



ENHANCING TEACHER PRACTICES IN ASSESSING FUNCTIONAL PERFORMANCE OF STUDENTS WITH AUTISM SPECTRUM DISORDER (ASD): AN EMPIRICAL PERSPECTIVE

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Abstract:

Youth students with Autism Spectrum Disorder (ASD) are at higher risk of functional skills deficiency, which presents a barrier to the acquisition of academic skills. This study examines teachers' practices in determining the functional performance of students with ASD in stage-based education pathways in Kenya. A quantitative research design was employed, involving 47 teachers and 76 students with ASD from various primary schools. Data were collected using a self-administered rating scale for teachers and a modified version of the Vineland Adaptive Behaviour Scales for students. Descriptive and sequential regression analyses were conducted to evaluate teacher practices and their impact on students' functional skills. Findings show that the identification and use of instructional resources were the most frequently performed practices among teachers, while the assessment of functional skills was the least. The study found significant correlations between teacher practices and students' functional skill acquisition, particularly communication skills. However, the relationships among teacher practices were generally weak, indicating a lack of integration in their approaches. The study concludes that a comprehensive approach, incorporating multiple assessment practices, is essential for improving student outcomes. Recommendations include targeted professional development for teachers, standardized assessment practices, and increased collaboration with parents to support functional skill development in students with ASD. These findings underscore the need for enhanced training and resource access to optimize educational outcomes within the Competency-Based Curriculum framework.

Keywords: teacher classroom practice, children with autism, functional performance

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1. Introduction

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by a broad range of challenges in social interaction, impaired communication skills, and repetitive behaviours (Hirota & King, 2023). These core characteristics of ASD often manifest in varied ways that affect individuals differently based on their unique strengths and challenges. For students with ASD, these difficulties extend beyond social and communication barriers, significantly impacting their functional skills for daily living and academic settings (Rubim & Da Hora, 2020). Functional performance encompasses practical skills necessary for daily living and learning, including communication, social interaction, self-care, adaptive behaviours, and problem-solving skills (Daunhauer, 2011; Mlinac & Feng, 2016). The ability to perform these skills effectively is crucial for students with ASD, as it influences their capacity to engage meaningfully in educational activities (Onwumere *et al.*, 2021).

However, many students with ASD experience deficits in functional performance, which can serve as a significant barrier to acquiring essential academic skills (Estes *et al.*, 2011). These deficits often manifest as challenges in managing daily routines, interacting appropriately with peers and adults, and adapting to changes in their environment. Teachers play an essential role in assessing and enhancing the functional performance of students with ASD (Pitzianti *et al.*, 2021; Jin *et al.*, 2023). As the first point of contact, teachers are often responsible for recognizing the unique needs of students with ASD and implementing targeted interventions that promote skill development. Their role extends beyond academic instruction to include the assessment of functional skills (Sulek *et al.*, 2021).

The effectiveness of these interventions, however, is largely dependent on teachers' knowledge, skills, and practices related to assessing functional performance (Hsiao *et al.*, 2019). Without a solid understanding of how to evaluate these skills effectively, teachers may struggle to provide the necessary support, potentially hindering the students' overall progress. Effective assessment practices are essential for identifying the strengths and areas of need among students with ASD. This allows for the development of targeted interventions that support both academic learning and functional skill development (Patel *et al.*, 2024). These practices can guide teachers in tailoring their instructional approaches to meet the specific needs of their students.

1.1 Problem Statement

Despite the importance of these practices, there is limited empirical research focused on how teachers assess functional performance for students with ASD within the context of the stage-based pathway of Kenya's CBC curriculum. In Kenya, as in many other countries, education systems are evolving to be more inclusive, with an increasing emphasis on supporting students with disabilities. The gap in understanding how teachers assess functional performance remains a challenge to achieving effective support systems and learning outcomes for students with ASD. Teachers often face difficulties in

balancing academic instruction with the need to develop functional skills. This balance is crucial for students with ASD whose learning needs are diverse. This study seeks to address the gap in knowledge by exploring teachers' practices in assessing the functional performance of students with ASD in Kenya's stage-based education pathway. The study aims to identify areas where teachers may need additional support, training, or resources to better meet the needs of students with ASD.

