

## Delayed Speech Development and Academic Performance of Autistic Learners in Special Schools in Bungoma County, Kenya

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### ABSTRACT

All learners have the right to education free from discrimination based on disability, gender, race, religion, or social status, as mandated by international, regional, and national rights instruments. However, autistic learners in special schools in Kenya face persistent challenges including limited social integration, decreased self-esteem, and heightened dependency on support services, prompting significant concerns. Thus, the objective of the study was to investigate the influence of delayed speech development on academic performance of autistic learners in special schools in Bungoma County, Kenya. The specific objectives were to: Determine the influence of underdeveloped vocabulary on academic performance of autistic learners in special schools in Bungoma County, Kenya; establish the influence of speech impediment on academic performance of autistic learners in special schools in Bungoma County, Kenya; examine the influence of nonverbal reliance on academic performance of autistic learners in special schools in Bungoma County, Kenya; and assess the influence of repeating words and phrases on academic performance of autistic learners in special schools in Bungoma County, Kenya. The study was guided by Martin h. Kutscher's theory of mind. It employed a descriptive survey research design involving a target population of 213 individuals, which included 26 Head Teachers and 187 teachers from special schools, with a sample size of 140 individuals comprising 17 Head Teachers and 123 teachers. Stratified random sampling was utilized to categorize head teachers and teachers into distinct groups. Data was collected using questionnaires and interview guides, and instrument reliability was confirmed through a pilot study, yielding a Spearman's rank correlation coefficient of 0.77, indicating high reliability. Quantitative data underwent descriptive and inferential statistical analyses, presented in tables, while qualitative data was analyzed to identify common themes, which were systematically organized and discussed within the study's main objectives. The study findings revealed a statistically significant correlation between communicative difficulties, encompassing aspects such as delayed speech development and autistic learners' academic performance (Pearson Chi-square=311.995,  $p<0.05$ ). Therefore, it is advised that education policymakers develop and implement comprehensive guidelines and support systems to address delayed speech development, challenges in using gestures, difficulties in understanding nonverbal cues, and maintaining conversational exchanges.

**Keywords:** Academic Performance, Delayed Speech Development, Nonverbal Reliance, Repeating Words and Phrases, Speech Impediment, Underdeveloped Vocabulary

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### I. INTRODUCTION

Every learner is entitled to education without discrimination based on disability, gender, race, religion, social status, or any other criteria, as mandated by international, regional, and national rights instruments (Blokhuys, 2023). However, autistic learners in special school settings face delayed speech development (Rice et al. 2023). If this trend of poor academic performance is allowed to continue then the achievement of the goals of autistic learners in special schools would be a mirage (Agunowei & Mayombe, 2024). This suggest that the continued trend of poor academic performance among autistic learners in special schools, due to challenges like delayed speech development, threatens the achievement of educational goals for these students, despite mandates for non-discriminatory education.

Learners' academic performance refers to the measurable outcomes and achievements of students in educational settings, typically assessed through their ability to comprehend and apply curriculum concepts, participation in classroom activities, completion of assignments, and achievement of individualized education plan goals (Hernández-García et al. 2024). The significance of improved autistic learners' academic performance lies in fostering their educational success and integration by addressing communication challenges and supporting their overall development (Bakker, et al. 2023). Consequently, improved Autistic learners' academic performance require address of delayed speech development (Klefbeck, 2023). This infers that improving autistic learners' academic performance is essential for fostering their educational success and integration by addressing communication challenges and supporting their overall development, particularly by addressing delayed speech development.

Delayed speech development refers to barriers experienced in effectively expressing and understanding information through verbal and nonverbal means (Gravell, 2024). Learners with Autism Spectrum Disorder (ASD) may experience difficulty accomplishing these skills at the speed necessary to participate effectively in communication interactions (Alkhaldeh et al. 2023). It measures include underdeveloped vocabulary, speech impediment, nonverbal reliance, and repeating words and phrases (Wilkinson, 2008; Khasawneh, 2023). This indicates that delayed speech development, characterized by underdeveloped vocabulary, speech impediments, nonverbal reliance, and repetitive speech, hinders learners with ASD from effectively participating in communication interactions, thus impacting their overall educational success.

