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EFFECT OF MULTISENSORY INSTRUCTIONAL STRATEGY ON ACADEMIC ACHIEVEMENT OF STUDENTS WITH INTELLECTUAL DISABILITIES IN ENGLISH LANGUAGE IN UPPER BASIC SCHOOLS IN ABAKALIKI EDUCATION ZONE

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ABSTRACT

The study examined the effect of Multisensory Instructional Strategy on the academic achievement of students with Intellectual Disabilities in English Language in Upper Basic Schools in Abakaliki Education Zone. Three purposes, three research questions and three hypotheses guided the study. The study adopted quasi-experimental, pre-test, post-test non-equivalent control group research design. The population of the study was 3,789 Upper Basic II (JSSII) Students in the seventy-eight (78) upper basic schools in Abakaliki Education Zone (1,672 Male and 2,117 Female students). The sample size of upper Basic II students with intellectual disabilities numbering 48 (23 males and 25 females) from intact classes of two coeducational schools was drawn using purposive sampling technique. The data for the study was collected using an English Language Achievement Test (ELAT). The instrument was validated by three experts and further tested for reliability using Kuder Richardson (KR-20) reliability approach, which yielded an overall reliability coefficient of 0.84. Data were analyzed using mean and standard deviation to answer the research questions. The findings of the research questions revealed that students taught with multisensory instructional strategy achieve higher in English Language than those taught with the conventional approach; female students with intellectual disabilities taught English Language with the multisensory instructional strategy achieved higher in English Language than male students with intellectual disabilities taught English Language with the same approach and there is no interaction effect between method and gender on students with intellectual disabilities mean academic achievement in English Language. The hypotheses were tested using Analysis of Covariance (ANCOVA) and the findings revealed that there is a significant difference in the Academic achievement mean score in English Language of Upper Basic School Students with Intellectual Disabilities taught with Multisensory Instructional Strategy and those taught with conventional method, and there is no significant difference in the Academic achievement mean score in English Language of male and female Upper Basic School Students with Intellectual Disabilities taught with Multisensory Instructional Strategy as well as in the Interaction effect of method and gender on academic

achievement mean score in English Language of Upper Basic School Students with Intellectual Disabilities. It was recommended that teachers teaching students with intellectual disabilities in Upper Basic Schools should adopt multisensory instructional strategies in teaching English Language.

Keywords: Effects; Multisensory Instructional Strategy; Academic Achievement; Students; Intellectual Disabilities; English Language; Upper Basic Schools

Introduction

Education is universally recognized as a fundamental human right and a key instrument for social and economic development. However, ensuring equitable access to quality education for learners with intellectual disabilities remains a persistent challenge in many developing countries, including Nigeria. According to Schalock and Luckasson (2021), intellectual disability is a disability originating during the developmental period that includes deficits in both intellectual and adaptive functioning across conceptual, social, and practical domains. The American Association on Intellectual and Developmental Disabilities (AAIDD) (2022) observed that intellectual disability is characterized by significant limitations both in intellectual functioning and in adaptive behavior, which covers many everyday social and practical skills, and originates before the age of 18. These opinions emphasize that intellectual disability is not merely a medical condition but a complex developmental disorder that affects a person's ability to learn, reason, and adapt effectively to the environment. For the purpose of this study, intellectual disability is defined as a learning condition that limits an individual's ability to understand new information, acquire new skills, and cope independently in academic and social situations, thereby requiring specialized instructional strategy and individualized educational support to achieve meaningful learning outcomes.

Individuals with intellectual disability may experience difficulties in language development, memory, attention, academic learning, communication, and independent living skills. The severity can range from mild to profound, and with appropriate educational support, structured instruction, and individualized interventions, many individuals can improve their functional and academic abilities. Learners with intellectual disabilities often exhibit limitations in cognitive processing, language development, memory, and problem-solving skills, which in turn affect their academic engagement and performance (Adeniyi & Olaniyan, 2023; Odu & Umeh, 2024).