1.2 Purpose and research question

The purpose of this study is to examine the current practices of teachers in assessing the functional performance of students with ASD within the stage-based education system in Kenya. The study aims to identify the challenges teachers face and the strategies they employ in evaluating functional skills, with a view to enhancing teacher practices and improving educational outcomes for students with ASD. This study addresses the following research questions:

- 1) What are the current practices employed by teachers in assessing the functional performance of students with ASD in Kenya's stage-based pathway?
- 2) What is the association between the teacher's current practices and the student's acquisition of functional skills?

2. Methodology

This study employed a quantitative research design to examine the practices of teachers in assessing the functional performance of students with ASD in Kenya's stage-based pathway. The methodology was designed to respond to the research questions by investigating how teachers assess functional skills and identify the challenges they encounter in this process.

2.1 Study participants

The study participants included teachers and students with ASD drawn from several primary schools in Kenya. A total of 47 teachers participated in the study, along with 76 students diagnosed with ASD. The teachers were purposively selected based on their experience working with students with ASD and their involvement in the development and implementation of Individualized Education Programs (IEPs). The students were identified through school records, and consent was obtained from their guardians. This sample was chosen to capture a broad range of teacher practices and student functional performance, ensuring the data collected would be representative of the target population.

2.2 Measures

2.2.1 Teachers' practices in assessing functional performance

A self-administered rating scale was used to measure teachers' practices in assessing the functional performance of students with ASD. This scale was adapted from the Universal

Design for Learning (UDL) framework (Gauvreau, Lohmann, & Hovey, 2019), which is widely recognized for its comprehensive approach to instructional strategies and goal setting. The rating scale focused on five key areas:

- 1) identification of educational needs,
- 2) assessment of functional skills,
- 3) understanding learning needs and skill acquisition,
- 4) communication and collaboration with parents, and
- 5) identification and use of instructional resources.

Teachers were asked to rate each item on a 4-point scale ranging from 1 (very small extent) to 4 (very large extent). The scores from each item were summed to create a composite score for each teacher, which was then standardized using z-scores to allow for comparison across the different subscales. This measure provided insights into the extent to which teachers were employing recommended practices in their assessment of functional performance.

2.2.2 Functional performance of students with ASD

The functional performance of students was assessed using a modified version of the Vineland Adaptive Behaviour Scales (Vineland-3) (Tenerife *et al.*, 2022). This tool is specifically designed to evaluate adaptive behaviours and personal and social skills, making it suitable for assessing functional performance in students with ASD. The modified rating rubric focused on three domains: communication skills, social skills, and Activities of Daily Living (ADL). Each student's performance in these domains was rated based on their cooperation, functionality, productivity, independence, consistency, and attention during classroom activities. The scores from these domains were combined to create a single indicator of each student's functional skill performance, providing a comprehensive measure of their adaptive abilities in the school setting.

2.3 Analysis procedure

Descriptive statistics, including means and standard deviations, were used to summarize the key variables of interest: teachers' assessment practices and students' functional performance. To examine the relationship between teacher practices and the functional performance of students with ASD, sequential regression analysis was employed. This approach allowed for the examination of how variations in teacher assessment practices influenced the likelihood of students demonstrating higher levels of functional performance. The regression model was constructed in sequential blocks to test the incremental effect of different teacher practices on student outcomes.

3. Results

As presented in Table 1 below, identification of educational needs, assessment of functional skills, understanding learning needs and skill acquisition, communication and collaboration with parents and Identification and use of instructional resources are

teachers' practices. Communication skills, social Skills, and ADL Skills are scores of students' acquisition of functional skills.