In the Kingdom of Saudi Arabia, as in other global regions, there has been a notable trend of poor academic performance among autistic learners in special schools due to communication challenges like delayed speech development (Alanazi et al. 2023). This trend has drawn the attention of researchers, and policymakers, who are actively investigating various aspects of this disorder (Alkeraida, 2023). Additionally, in United States of America, teachers have observed that children on the spectrum often perform below expected levels in both academic skills and behaviors that support academic success (Keen et al. 2023). This implies that globally, poor academic performance among autistic learners in special schools due to communication challenges like delayed speech development has prompted researchers and policymakers to investigate and address these issues to improve educational outcomes.

In Africa and especially, Nigeria, concerns have been raised about conversational skills, speech production, and academic performance among children with ASD in Special Needs Schools, leading research to highlight the significant correlation between language skills and academic achievement in (Ajemba & Agbakwuru, 2023). Meanwhile, in East Africa, efforts to enhance social communication skills like delayed speech development in teaching children with ASD aim to foster community participation and bolster self-esteem (Rodríguez & Haddock, 2023). This suggest that in Africa, particularly Nigeria, research highlights a significant correlation between language skills and academic achievement among children with ASD in Special Needs Schools, while in East Africa, efforts to improve social communication skills, including addressing delayed speech development, aim to foster community participation and bolster self-esteem.

In Kenya, the government recognizes the importance of Special Needs Education as a key sector for accelerating the attainment of the Sustainable Development Goals (SDGs). However, despite advancements, academic performance for autistic learners remains low, primarily due to challenges such as delayed speech development (Orero et al. 2024). In Bungoma County, special school consistently encounter difficulties stemming from limited social integration, decreased self-esteem, and heightened dependency on support services. These are compounded by delayed speech development that significantly influence their academic performance (Mihegwa et al. 2020; Kibet et al. 2020). This indicates that in Kenya, despite government recognition of Special Needs Education as crucial for achieving the SDGs, academic performance for autistic learners remains low due to challenges like delayed speech development, particularly in Bungoma County.

Numerous studies, have highlighted the delayed speech development and autistic learners' academic performance (Cerbo & Rabi 2019; Andoy & Aberin, 2021; Cronin et al. 2020). However, the studies had limitations such as relying solely on purposive sampling and lacking triangulation. To address these issues, this study employed a mixed-method approach utilizing both stratified and simple random sampling techniques, along with primary data, to thoroughly investigate the influence of delayed speech development on autistic learners' academic performance in Bungoma County, Kenya. The research focused on areas including underdeveloped vocabulary, speech impediment, nonverbal reliance, and repeating words and phrases.

### 1.1 Statement of the Problem

Improving autistic learners' academic performance is crucial for fostering their educational success and integration by addressing delayed speech development and supporting their overall development (Bakker et al. 2023; Klefbeck, 2023). In Kenya, autistic learners in special schools often face difficulties such as limited social integration, decreased self-esteem, and heightened dependency on support services, compounded by delayed speech development, all of which significantly influence their academic performance (Mihegwa et al. 2020; Kibet et al. 2020).

Despite global governmental efforts to foster special education through policies and strategic initiatives, challenges remain. Some empirical studies have lacked triangulation, relied solely on secondary data. In this context, the study addressed these gaps by employing a mixed-method approach, stratified and simple random sampling techniques and gathering primary data. It investigated the influence of delayed speech development like underdeveloped vocabulary, speech impediment, nonverbal reliance and repeating words and phrases on autistic learners' academic performance in Bungoma County, Kenya.

## 1.2 Research Objectives

The objective of the study was to investigate the influence of delayed speech development on academic performance of autistic learners in special schools in Bungoma County, Kenya. The specific objectives were:

- i. To determine the influence of underdeveloped vocabulary on academic performance of autistic learners in special schools in Bungoma County, Kenya.
- ii. To establish the influence of speech impediment on academic performance of autistic learners in special schools in Bungoma County, Kenya.
- iii. To examine the influence of nonverbal reliance on academic performance of autistic learners in special schools in Bungoma County, Kenya.
- iv. To assess the influence of repeating words and phrases on academic performance of autistic learners in special schools in Bungoma County, Kenya.

