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Conversational Skills, Speech Production and Academic Achievement Among Children with Autism Spectrum Disorder in Special Needs Schools in Rivers State, Nigeria

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ABSTRACT: *This study investigated the relationship between conversational skills, speech production and academic achievement among children with autism spectrum disorder in special needs schools. The study adopted a correlational survey design. Four research questions and four corresponding hypotheses were raised and formulated to guide the study. The population for this study consists of all 80 male and female pupils diagnosed with ASD in seven special needs schools in Rivers State. The research instrument that was used in this study is a modified four-point Likert type scale questionnaire titled "Conversational Skills, Speech Production and Academic Achievement Questionnaire" (CSSPAAQ). Cronbach Alpha statistics was used to estimate the reliability of the instrument and the reliability coefficients of 0.81 for conversational skills, 0.70 for speech production and 0.92 for academic achievement were obtained. Data was collected and analysed using simple regression while t-test and beta value associated with simple regression was used to test the hypotheses at 0.05 alpha level of significance. From the data analyzed, it was found that conversational skills and speech production are significantly related to academic achievement among children with ASD in special needs schools. Based on these findings the following recommendations were made: Counsellors, teachers, school administrators and caregivers of children with ASD should encourage conversational skills by supplementing intervention strategies that draw from a variety of theories and involve varying degrees of adult-directed activities with child-centered activities in order to increase interaction and generalization of learnt skills to new settings and communication partners; and teachers, caregivers, and parents of children with ASD should encourage speech production by engaging the use of video modelling technique in teaching and during play activities and everyday routines to encourage the use of new words in different contexts.*

KEYWORDS: autism spectrum disorder, conversational skills, speech production, academic achievement.

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INTRODUCTION

Academic achievement which is usually measured with test refers to what is actually done under existing circumstances that subsumes the process of accessing and utilizing the structure of knowledge and abilities and a host of affective, motivational and stylistic factors that influence the ultimate responses (Kaplan and Saccuzzo, in Kpolovie et al. (2014)). Academic achievement is therefore a yard stick for ascertaining the capabilities of a student from which his overt, covert and inherent or unrevealed abilities could be inferred. It is generally used to determine how well an individual is able to assimilate, retain, recall and communicate his knowledge of what has been learnt. Knowles in Kpolovie et al. (2014) asserts that academic performance is the demonstrated achievement of learning as opposed to the potential for learning. It is knowledge attained or skills developed in school subjects usually designated by scores in formal tests or examinations. Academic achievement in the context of learning indicates the degree to which an individual expresses what has been learnt in a written or practical form with or without supervision.

Autism Spectrum Disorder (ASD) refers to a behaviorally defined neurodevelopmental disability characterized by qualitative impairments in social reciprocity, nonverbal and verbal communication, and flexibility in thoughts and actions (Hepburn et al., 2014). Individuals on the autism spectrum share similar symptoms, such as problems with social interaction and restricted interests or repetitive behaviors, however, because of differences such as the age of onset, severity, and symptom presentation, overall presentation varies from child to child (Hepburn et al., 2014). Clinical characteristics of ASD are changeable throughout the lifespan. For example, language difficulties and hyperactivity that is often seen in younger children can shift to relational problems, mood dysregulation, and hypo-activity in adolescence and young adulthood. Diagnosis of ASD can be challenging, but progress has been made in refining diagnostic processes that can be addressed over the lifespan (Elder et al., 2017). There is major heterogeneity in ASD, and the range of its symptoms can be classified into broad categories of core symptoms and secondary symptoms. Report has shown that social interaction and communication, restricted interests and repetitive behavior are considered core symptoms while secondary symptoms can include conditions such as intellectual impairment, which occurs in approximately 70% of patients, aggressiveness toward others, self-injury, eating disorders, sleeping disorders, and seizures (Sigman et al., 2006).