Table 1: Descriptive statistics of teacher practices and student level of skill acquisition

Variable	Mean	SE	Min.	Max.
Identification of educational needs	3.000	0.197	1	5
Assessment of functional skills	2.723	0.208	1	5
Understanding learning needs and skill acquisition	3.170	0.202	1	5
Communication and collaboration with parents	3.170	0.191	1	5
Identification and use of instructional resources.	3.213	0.211	1	5
Communication skills	3.723	0.124	2	5
Social skills	3.362	0.127	1	5
ADL skills	3.340	0.134	1	5

Regarding teachers' practices, identification and use of instructional resources ($M = 3.2$, $SE = 0.21$) stands out as the most frequently performed practice among teachers, though the relatively high standard error suggests considerable variability in how consistently this practice is applied. Closely following this is understanding learning needs and skill acquisition ($M = 3.17$, $SE = 0.20$), which is slightly above average in both frequency and consistency. Communication and collaboration with parents ($M = 3.2$, $SE = 0.19$) are also moderately practiced but exhibit slightly more consistency compared to understanding learning needs. Identification of educational needs ($M = 3.0$, $SE = 0.20$) indicates that while teachers engage in this practice at a moderate level, there is notable inconsistency among them. Finally, assessment of functional skills ($M = 2.72$, $SE = 0.21$) is the least frequently and consistently performed practice.

Regarding the acquisition of functional skills, communication skills ($M = 3.72$, $SE = 0.12$) is the strongest area of functional skill acquired among students, with a relatively high mean score and low variability. This indicates that students in the sample generally performed consistently well in this domain. Social skills ($M = 3.36$, $SE = 0.13$) are moderately acquired, showing consistent performance across students. Activities of Daily Living (ADL) skills ($M = 3.34$, $SE = 0.13$) are also moderately developed but exhibit the highest variability among the three assessed skill areas, suggesting that students' performance in this domain is less consistent.

Table 2 below shows a correlation analysis between teacher practices and levels of functional skills acquisition. This result examines the nexus between different teacher practices and functional skills acquisition by students with ASD.

Table 2: Correlation analysis between teachers and functional skills acquisition

		1	2	3	4	5	6	7
1	Identification of educational needs	1						
2	Assessment of functional skills	-0.011	1					
3	Understanding learning needs and skill acquisition	0.012	-0.097	1				
4	Communication and collaboration with parents	0.135	0.154	-0.004	1			
5	Identification and use of instructional resources.	0.201	0.114	-0.127	0.049	1		
6	Communication skills	0.604	0.365	0.316	0.394	0.473	1	
7	Social skills	0.573	0.363	0.290	0.327	0.405	0.841	1
8	ADL skills	0.422	0.390	0.313	0.459	0.372	0.848	0.742

Results reveal a generally weak correlation among teacher practices in assessing functional performance. For instance, identification of educational needs shows a weak positive correlation with other teacher practices like communication and collaboration with parents ($r = 0.135$) and identification and use of instructional resources ($r = 0.201$). Similarly, assessment of functional skills has a small correlation with other practices, including a near-zero negative correlation with understanding learning needs and skill acquisition ($r = -0.097$). The weak and insignificant correlation between teacher practices may highlight independence among different practices by different teachers. This may indicate that whatever practice the teacher is engaged in has no direct association with any other practices, perhaps showing the disjointed nature of teacher practices in assessing functional performance.

On the other hand, there seems to be a consistently strong positive correlation among different functional skills acquired by students. For instance, communication skills show a strong positive correlation with social skills ($r = 0.841$) and ADL Skills ($r = 0.848$). This may indicate that students who excel in communication also tend to perform well in other functional skills. Similarly, social skills correlate strongly with communication skills and ADL skills ($r = 0.742$). This reinforces the interconnectedness of functional skills in students with ASD. This high inter-correlation among skills suggests a comprehensive development of adaptive behaviours, where improvement in one skill area often coincides with enhancements in others.