## 1.3 Research Hypothesis

**H<sub>01</sub>:** There is no significant association between delayed speech development on academic performance of autistic learners in special schools in Bungoma County, Kenya

## II. LITERATURE REVIEW

### 2.1 Theoretical Review

The study was informed by Martin H. Kutscher's theory of mind, which posits shared interaction and two-way communication, first proposed in 1978 (Martin, 1978). The ability to socialize/relate/empathize requires a working "theory of mind". After its first identification in 1978, a large body of research in this field has accumulated, studying the developmental pathway, neural basis, and deficits of the theory of mind. Theory of mind refers to the relatively unique ability of humans to understand: that I have a mind: that you have a mind, and most importantly, that our minds may not know or be feeling the same things without a theory of mind, there is little point in communicating (Franchin, 2023).

Martin H. Kutscher's theory is relevant to the study as it provides a comprehensive understanding of how delayed speech development impacts cognitive and academic performance in autistic learners, emphasizing the need for integrated therapeutic and educational interventions in special schools (Attwood, 2006). It assumes that neurodevelopmental delays, including speech and language impairments, significantly affect cognitive, social, and academic functioning, necessitating comprehensive and integrated intervention strategies (Westby & Robinson, 2014). A critique of the theory is that it may oversimplify the diverse experiences and needs of autistic individuals by focusing predominantly on neurodevelopmental delays, potentially neglecting the importance of individual variations and environmental factors (Quesque & Rossetti, 2020). It also has limited capacity to acknowledge the presence and significance of other human beings, making it challenging to recognize the need for communication with others.

### 2.2 Empirical Review

Intepe-Tingir and Whalon (2023) examined the effectiveness of teaching emotion vocabulary words to children with ASD ages 6 to 7 years. This single case research design study (A multiple probe across behaviors design) Vocabulary knowledge was taught explicitly during the repeated reading of storybooks illustrating the target emotion words. The research suggested that reading for understanding, especially narrative text, is difficult for children with ASD; yet research on how to effectively teach skills associated with reading comprehension is limited and has generally deemphasized vocabulary interventions. Results further showed all participants increased their ability to label and define the target emotion words. Moreover, the classroom teacher indicated the intervention improved participant understanding of emotion words. Implications and future research are discussed.

Ren and Wu (2023) investigated the interrogative sentence expression in typical development and high-functioning autism spectrum disorders. The results from the study demonstrated that the interrogative sentence expression ability of children diagnosed with HFA was significantly lower than typical developing children. However, there was no significant difference in the ability to use yes-no questions, affirmative-negative questions, or alternative questions. Results from the present study suggest that children with HFA may benefit from training to improve flexibility of interrogative sentence expression.

Hartawan et al. (2023) determined how verbal and nonverbal interpersonal communication was built between teachers and autistic children at the stages of teaching and learning activities so that communication patterns emerged. While the research method used case study, the informants in the study were teachers, parents of students and students who were considered to be able to represent interviewees as resource persons. The research results obtained from the development of communication relationships that occur between teachers and children with autism through

interpersonal communication at the Orientation stage were carried out gradually as an initial interaction between teachers and children with autism to build mutual trust. Affective Exchange: Commitment and comfort in communicating between teachers and autistic children makes autistic children feel more open even though communication was carried out repeatedly by teachers to autistic children. Stable exchanges: Stable exchanges between teachers and autistic children were more open and they already knew each other, where intense interpersonal communication occurs, so that their talents ultimately come out, including in classroom learning, the ability to accept.