Communication is the basis for human interaction and it involves the process of sharing ideas, feeling, needs and desires through spoken and written word, signal, sounds, gestures, signs, pictures, symbols, music and body language. It involves multiple skills including establishing and shifting attention, rapidly receiving and processing information and formulating responses appropriate for a particular situation and so on (Cheney et al., 2011). Children with ASD may experience difficulty accomplishing these skills at the speed necessary to participate effectively in

communication interactions. Their ability to comprehend the demands of their environment is often based on piecing together visual cues and expected routines rather than understanding specific verbal messages. Communication does not only happen through speech and written language, but also through the use of gestures, facial expressions, body postures, tone of voice, and behavior when conveying messages. Understanding and using nonverbal, as well as verbal communication is a necessary part of effective information exchange. Communication skills are made up of three (3) different components namely; Social communication, verbal communication and non-verbal communication. However, the focus of this study is on verbal communication which comprises conversational skills, speech production alongside academic achievement among children with ASD.

Conversations are essentially social interactions where ideas are shared between two or more people and involves a complex range of capacities and skills which includes but are not limited to openings or greetings, maintaining a topic, topic shift, turn taking, repairing breakdowns and checking for understanding and interruptions (Owen, 2014). The ability to communicate effectively with peers allows the sharing of information, ideas, and interests in a way that may lead to the development of friendships and it requires many different skills, such as providing eye contact, maintaining appropriate proximity, initiating and ending the interaction, and making on-topic statements. However, due to difficulties with pragmatics, adolescents with ASD often struggle with the increased demand for social conversation, increasing their risk for social isolation and peer rejection (Locke et al., 2010). Conversational difficulties for children with ASD is centered on topic information and topic management (i.e., introducing and maintaining topics of conversation), and reciprocity (i.e., engaging in the back and forth of conversation) (Paul et al., 2009). Specific difficulties include low rates of assertive or unsolicited communication acts such as initiations, follow-up questions, and topic related comments; poor responsiveness to partner's cues or direct solicitations; use of irrelevant detail; inappropriate topic shifts; semantically vague or unrelated responses; and topic perseveration (Jones and Schwartz, 2009; Paul and Wilson, 2009). These conversational difficulties can vary widely across individuals, requiring individualized interventions to address specific pragmatic concerns. For example, passive conversationalists who respond to their partner's questions, but who rarely initiate and or use assertive acts to maintain conversation, may require a different intervention than overly talkative individuals who dominate conversations and ignore their partner's communications (Bambara et al., 2018). A failure to develop appropriate social relationships is a defining characteristic of children and adolescents with autism. At any age, building friendships is important, but as children with autism move into adolescence positive peer relationships can have a profound impact on the success of the student both academically and personally. Research have revealed that adolescents with autism who have fewer friends perform worse in school and have an increased risk for psychiatric problems such as depression (Stewart et al., 2006). Thus, helping adolescents with autism learn appropriate social skills such as conversational skills that can lead to the development of positive peer relationships should become an important focus of treatment.

Speech production is an important process in the production of words or sounds. When people interact with other people, they do not always produce words in their conversation. They sometimes only comprehend or think without producing words. According to Levelt in Harley (2001), the processes of speech production fall into three broad areas, namely conceptualization, formulation, and encoding. Conceptualization or message level process involves the human mind conceptualizing something the speaker wants to say. In the process of conceptualization, the speakers comprehend an intention and select relevant information from memory. Formulation process involves translating a conceptual representation into a linguistic form while encoding which is the last process involves turning words into sound. The sounds are produced in the correct sequence and specify how the muscles of the articulator system should be moved (Harley in Kiswandari (2014)). Speech is the verbal production of language, while communication requires an exchange of information between partners (Landa, 2007) marking the critical importance of providing opportunities for interaction with various adults and peers to support the development of social communication skills. Speech language pathologists and teachers must work together to ensure students with ASD have opportunities to communicate with multiple adults and peers to support social communication development (Douglas et al., 2014). Unfortunately, research indicates that teachers often lack the skills and preparedness required to support the communicative needs of students with ASD and may require targeted training to help students with ASD achieve the appropriate social communication development (Kaiser and Roberts, 2011; Raghavendra et al., 2012). It is against this backdrop that the researchers sought to determine how conversational skills and speech production relate to academic achievement among children with autism spectrum disorder in special needs schools in Rivers State, Nigeria.