Instructional strategies, according to Egbo and Ezeani (2023), refer to systematic plans, techniques, and methods employed by teachers to facilitate learning, engage students actively, and help them achieve specific learning outcomes. Anderson and Krathwohl (2022) describe instructional strategies as the deliberate approaches' teachers use to organize content, manage classroom interactions, and deliver

instruction in ways that promote understanding and retention among diverse learners. These views emphasize that instructional strategies are not random teaching acts but carefully planned methods designed to enhance learning effectiveness. In this study, instructional strategies are the various planned and adaptive methods teachers employ to present lessons, motivate learners, and create meaningful learning experiences that enhance the academic achievement of students. They determine how teachers structure learning experiences, communicate information, and engage learners with diverse abilities. When teachers select and apply instructional strategies that align with learners' cognitive and adaptive levels, they create an enabling environment that supports both academic achievement and social development. Thus, the quality of teachers' instructional strategies plays a decisive role in determining how effectively students with intellectual disabilities participate and perform in classroom activities.

According to Okoye and Nwafor (2023), multisensory instructional strategy is a teaching approach that simultaneously engages learners' visual, auditory, tactile, and kinesthetic senses to enhance perception, comprehension, and retention of learning materials, especially among students with diverse cognitive abilities. In this study, Multisensory Instructional Strategy is a systematic teaching approach that employs visual, auditory, tactile, and kinesthetic activities to facilitate meaningful learning and improve academic achievement among students with intellectual disabilities. In Abakaliki Education Zone, where inclusive education is expanding under the Universal Basic Education framework, the use of multisensory strategies ensures that students with intellectual disabilities can connect abstract academic concepts to concrete sensory experiences, thereby improving attention, retention, and academic achievement. Beyond academic achievement gains, this strategy appears to foster inclusion, as it allows all learners, regardless of ability, to participate actively in classroom activities.

Academic achievement remains one of the most important indicators of educational effectiveness and student success. It reflects the degree to which learners have attained desired learning outcomes in relation to curriculum standards, instructional goals, and assessment benchmarks. According to Adebayo and Musa (2022), academic achievement encompasses not only learners' performance on tests and examinations but also their ability to apply acquired skills, think critically, and solve problems. The authors stressed that it serves as a measure of both teaching effectiveness and student learning capacity. Operationally, academic achievement is the observable and measurable level of educational performance demonstrated by students with intellectual disabilities. Usman and Okoro (2023) emphasize that measuring academic achievement among such students goes beyond test scores - it also includes behavioral improvements, engagement in classroom activities, and the ability to demonstrate learning through alternative assessments. Academic achievement is

central in this study because it serves as the primary outcome variable through which the effect of multisensory instructional strategy can be evaluated. When teachers use inclusive strategies such as multisensory instruction, students are more likely to demonstrate improved comprehension, motivation, and classroom participation (Obi & Okeke, 2023; Nwosu, 2024).

The English language has been widely recognized as both a global medium of communication and a core academic subject central to literacy development and educational achievement. According to Okafor and Ede (2023), the English language is a universal tool for intellectual, social, and cultural exchange that serves as the foundation for academic success and global interaction. In this study, the English language is defined as a vital medium of learning and assessment through which students with intellectual disabilities develop linguistic competence, comprehension, and academic confidence necessary for participation in inclusive education settings. This perspective emphasizes that mastery of English is not only essential for communication but also for achieving educational equity and inclusion.

Statement of the Problem

In Nigeria, inclusive education seeks to provide equitable access to quality learning experiences for all students, including those with intellectual disabilities, by addressing their diverse learning needs. Therefore, the problem of this study is that, despite sustained advocacy for inclusive education, students with intellectual disabilities in the Abakaliki Education Zone continue to experience low academic achievement in English Language, likely due to the use of traditional teaching method by teachers. Consequently, this study investigates the effect of multisensory instructional strategy on the academic achievement of students with intellectual disabilities in English Language in Upper Basic Schools in Abakaliki Education Zone.