Gona et al. (2016) in the study carried out in Kilifi on investigating coping strategies of parents of children with ASD concluded that inadequate information on SLP services, knowledge gap among medical personnel, unavailability of SLP services, financial constraints, and other competing priorities decrease the chances of caregivers seeking relevant services. Instead, the caregivers look for any available treatment option for individuals with ASD including witchdoctors. Obure (2018) in his research at Tenwek Hospital about caregivers' involvement in intervention programs for children with communication disorders reveals that caregivers' frequent interaction with their children in a more unstructured and natural atmosphere strengthens their bond and emotional attachment. The research also points to the necessity for speech-language pathologists and caregivers to develop suitable communication methods to support a child with ASD to achieve functional communication. Khoza-Shangaze et al. (2021) study further highlight the knowledge gap within the medical system as another factor that prevents caregivers' involvement in speech and language therapy services to combat socio-communication difficulties in children with ASD resulting in service provider mistrust thus, the study suggests equity of speech and language health care services available and accessible in both minority and majority world context.

Obaigwa and Cloete (2019) of Kenya, explored caregivers' perspective on barriers in crucial services access in managing Learners with ASD. The study design used was qualitative, descriptive phenomenological while data collection technique was Focus Group Discussions (FGDs), and study locale was the clinic of Occupational therapists at Kenyatta National Hospital. Six caregivers were purposively sampled; the data analysis used was Inductive content analysis. Results showed the need for early diagnosis, comprehensive legislation strategy, treatment and support for caregivers and learners with ASD. The reviewed study explored on caregivers' perspective on barriers to crucial access of services and managing Learners with ASD. The current study used descriptive design to a certain how Picture Exchange Communication System (PECS) influences Expressive Language Skills in learners with ASD in regular primary schools. While the reviewed study used qualitative, descriptive, and phenomenological study design.

Hou et al. (2024) examined improving the social communication skills of preschoolers with autism spectrum disorder: robot-based intervention on PECS use. Half of the participants in the robot-based intervention group showed significant improvement in both verbal and nonverbal communication behaviors after a two-month PECS intervention. A higher proportion of children in the robot-based intervention group showed significantly enhanced social communication skills encompassing both verbal and nonverbal behaviors than in the human-based intervention group. This study demonstrates the effectiveness of robot-based PECS intervention in enhancing verbal and nonverbal communication behaviors in young children with ASD.

Thamrin and Oktoma (2023) investigated the contribution of language learning strategies in the poem writing of an autistic student attending a special need school in Kuningan. This study used qualitative case, case study methods to analyze the cases in detail. To assess the data's naturalness, observations and interviews were used to gather the data. And to investigate the difficulties faced by autistic students writing poems. Results indicated that autistic students utilized motivation in social-emotional strategies. It was also noted that students with autism found vocabulary, tenses, and rhymes to be a challenge in writing poems. But she also learned how to overcome vocabulary by using cognitive translation strategies to acquire new vocabulary she didn't know, and using tenses by asking questions about it using social-emotional clarification strategies.

Ogogo (2019) conducted research in Migori County, Kenya, on peer-mediated interventions for improving social interactions among children with Autism. The study looked at the impact of a peer buddy method on kids with ASD's social interactions, as well as peer-implemented support response training on improving social interactions in children with Autism. The research found that peer-mediated tactics such as play activities, peer buddy approaches, peer networks, and peer-implemented crucial response training improved interpersonal relationships among children with ASD. The current study focused on learners with ASD exhibiting out-of-seat behaviour in a classroom setting in Embu County, unlike the above research which was done in Migori County.

Girolamo et al. (2024) conducted a study on sentence production and sentence repetition in Autistic Adolescents and Young Adults: Linguistic Sensitivity to Finiteness Marking. The report applied strategic scoring to analyze sentence repetition and sentence production in autistic adolescents and adults. Thirty-one diverse autistic adolescents and adults with language impairment (ALI;  $n = 15$ ) and without language impairment (ASD;  $n = 16$ ) completed the Formulated Sentences and Recalling Sentences subtests of the Clinical Evaluation of Language Fundamentals–Fifth Edition. Findings supported the feasibility of strategic scoring for sentence production and sentence repetition to identify

language impairment and indicate that potential language variation in finiteness marking did not confound outcomes in this sample.

### III. METHODOLOGY

In this study, descriptive survey design was used to explore the impact of autism on academic performance of Specially Needs Education Schools in Bungoma County. Descriptive survey research in addition intends to produce statistical information about aspects of education that interest policy makers and educators (Borg & Gall, 1989). Gay (1976) further noted that descriptive research has the advantage of answering questions concerning the current status of the subject of the study after collecting data. The data collected was both qualitative and quantitative.