Statement of the Problem

Autism in children is erroneously blamed on witchcraft and diabolic activities or thought by parents to be a punishment from God for their evil deeds in the past. As a result, children on the spectrum are locked up in a room and left to die or labeled "mad" with no attempt at diagnoses or treatment. Poor conversation skills and speech production makes children on the spectrum to become targets of bullying because they lack the communication skills needed to report abuse. With such unsettling consequences associated with ASD and its high prevalence, it is sad to note that inaccurate or misleading media representations of ASD, lack of understanding as well as fear all contribute significantly to the prejudice, social marginalization and stigmatization of children on the spectrum and has a detrimental effect on the ever-increasing academic needs of children on the spectrum. This has necessitated a comprehensive investigation of communication skills and how they relate to the academic achievement of children on the spectrum as well as strategies that can address the ever-growing academic needs of school children on the spectrum.

Aim and Objectives of the Study

The aim of this study was to investigate the relationship between conversational skills, speech production and academic achievement among children with ASD in special needs schools. In specific terms, the study achieved the following objectives:

1. determined the extent to which conversational skills relates to academic achievement among children with ASD in special needs schools.
2. ascertained the extent to which speech production relates to academic achievement among children with ASD in special needs schools.

Research Questions

Two research questions were posed to guide the study.

1. To what extent does conversational skills relate to academic achievement among children with ASD in special needs schools?
2. To what extent does speech production relate to academic achievement among children with ASD in special needs schools?

Hypotheses

These two hypotheses were tested at 0.05 level of significance.

1. There is no significant relationship between conversational skills and academic achievement among children with ASD in special needs schools.
2. There is no significant relationship between speech production and academic achievement among children with ASD in special needs schools.

METHODOLOGY

This study adopted a correlational survey design to investigate the relationship between conversational skills, speech production and academic achievement among children with autism spectrum disorder in special needs schools. The population for this study consists of all 80 male and female pupils diagnosed with ASD in seven special needs schools in Rivers State, Nigeria. The study adopted the census sampling technique. To have a well-characterized sample of children with ASD, participants were deemed eligible for the current study if they had received a diagnosis on the autism spectrum and met the criteria as stated in the Diagnostic and Statistical Manual of Mental Disorders (DSM–5), a manual for assessment and diagnosis of mental disorders. Also, only children who were between the ages of 5 and 12 years were included in the study. The research instrument used in this study was a four-point Likert type scale questionnaire titled "Conversational Skills, Speech Production and Academic Achievement Questionnaire" (CSSPAAQ). The instrument is divided into three sections. Section A contains demographic information while section B contains two themes namely imitation containing seven items and visual support containing seven items. The third section contains an adapted instrument of Blank, Rose and Berlin (1978) known as Blanks Levels of Language which was modified to fit the current

research setting (Nigeria), this led to the reduction in the number of items, which were originally 40 items to 20 items implying that the researchers removed five items from each level of language as contained in the instrument. The instrument also contains a picture scene to guide pupil's response to the adapted instrument. The instrument was constructed in the pattern of a four-point Likert scale of Always (A), Often (O), Sometimes (S), and Never (N) which was scored as 4, 3, 2 and 1. Cronbach Alpha statistic was used to estimate the reliability of the instrument and the following reliability coefficients of 0.81 for conversational skills, 0.70 for speech production and 0.92 for academic achievement were obtained. Data was collected and analysed using simple regression, mean and standard deviation for the research questions while t-test and beta value associated with simple regression and independent sample t-test was used to test the hypotheses at 0.05 alpha level of significance.

RESULTS

The results of the data analysis are presented in the tables: Data analysis was done in relation to the research questions and hypotheses.

Research Question 1: To what extent does conversational skills relate to academic achievement among children with ASD in special needs schools?