Research Questions

The following research questions guided the study:

1. What is the Academic achievement mean score in English Language of Upper Basic School Students with Intellectual Disabilities taught with Multisensory Instructional Strategy and those taught with conventional method?
2. What is the Academic achievement mean score in English Language of male and female Upper Basic School Students with Intellectual Disabilities taught with Multisensory Instructional Strategy?
3. What is the Interaction effect of method and gender on academic achievement mean score in English Language of Upper Basic School Students with Intellectual Disabilities?

Methodology

Research Design

The study adopted quasi-experimental, pre-test, post-test non-equivalent control group research design. According to Abonyi, Okereke, Omebe, Anuguwo and Nnachi

(2022), quasi experiment is an experiment where it is not possible to randomly assign subjects to experimental and control group. This design is appropriate because it allows the researcher to measure the effect of multisensory instructional strategy on students' academic achievement by comparing experimental groups exposed to this instructional method with a control group taught using conventional method. The study made use of intact classes in order not to disrupt normal class setting. The study made use of two groups; the experimental group and the control group. The experimental group was taught English Language using multisensory instructional strategy while the control group was taught English Language using the conventional method.

Area of the Study

This study was carried out in Abakaliki Education Zone of Ebonyi State. Educationally, Abakaliki Education Zone hosts several public and private primary schools practicing inclusive education under the supervision of the Ebonyi State Universal Basic Education Board (EBSUBEB). The area was chosen because it is one of the major educational zones in the state where inclusive education policies are being implemented, and also where reports - such as the Ebonyi State Ministry of Education (2024) and the Basic Education Certificate Examination (BECE) (2023; 2024) - indicate persistent low academic achievement among students, including those with intellectual disabilities.

Population of Study

The population of the study was 3,789 Upper Basic II (JSSII) Students in the seventy-eight (78) upper basic schools in Abakaliki Education Zone (1,672 Male and 2,117 Female students). This group was chosen because they have successfully completed their JSSI and are presently not in exam class.

Sample and Sampling Technique

The sample size of the study is 48 Upper Basic II students (JSSII) with intellectual disabilities (23 males and 25 females). Multistage sampling procedure was used to select JSS II students who took part in the study. In the first stage, simple random sampling by balloting without replacement was used to select two LGA from the four LGAs (Abakaliki, Izzi, Ebonyi and Ohaukwu LGAs) in Abakaliki Education Zones. The LGAs are Abakaliki and Izzi LGAs. In the second stage, purposive sampling technique was used to select one coeducational special school from each of the two LGAs. This sampling technique was adopted to ensure that male and female students with intellectual disability, in the same schools, take part in the study. This yielded 2 co-educational special schools. One of the schools was assigned to the experimental group and the other to the control group through simple random sampling.

Instrument for Data Collection

The instrument for data collection in this study was an English Language Achievement Test (ELAT). The English Language Achievement Test (ELAT)

assessed students' achievement in English Language. The instrument was divided into two sections (A and B). Section A deals on biography which enabled the researcher to collect personal data of the respondents. This personal data focuses on gender of the respondent; section B was subdivided in different subsections. . Subsection A (items 1 - 10) focused on grammar, subsection B (items 11-15) focused on vocabulary, subsection C (items 16 - 20) focused on comprehension, subsection D (items 21-25) focused on spelling and word formation, and subsection E (items 26-30) focused on structure and usage. The items are multiple choice items. A table of specification was prepared for the research instrument.

Validation of the Instrument

The instrument was face validated by three experts. Two were selected from the Department of Special Education and one from Measurement and Evaluation unit, all in Ebonyi State University, Abakaliki. These experts vetted the items in terms of sentence structure and adequacy of the instrument.

Reliability of the Instrument

The English Language Achievement Test (ELAT) was administered to a small group of thirty (30) students with intellectual disability in upper basic school from Onueke Education zone. Responses collected from the respondents as data were used to compute the reliability coefficient of the instrument. The KR-20 reliability coefficient of the 30-item test was 0.84. This indicated that the instruments have a very high internal consistency.