The study was conducted in Bungoma County in Kenya. Bungoma County is located in western Kenya and is known for its diverse cultural heritage and agricultural activities. It is bordered by the counties of Kakamega to the east, Busia to the south, and the country of Uganda to the west. The county's landscape ranges from fertile plains to hilly terrain, with the Nzoia River flowing through its southern part. Bungoma town serves as the administrative and commercial center, while smaller towns like Webuye and Kimilili also play significant roles in the county's economy. Agriculture, particularly sugarcane farming, maize production, and dairy farming, is a major economic activity. The county is home to various ethnic communities, including the Bukusu, Tachoni, and Teso, each with its own cultural practices and traditions. The county was chosen because of its diversity in the provision of special needs education.

The target population refers to all members of a real set or of set of subjects to which a researcher wishes to generalize results of the research (Borg & Gall, 1989). Bungoma County, Kenya has 26 special schools with a total of 187 teachers. The study's target population thus included 26 Head Teachers and 187 teachers from these special schools, totaling 213 individuals as summarized in Table 1.

**Table 1**  
*Target Population*

Category	Target Population
Head Teachers	26
Teachers	187
Total	213

The following sub-sections show how the sample was obtained and how the sampling procedures were carried out. The study adopted a Krejcie and Morgan (1970) Table for sample size determination to yield a sample of 140 for the categories with a target population of 213 Head teachers and teachers. Sampling is the technique used to select a representative group of subjects from a defined population Orodho and Kombo (2002). This study used a stratified random sampling technique to create strata of Head Teachers and teachers. Within each stratum, simple random sampling was employed to select individuals who are knowledgeable about communicative difficulties and the academic performance of autistic learners. As shown in Table 2, this resulted in sample sizes of 17 Head Teachers and 123 teachers.

**Table 2**  
*Sample Size*

Category	Target Population	Proportional Allocation $n_i = (N_i/N) * n$	Sample size (n)
Head Teachers	26	$(26/213) * 140$	17
Teachers	187	$(187/213) * 140$	123
<b>Total</b>	<b>213</b>	$(466/213) * 140$	<b>140</b>

In this study, the questionnaire was used to collect data from teachers in special schools. Qualitative data was also collected through the use of interviews. To obtain accurate information through interviews, the researcher needed to obtain the maximum co-operation from respondents. The researcher therefore established a friendly relationship with the respondent prior to conducting the interview (Mugenda & Mugenda, 2003). The interview schedules targeted mainly the heads of schools. Heads of schools were expected to provide candid information on the impact of autism on academic performance in their schools. This is deemed appropriate because a face-to-face interaction with the head teachers enabled the researcher to seek clarification on the spot on some pertinent issues in relation to the study. This also enabled the researcher to follow up on incomplete or unclear responses by asking additional probing questions.



The validity of the instruments was achieved by consulting the experts in the area of specialization, while for reliability a test – retest or co-efficient of stability method was used to estimate the degree to which the same results could be obtained with a repeated measure of accuracy. Therefore, to determine the reliability of the instrument, Spearman’s rank correlation coefficient (r) was analyzed for the two scores and found to be 0.77 indicating that the instrument was reliable.

Upon visiting the schools on the appointed day, the researcher ensured rapport with the teachers before administering the instruments and collected the filled questionnaires. Additionally, arrangements were made with the head teachers to facilitate interviews. Upon collection of data, the researchers proceeded to edit and clean the dataset, which involved excluding improperly filled questionnaires. Quantitative data obtained from the questionnaires were coded and entered into the Statistical Package for Social Sciences (SPSS) software for analysis. The analysis involved calculating frequencies and percentages, with Chi-square utilized to examine the relationship between variables, and the results were presented in tabular form. On the other hand, qualitative data from the interview schedules were organized based on the themes derived from the research questions, and the findings were presented using quotation. Qualitative research is an umbrella term for various types of interpretive modes of inquiry commonly used in social sciences. According to Mugenda and Mugenda (2003) qualitative researchers believe that in studying social systems and problems there should be inclusion of giving voice to those who are being studied as a way of empowering them.