The correlation between teacher practices and functional skills acquisition generally shows a positive trend with varying strength. For instance, identification of educational needs has the strongest positive correlations with communication skills ($r = 0.604$), social skills ($r = 0.573$), and ADL skills ($r = 0.422$). This suggests that when teachers effectively identify educational needs, students are likely to perform better across all functional skill areas. Other teacher practices show positive correlations with functional skills but to a moderate degree. To examine the nexus between teacher practices and functional skill acquisition, a sequential linear regression analysis was conducted, and results are presented in Table 3 below.

Table 3: Sequential linear regression analysis

Predictor	Model1	Model2	Model3	Model4
Intercept	2.581 (0.246)	1.966 (0.281)	1.24 (0.316)	0.837 (0.32)
Identification of educational needs	0.381 (0.075) ***	0.384 (0.067) *	0.381 (0.059) *	0.359 (0.055) *
Assessment of functional skills		0.223 (0.064) **	0.243 (0.056) *	0.218 (0.052) *
Understanding learning needs and skill acquisition			0.214 (0.058) *	0.212 (0.053) *
Communication and collaboration with parents				0.171 (0.057) *
Regression Statistics				
R Square	0.365	0.503	0.624	0.690
Adjusted R Square	0.351	0.481	0.597	0.660
RMSE	0.396	0.290	0.210	0.169

Identification of educational needs is the only predictor with a coefficient of 0.381 (SE = 0.075), explaining 36.5% of the variance ($R^2 = 0.365$, Adjusted $R^2 = 0.351$) with an RMSE of 0.396. Adding assessment of functional skills" in Model 2 increases the model's R^2 to 0.503 and Adjusted R^2 to 0.48. This indicates a significant improvement in the explanatory power of the model. In Model 3, understanding learning needs and skill acquisition is introduced. This additional variable enhances the model's performance ($R^2 = 0.624$, Adjusted $R^2 = 0.597$), with an RMSE of 0.210. This predictor shows a coefficient of 0.214 (SE = 0.058). Finally, Model 4 incorporates communication and collaboration with parents, resulting in the highest model performance ($R^2 = 0.690$, Adjusted $R^2 = 0.660$) and the lowest RMSE of 0.169. This indicates the best fit and accuracy of the model. These results show that across the regression models, each additional predictor improves the model's explanatory power and predictive accuracy. The strongest impact comes from identifying educational needs, consistently showing a significant positive effect across all models. As more variables are added, the model's fit and prediction accuracy steadily improve. This result indicates that a comprehensive approach involving multiple teacher practices is crucial for better outcomes in student functional performance.

4. Discussion

The findings of this study highlight critical insights into the role of teacher practices in assessing and enhancing the functional performance of students with Autism Spectrum Disorder (ASD). The descriptive statistics and correlation analyses reveal that certain teacher practices are more consistently performed than others, and these practices have varying impacts on student outcomes in the areas of communication, social, and adaptive daily living skills.

The study found that the identification and use of instructional resources (M = 3.21, SE = 0.21) is the most frequently performed practice among teachers, although there is considerable variability in its application. This finding resonates with previous research emphasizing the importance of instructional resources in supporting diverse learning

needs in ASD (Gauvreau *et al.*, 2019). However, the variability suggests inconsistent access or training among teachers in utilizing these resources effectively, echoing concerns raised by Hsiao *et al.* (2019) about the need for standardized resource utilization in special education settings.

Understanding learning needs and skill acquisition and communication and collaboration with parents are moderately practiced with reasonable consistency ($M = 3.17$, $SE = 0.20$ and $M = 3.17$, $SE = 0.19$, respectively). These practices align with findings by Pitzianti *et al.* (2021), who highlighted the role of parent-teacher communication in enhancing student outcomes, particularly in promoting consistency between home and school environments. However, the moderate level of practice suggests that while these strategies are valued, they are not universally or consistently implemented, reflecting potential gaps in teacher preparation or institutional support. Assessment of functional skills ($M = 2.72$, $SE = 0.21$) emerged as the least frequently and consistently performed practice. This finding is particularly concerning given that the assessment of functional skills is critical for tailoring interventions to student needs (Jin *et al.*, 2023). The low frequency of assessment may indicate barriers such as insufficient training, lack of assessment tools, or time constraints, as noted in previous studies (Patel *et al.*, 2024).