Experimental Procedure

Two instructional packages were used for this study. The first package is the multisensory instructional strategy, which is identical to the conventional method package in terms of content, basic objectives and mode of evaluation. The only difference is in the instructional activities where the multisensory instructional strategy deviates from the conventional method by using multisensory tutoring during the instructional process. The multisensory strategy was used for the treatment group while the conventional package was used for the control group.

Before the experiment, subjects in the treatment and control groups were given the pre-test. After the pre-test, the regular English Language teachers (research assistants) started the experiment in their respective schools adhering strictly to the lesson procedure that were developed from the package during the pre-experimental briefing between the researcher and the research assistant. The experiment was conducted during the normal school period following the normal time-table of the school. At the end of the procedure that lasted for 6 weeks the teachers administered the post-Tests to the two groups. This was used to answer the research questions and test the hypotheses.

Method of Data Analysis.

The mean and standard deviation was used for answering the research question and Analysis of co-variance (ANCOVA) statistics was used in testing the null hypotheses. The level of significance

adopted for the analysis was 0.05, level of significance. Computer generated p-value was used to reject or not reject the null hypotheses.

Results

Research Question 1: What is the Academic achievement mean score in English Language of Upper Basic School Students with Intellectual Disabilities taught with Multisensory Instructional Strategy and those taught with conventional method?

The data from the pre-test and post-test of the experimental and control group collected to answer Research Question (1) is presented in Table 1.

Table 1: Mean score and standard deviation of respondents based on the Academic achievement mean score in English Language of Upper Basic School Students with Intellectual Disabilities taught with Multisensory Instructional Strategy and those taught with conventional method).

Groups	N	MEAN	S.D
Multisensory Instructional Strategy	27	70.24	5.08
Conventional Method	21	54.51	4.08

Results in Table 1 revealed that the mean score of students with intellectual disabilities taught English Language with the multisensory instructional strategy is 70.24 with a standard deviation of 5.08 while the mean score of students with intellectual disabilities taught English Language with the with the conventional approach is 54.51 with a standard deviation of 4.08. This, therefore, indicated that students taught with multisensory instructional strategy achieve higher in English Language than those taught with the conventional approach. This further suggested that the use of multisensory instructional strategy has positive effect on the English Language academic achievement of students with intellectual disabilities.

Research Question 2: What is the Academic achievement mean score in English Language of male and female Upper Basic School Students with Intellectual Disabilities taught with Multisensory Instructional Strategy?

The data from the pre-test and post-test of the experimental collected to answer Research Question (2) is presented in Table 2.

Table 2: Mean score and standard deviation of respondents based on the Academic achievement mean score in English Language of male and female Upper Basic School Students with Intellectual Disabilities taught with Multisensory Instructional Strategy**.**

Respondents' Gender	N	MEAN	S.D
Male	13	70.05	4.18
Female	14	70.41	5.96

Results in Table 2 showed that male students with intellectual disabilities taught English Language with the multisensory instructional strategy had mean score of

70.05 and standard deviation of 4.18 while the female students with intellectual disabilities taught English Language with the multisensory instructional strategy had mean score of 70.41 and standard deviation of 5.96. This result indicated that female students with intellectual disabilities taught English Language with the multisensory instructional strategy achieved higher in English Language than male students with intellectual disabilities taught English Language with the same approach.

Research Question 3: What is the Interaction effect of method and gender on academic achievement mean score in English Language of Upper Basic School Students with Intellectual Disabilities?

The data from the pre-test and post-test of the experimental and control group collected to answer Research Question (3) is presented in Table 3.

Table 3: Mean score of respondents based on the Interaction effect of method and gender on academic achievement mean score in English Language of Upper Basic School Students with Intellectual Disabilities.

Method	Gender	
	Male (Mean)	Female (mean)
Multisensory Instructional Strategy	70.05	70.41
Conventional method	54.51	54.51

Results in Table 3 indicated that the use of the multisensory instructional strategy is superior to the conventional method. For both male and female students with intellectual disabilities, the achievement mean scores are higher for the multisensory instructional strategy. This further implied that there is no interaction between method and gender on students with intellectual disabilities mean academic achievement in English Language.