### IV FINDINGS & DISCUSSIONS

#### 4.1 Response Rate

A total of 123 questionnaires were distributed to respondents, and 114 were returned, resulting in a 92.7% response rate. According to Mugenda and Mugenda (1999), a response rate of 70% or above is considered adequate, making the 92.7% response rate acceptable for data analysis. Table 3 presents the response rate.

**Table 3**

*Response Rate*

Sampled	Responded	Response Rate (%)
123	114	92.7

#### 4.2 Descriptive Statistics

The study employed both descriptive and inferential statistical analysis to determine the influence of delayed speech development on academic performance of autistic learners in special schools in Bungoma County, Kenya. Descriptive statistics, including frequency, percentage, and mean distribution, were used to determine the level of agreement on a five-point Likert scale for the variable, with delayed speech development and academic performance of autistic learners determined and summarized in Table 4 and 5, respectively.

**Table 4**

*Descriptive Statistics for Influence of Delayed Speech Development on Academic Performance of Autistic Learners in Special Schools*

Statements		SD	D	U	A	SA	MEAN
Autistic learners in special school have limited vocabulary for their age	F	12	8	10	44	40	<b>3.57</b>
	%	<b>10.5</b>	<b>7.0</b>	<b>8.8</b>	<b>38.6</b>	<b>35.1</b>	
Autistic learners in special school have difficulty in forming complete sentences	F	15	7	5	38	49	<b>3.74</b>
	%	<b>13.2</b>	<b>6.1</b>	<b>4.4</b>	<b>33.3</b>	<b>43.0</b>	
Autistic learners in special school rely on nonverbal communication	F	4	3	18	37	52	<b>3.76</b>
	%	<b>3.5</b>	<b>2.6</b>	<b>15.8</b>	<b>32.5</b>	<b>45.6</b>	
Autistic learners in special school repeat words and phrases	F	2	12	8	34	58	<b>4.08</b>
	%	<b>1.8</b>	<b>10.5</b>	<b>7.0</b>	<b>29.8</b>	<b>50.9</b>	

Table 4 indicates that 44 (38.6%) of the respondents agreed that autistic learners in special schools had limited vocabulary for their age, while 40 (35.1%) strongly agreed, 12 (10.5%) strongly disagreed, 10 (8.8%) were undecided, and 8 (7.0%) disagreed. The study findings suggested that the respondents had a tendency towards agreement (Mean=3.57) that autistic learners in special schools had limited vocabulary for their age. This was supported by an interviewee who had the following to say;

*... I have witnessed that autistic learners in special schools frequently exhibit a vocabulary. This vocabulary gap hinders their ability to comprehend and engage with the curriculum, leading to*



*difficulties in following lessons, expressing their thoughts, and participating in classroom discussions. As a result, these learners may struggle with academic tasks and assessments that rely heavily on language skills...Male Participant, 46 years, Head Teacher.*

This implies that autistic learners in special schools tend to have limited vocabulary for their age. This supports the findings of Intepe-Tingir and Whalon (2023) that reading for understanding, especially narrative text, is difficult for children with autism spectrum disorder.

Likewise, 49 (43.0%) of the respondents strongly agreed that autistic learners in special schools had difficulty in forming complete sentences, while 38 (33.3%) agreed, 15 (13.2%) strongly disagreed, 7 (6.1%) disagreed, and 5 (4.4%) remained undecided. The findings indicated the respondents tended to agree (Mean=3.74) that autistic learners in special schools had difficulty in forming complete sentences. This was supported by an interviewee who had the following to say;

*... Autistic learners in special schools often have difficulty forming complete sentences, which profoundly affects their academic performance. This challenge hampers their ability to articulate ideas clearly, comprehend complex instructions, and participate in verbal classroom activities. This language barrier not only impacts their ability to learn and demonstrate knowledge but also limits their interactions with peers and teachers, further impeding their academic development...Male Participant, 47 years, Head Teacher.*

These highlights autistic learners in special schools tend to have difficulty in forming complete sentences. This concurs with the finding of Ren and Wu (2023) that the expression ability of wh-questions of children with HFA was significantly lower than that of the two groups of typical developing children. Therefore, children with HFA may benefit from training to improve flexibility of interrogative sentence expression.