Regarding student outcomes, the study found that communication skills were the most developed functional skill ($M = 3.72$, $SE = 0.12$), followed by social skills ($M = 3.36$, $SE = 0.13$) and ADL skills ($M = 3.34$, $SE = 0.13$). The high inter-correlation among these skills, particularly the strong relationship between communication and social skills ($r = 0.841$), suggests that students who excel in one area are likely to perform well in others. This interconnectedness is consistent with the literature, which often highlights the synergistic development of communication, social, and adaptive skills in students with ASD (Estes *et al.*, 2011). The variability observed in ADL skills suggests that students' abilities to manage daily routines are less consistent, highlighting the need for targeted interventions in this area. This is consistent with findings by Daunhauer (2011), who emphasized the importance of adaptive skill training as part of comprehensive support for students with ASD.

The correlation analysis revealed generally weak relationships among different teacher practices, suggesting a lack of integration or alignment in how these practices are employed. For example, identification of educational needs showed only a weak positive correlation with other practices like "Communication and Collaboration with Parents" ($r = 0.135$), highlighting potential disjointedness in teacher approaches. This finding aligns with previous research suggesting that teacher practices are often fragmented and vary widely across contexts (Hsiao *et al.*, 2019). However, the correlation between teacher practices and student skills acquisition showed more positive trends. Identification of educational needs had the strongest positive correlations with all students' functional skills, particularly communication skills ($r = 0.604$). This underscores the critical role of accurately identifying student needs as a foundation for effective intervention, supporting the findings of Onwumere *et al.* (2021).

5. Conclusions

The findings of this study underscore significant implications for enhancing teacher practices in assessing functional performance within the new Competency-Based Curriculum (CBC) framework in Kenya. The CBC, introduced to foster a holistic learning environment, emphasizes practical skills, values, and attitudes, aligning well with the need for comprehensive functional assessments for students with special needs (Kenya Institute of Curriculum Development, 2017). One key implication is the need to standardize and strengthen the assessment of functional skills, which was found to be the least consistently performed practice among teachers. This finding aligns with the ongoing concerns raised by the Teachers Service Commission (TSC) about the preparedness and training of teachers in specialized assessments (UNESCO, 2024). To address this, there is a need for targeted professional development programs that equip teachers with the skills and tools required for accurate and effective assessment of functional skills, particularly in the context of the CBC, which prioritizes personalized learning and practical competencies.

The variability observed in the use of instructional resources suggests a need for equitable access to teaching aids and materials that support functional skill development in students with ASD. The Ministry of Education and the Kenya Institute of Curriculum Development (KICD) emphasize the importance of resources in implementing CBC effectively, including digital and assistive technologies that can enhance learning for students with special needs (Kenya National Commission for UNESCO, 2024). Policies should, therefore, focus on providing consistent access to these resources across all schools, alongside continuous training on how to integrate them into classroom practice effectively.

The moderate yet impactful role of communication and collaboration with parents highlights the importance of a cohesive approach involving family engagement in the educational process. The findings suggest that when teachers actively involve parents, students with ASD tend to perform better in functional skills. This is in line with TSC guidelines, which advocate for strengthening teacher-parent partnerships as part of the CBC implementation strategy. Enhancing this collaboration can be further supported through workshops and structured communication channels that ensure parents are well-informed and involved in their child's learning journey.

Our findings on the strong correlations among communication, social, and ADL skills among students point to the need for integrated interventions. Teachers should be trained to adopt holistic assessment strategies that capture the interconnectedness of these skills, reflecting CBC's emphasis on comprehensive skill acquisition rather than isolated academic performance (KICD, 2017). This can be facilitated by introducing competency-based assessment frameworks tailored specifically for students with disabilities, ensuring that the assessments are reflective of their unique needs and capabilities.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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