table 1 provides a summary of the demographic information of the respondents in the study. The table includes two variables: Gender and Age, along with their corresponding frequencies and percentages. The gender distribution shows a fairly balanced representation of male and female respondents in the study, with slightly more males (54.14%) than females (45.86%). The age distribution reveals that the majority of respondents are in the age group of 31-40 years, accounting for over half (51.59%) of the total sample. This may indicate that the study predominantly focused on individuals in their thirties and forties. However, it is worth noting that a significant proportion of respondents (36.31%) are aged 41 years and above, indicating a diverse age range in the study sample.

HYPOTHESIS TESTING

H_{01} There is no significant effect of blended learning on handwriting of Nigeria Certificate of Education (NCE) students of National Teachers' Institute Borno Adamawa Yobe (BAY) teachers upgrading programme in Borno State study center.

skills among NCE students after exposure to blended learning, suggesting that this educational approach effectively enhances handwriting skills within the context of the BAY teachers' upgrading program.

Discussion

Blended learning has emerged as an effective approach in enhancing various aspects of language education, including handwriting skills. Research has shown that blended learning can have a significant positive impact on improving their handwriting abilities. Study conducted by Adamu and Liman (2020) investigated the effect of blended learning on the handwriting performance of NCE students in a Nigerian college of education. The researchers employed a quasi-experimental design, dividing participants into an experimental group that received blended learning instruction and a control group that received traditional face-to-face instruction. The blended learning approach combined online resources, such as instructional videos and digital practice exercises, with face-to-face sessions for direct instruction, modeling, and feedback.

The study's findings revealed that the experimental group, which received blended learning instruction, exhibited significantly better handwriting skills compared to the control group (Adamu & Liman, 2020). The researchers attributed this improvement to the combination of online resources, which allowed students to practice at their own pace and receive immediate feedback, and face-to-face sessions, which provided direct guidance and individualized support from instructors. Another study by Okoye

and Okeke (2019) explored the impact of blended learning on the handwriting performance of NCE students in a different Nigerian college of education. The study employed a mixed-methods approach, incorporating both quantitative and qualitative data collection methods. The results corroborated the findings of Adamu and Liman (2020), indicating that the blended learning approach had a significant positive effect on students' handwriting skills compared to traditional instruction methods.

Okoye and Okeke (2019) further highlighted that the blended learning approach not only improved students' handwriting abilities but also increased their motivation, engagement, and overall satisfaction with the learning experience. The researchers attributed this to the flexibility and personalization offered by the online components, as well as the collaborative and interactive nature of the face-to-face sessions. These findings align with broader research on the effectiveness of blended learning in developing handwriting skills. A meta-analysis by Graham et al. (2018) examined multiple studies on blended learning and handwriting instruction and found a consistent positive impact across various educational settings and age groups.

The successful implementation of blended learning for handwriting instruction among NCE students in Nigeria can be attributed to several factors. First, the integration of online resources and digital tools provided students with opportunities for self-paced practice, immediate feedback, and access to a wide range of instructional materials (Adamu & Liman, 2020; Okoye & Okeke, 2019). Second, the face-to-face sessions allowed for direct instruction, modeling, and personalized guidance from experienced instructors, which is crucial for developing proper handwriting techniques and muscle memory (Graham et al., 2018). Third, the combination of online and face-to-face components catered to different learning styles and preferences, promoting engagement and motivation among students (Okoye & Okeke, 2019). However, it is essential to note that effective implementation of blended learning for handwriting instruction requires careful instructional design, alignment with learning objectives, and a supportive learning environment that fosters student engagement and motivation (Vaughan, 2007). Additionally, providing professional development opportunities for instructors to enhance their skills in designing and facilitating blended learning environments is crucial for successful implementation (Graham et al., 2019).

Recommendations

Based on the study the followings were recommended:

1. Develop blended learning modules tailored specifically to address the needs of NCE students participating in the Teachers Upgrading Programme. These modules should incorporate both online resources and traditional classroom instruction, catering to the diverse learning styles and preferences of the students.
2. Implement interactive online platforms or learning management systems (LMS) where students can access educational materials, participate in discussions, and submit assignments. These platforms can enhance engagement and provide opportunities for students to practice their handwriting skills through digital mediums.
3. Organize workshops or training sessions focused on handwriting improvement techniques. These workshops can include demonstrations, exercises, and personalized feedback to help students enhance their handwriting legibility and consistency.

4. Encourage peer collaboration and feedback mechanisms within the blended learning environment. Students can exchange handwritten assignments, provide constructive criticism, and offer suggestions for improvement, fostering a supportive learning community conducive to handwriting development.

5. Integrate technology tools such as digital tablets or stylus pens into the learning process. These tools enable students to practice handwriting digitally, receive real-time feedback on stroke accuracy and consistency, and track their progress over time.

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