Moreover, 52 (48.6%) of the respondents strongly agreed that autistic learners in special schools relied on nonverbal communication, while 37 (32.5%) agreed, 18 (15.8%) were undecided, 4 (3.5%) strongly disagreed, and 3 (2.6%) disagreed. The study findings revealed that the respondents strongly tended to agree (Mean=3.76) that autistic learners in special schools relied on nonverbal communication. This was supported by an interviewee who had the following to say;

*... I can attest to the fact that the reliance on gestures, facial expressions, and other nonverbal cues over spoken language can make it challenging for these students to fully engage with the curriculum, which is often language-intensive. As a result, their academic progress may be hindered, and they may require alternative communication methods and additional support to effectively demonstrate their learning and interact with educators and peers...Female Participant, 44 years, Head Teacher.*

This implies that autistic learners in special schools strongly tend to rely on nonverbal communication. This is in line with the findings of Hartawan et al. (2023) that verbal and nonverbal interpersonal communication was built between teachers and autistic children at the stages of teaching and learning activities so that communication patterns emerged.

Lastly, 58 (50.9%) of the respondents strongly agreed that autistic learners in special schools repeated words and phrases, while 34 (29.8%) agreed, 12 (10.5%) disagreed, 8 (7.0%) were undecided, and 2 (1.8%) strongly disagreed. The study findings suggested that the respondents agreed (Mean=4.08) that autistic learners in special schools repeated words and phrases. This was supported by an interviewee who had the following to say;

*... While repetition is a common part of autistic learners' communication patterns, it can interfere with their ability to generate original responses and engage in meaningful conversations. Consequently, these learners may face challenges in demonstrating their knowledge and understanding, thereby affecting their overall academic achievement ...Female Participant, 54 years, Head Teacher.*

This implies that autistic learners in special schools repeat words and phrases. This supports the findings of Girolamo et al. (2024) that there is need for feasibility of strategic scoring for sentence production and sentence repetition to identify language impairment and indicate that potential language variation in finiteness marking.

**Table 5**  
**Descriptive Statistics for Academic Performance of Autistic Learners in Special Schools**

Statements		SD	D	U	A	SA	MEAN
Autistic learners in special school consistently complete assignment and assessment	F	4	18	10	49	33	<b>3.78</b>
	%	<b>3.5</b>	<b>15.8</b>	<b>8.8</b>	<b>43.0</b>	<b>28.9</b>	
Autistic learners in special school understand and apply concepts taught in the curriculum	F	0	6	30	75	3	<b>3.64</b>
	%	<b>0</b>	<b>5.3</b>	<b>26.3</b>	<b>65.8</b>	2.6	
Autistic learners in special school actively engage and participate in classroom activities	F	0	5	96	13	0	<b>3.07</b>
	%	<b>0</b>	<b>4.4</b>	<b>84.2</b>	<b>11.4</b>	<b>0</b>	
Autistic learners in special school often show progress in meeting individualized education plan goals	F	0	2	25	87	0	<b>3.75</b>
	%	<b>0</b>	<b>1.8</b>	<b>21.9</b>	<b>76.3</b>	<b>0</b>	



Table 5 indicates that 49 (43.0%) of the respondents agreed that autistic learners in special school consistently completed assignment and assessment, while 33 (28.9%) strongly agreed, 18 (15.8%) disagreed, 10 (8.8%) were undecided, and 4 (3.5%) strongly disagreed. The study findings suggested that the respondents had a strong tendency towards agreement (Mean=3.78) that autistic learners in special school consistently completed assignment and assessment. This implies that autistic learners in special school consistently strongly tend to complete assignment and assessment. This supports the findings of Larkin *et al.* (2019) that autistic learners in special schools consistently tend to complete assignments and assessments.