Hypothesis One: There is no significant relationship between conversational skills and academic achievement among children with ASD in special needs schools.

Table 1: Simple regression analysis of conversational skills with academic achievement among children with autism spectrum disorder in special needs schools.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.201	5.022		4.620	.000
	conversat.skill	1.377	.359	.399	3.839	.000

P<.05 Level of Significance, N=80; Dependent Variable: Academic Achievement; Predictors: (Constant), conversational skills

The result in table 1, shows that the beta value for conversational skills is .399, which reveals that about 39.9% of conversational skills relate with academic achievement among children with

autism spectrum disorder in special needs schools. Its significance can be seen from the associated t-value of 3.839 which is statistically significant at 0.05 alpha level. This implies that conversational skills have a significant relationship with academic achievement among children with autism spectrum disorder in special needs schools, therefore the null hypothesis is rejected.

Research Question 2: To what extent does speech production relate to academic achievement among children with ASD in special needs schools?

Hypothesis Two: There is no significant relationship between speech production and academic achievement among children with ASD in special needs schools.

Table 2: Simple regression analysis of speech production with academic achievement among children with autism spectrum disorder in special needs schools.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.321	5.750		2.143	.035
	Speechprodu	1.873	.357	.511	5.254	.000

P<.05 Level of Significance, N=80; Dependent Variable: Academic Achievement; Predictors: (Constant), speech production.

The result in table 2, shows that the beta value for speech production is .511, this reveals that there is about 51.1% relationship between speech production and academic achievement among children with autism spectrum in special needs schools. Its significance can be seen from the associated t-value of 5.254 which is statistically significant at 0.05 alpha level. This implies that speech production has a significant relationship with academic achievement among children with autism spectrum disorder in special needs schools, therefore the null hypothesis is rejected.

DISCUSSION OF FINDINGS

Findings from the data analysis obtained from respondents for answering research question one and testing hypothesis one, indicated that there is significant positive relationship between conversational skills and academic achievement among children with ASD in special needs schools. This means that conversational skills has influence in ensuring academic achievement among school children. This implies that when children on the autism spectrum are constantly engaged with communication partners, academic achievement is possible; it will also enhance the

child's capacity for conversational exchanges. This finding is in line with Davis et al. (2010) who found a significant influence of power cards on the initiation and maintenance of conversational skills in students with Asperger syndrome. Also in line with this finding is a study carried out by Yuan and Chen (2020) who found a significant influence of reciprocal conversation on social preference of children with ASD in China.

Result from the analysis of responses of respondents in regards to research question two and hypothesis two, shows that there is significant positive relationship between speech production and academic achievement among children with ASD in special needs schools. This means that the independent variable (speech production) has significant relationship with academic achievement. This study was able to clearly establish the importance of providing relevant responses during conversations and the role it plays in ensuring academic success among children on the spectrum. Findings from this study is in agreement with the study of Cooley (2012) who found out that the use of developmental speech and language training through music had significant relationship with quick incidental learning in children with ASD.

Recommendations

Based on the findings of this study, the following recommendations were made;

1. Counsellors, teachers, school administrators and caregivers should supplement intervention strategies that draw from a variety of theories and involve varying degrees of adult-directed activities with child-centered activities to increase interaction and generalization of learnt skills to new settings and communication partners and also to improve the conversational skills of children with ASD.
2. Teachers, school administrators and caregivers should employ motivational teaching strategies that focus on a child's interest and strengths to promote verbal interactions and engagement.
3. Teachers, caregivers, and parents should engage the use of video modelling techniques to teach and develop language and play skills among children with ASD.

CONCLUSION

Academic success thrives on the ability of children to share information spontaneously during social interactions, which is an area of difficulty for children on the spectrum hence the need to improve on conversational skills and speech production by increasing child-centered activities and interaction. The findings of this study revealed that conversational skills and speech production significantly relates with academic achievement while age and gender has no significant relationship with academic achievement among children with ASD in special needs schools.

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