Summary of Results

Results presented in this chapter revealed the following:

1. Students taught with multisensory instructional strategy achieve higher in English Language than those taught with the conventional approach.
2. Female students with intellectual disabilities taught English Language with the multisensory instructional strategy achieved higher in English Language than male students with intellectual disabilities taught English Language with the same approach.
3. There is no interaction between method and gender on students with intellectual disabilities mean academic achievement in English Language.

Discussion of findings

Findings revealed that students taught with multisensory instructional strategy achieve higher in English Language than those taught with the conventional approach. This was because results in Table 1 revealed that the mean score of students with intellectual disabilities taught English Language with the multisensory instructional strategy is 70.24 with a standard

deviation of 5.08 while the mean score of students with intellectual disabilities taught English Language with the with the conventional approach is 54.51 with a standard deviation of 4.08. This, therefore, indicated that students taught with multisensory instructional strategy achieve higher in English Language than those taught with the conventional approach. This further suggested that the use of multisensory instructional strategy has positive effect on the English Language academic achievement of students with intellectual disabilities.

This result aligns with the findings of Adebayo and Igwe (2023) who reported that multisensory teaching significantly improved reading comprehension and vocabulary acquisition among students with learning difficulties in Nigerian inclusive classrooms. The supportive findings may be attributed to the structured application of multisensory instructional techniques that actively engaged learners' visual, auditory, and tactile senses, thereby improving understanding and retention of English language concepts.

Findings further shows that female students with intellectual disabilities taught English Language with the multisensory instructional strategy achieved higher in English Language than male students with intellectual disabilities taught English Language with the same approach. This is because results in Table 2 showed that male students with intellectual disabilities taught English Language with the multisensory instructional strategy had mean score of 70.05 and standard deviation of 4.18 while the female students with intellectual disabilities taught English Language with the multisensory instructional strategy had mean score of 70.41 and standard deviation of 5.96.

This finding is consistent with that of Okeke and Nwoye (2021) who found that female learners often demonstrate higher levels of language proficiency and reading comprehension than male learners in inclusive classrooms. The slight advantage observed among female students in this study may be attributed to differences in learning attitudes, motivation, and language engagement patterns. In an opposing discovery, Abubakar and Musa (2019) found that male students performed better than female students in certain language learning tasks when interactive teaching methods were used. However, the researcher maintains that gender differences in academic performance among students with intellectual disabilities may not necessarily reflect inherent cognitive differences but rather variations in socialization patterns, classroom participation, and learning attitudes.

Findings also revealed that there is no interaction between method and gender on students with intellectual disabilities mean academic achievement in English Language. This was because results in Table 3 indicated that the use of the multisensory instructional strategy is superior to the conventional method. For both male and female students with intellectual disabilities, the achievement mean scores are higher for the multisensory instructional strategy. This further implied that there is no interaction

between method and gender on students with intellectual disabilities mean academic achievement in English Language. It also implies that the effectiveness of multisensory instructional strategies does not depend on whether the learner is male or female.

This finding agrees with the studies of Aina and Yusuf (2020) who reported that instructional strategies influenced academic performance independent of gender differences. However, in an opposing finding, Adeyemi (2020) observed that certain learner-centered strategies produced different outcomes for male and female students due to variations in learning preferences. The researcher therefore posits that well-designed multisensory learning environments can neutralize gender-related differences and promote equitable academic outcomes.

Recommendations

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

1. Teachers teaching students with intellectual disabilities in Upper Basic Schools should adopt multisensory instructional strategies in teaching English Language.
2. School administrators should encourage and support teachers to use multisensory instructional strategies by providing adequate instructional materials such as charts, flashcards, audiovisual aids, and other sensory-based learning resources that can facilitate effective teaching and learning.
3. Teachers should provide equal learning opportunities and encourage active participation of both male and female students during multisensory instruction.

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