Likewise, 75 (65.8%) of the respondents agreed that autistic learners in special school understood and applied concepts taught in the curriculum, while 30 (26.3%) were undecided, 6 (5.3%) disagreed, 3 (2.6%) strongly agreed, and none strongly disagreed. The findings indicated the respondents tended to agree (Mean=3.64) that autistic learners in special school understood and applied concepts taught in the curriculum. These highlights autistic learners in special school tend to understand and apply concepts taught in the curriculum. This concurs with the finding of Orero *et al.* (2024) that autistic learners comprehend and apply the concepts taught in the curriculum.

Moreover, 96 (84.2%) of the respondents were undecided on whether autistic learners in special school actively engaged and participated in classroom activities, while 13 (11.4%) agreed, 5 (4.4%) disagreed and none strongly agreed and disagreed. The study findings revealed that the respondents were undecided (Mean=3.07) on whether autistic learners in special school actively engaged and participated in classroom activities. This implies that autistic learners in special school somehow actively engage and participate in classroom activities. This is in line with the findings of Kibet *et al.* (2020) that autistic learners in special schools sometimes engage and participate in classroom activities.

Lastly, 87 (76.3%) of the respondents agreed that autistic learners in special school often showed progress in meeting individualized education plan goals, while 25 (21.9%) were undecided, 2 (1.8%) disagreed and none strongly agreed and disagreed. The study findings suggested that the respondents strongly tended to agree (Mean=3.75) that autistic learners in special school often showed progress in meeting individualized education plan goals. This implies that autistic learners in special school often strongly tend to show progress in meeting individualized education plan goals. This supports the findings of Lian *et al.* (2023) that autistic learners in special schools often show significant progress in meeting their individualized education plan goals.

### 4.3 Inferential Statistics

The descriptive statistics was followed by a Chi-square test of association. The Chi-square test at  $p \leq 0.05$  significance level illustrating statistically significant association between delayed speech development and academic performance of autistic learners in special schools in Bungoma County, Kenya is as summarized in Table 6. To achieve this, the hypothesis below was tested.

**Table 6**

*Chi-Square Test of Association between Delayed Speech Development and Academic Performance of Autistic Learners in Special Schools*

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	311.995 <sup>a</sup>	120	.000
Likelihood Ratio	153.132	120	.022
Linear-by-Linear Association	47.616	1	.000
N of Valid Cases	114		

a. 138 cells (96.5%) have expected count less than 5. The minimum expected count is .01.

Table 6 shows that the p value ( $p=0.000$ ) for delayed speech development was less than 0.05 (Pearson Chi-Square=311.995,  $p<0.05$ ). Therefore, the hypothesis, “ $H_{01}$ : there is no significant association between delayed speech development and academic performance of autistic learners in special schools in Bungoma County, Kenya” was rejected. This implies that there is statistically significant association between delayed speech development and academic performance of autistic learners in special schools in Bungoma County, Kenya.

## V. CONCLUSIONS & RECOMMENDATIONS

### 5.1 Conclusions

The study findings suggested that the respondents tended to agree that autistic learners in special schools had limited use of pointing to indicate interest or need. Additionally, the findings revealed that the respondents somehow supported that autistic learner in special schools had infrequent use of waving or other gestures social gestures. On



whether autistic learners in special schools had difficulty in mimicking gestures by others, the study findings indicated that the respondents agreed. Lastly, the study findings indicated that the respondents strongly tended to agree that autistic learners in special schools inconsistently used hand movements to communicate. Chi-square test of association revealed that there is statistically significant association between difficulty in use of gestures and academic performance of autistic learners in special schools in Bungoma County, Kenya.

From the findings, the study concludes that there is statistically significant association between delayed speech development and academic performance of autistic learners in special schools. Accordingly, when autistic learners in special schools tend to have limited vocabulary for their age and difficulty in forming complete sentences, strongly tend to rely on nonverbal communication and repeat words and phrases, the autistic learners' academic performance deteriorate.

## 5.2 Recommendations

The special school management and policy makers should ensure a comprehensive guidelines and support systems that control delayed speech development like limited vocabulary and difficulty in forming complete sentences, reliance on nonverbal communication and repeat words and phrases.

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