Individualized Instructional Strategies and Functional Skill Acquisition among Learners with Autism Spectrum Disorder in Kenyan Special Units

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DOI: https://doi.org/10.47772/IJRISS.2026.101000740

Received: 27 October 2026; Accepted: 02 November 2026; Published: 17 November 2026

ABSTRACT

The Individualized Education Programme (IEP) is an internationally recognized framework for tailoring educational interventions to learners with neurodevelopmental disabilities. In Kenya, despite progressive mandates in the Sector Policy for Learners and Trainees with Disabilities (2018), a profound gap persists between national policy intent and classroom execution. This study examined the implementation of individualized instructional strategies within IEP frameworks and their subsequent influence on the acquisition of functional skills encompassing communication, social interaction, self-regulation, and daily living skills among learners with Autism Spectrum Disorder (ASD) in selected Kenyan special units. Anchored in a hybrid theoretical framework integrating Applied Behaviour Analysis (ABA) and Vygotsky's Sociocultural Theory, the study evaluated the day-to-day deployment of evidence-based practices, including task analysis, direct instruction, prompting hierarchies, reinforcement schedules, and the Picture Exchange Communication System (PECS). Methodologically, the study adopted a convergent parallel mixed-methods design, tracking a sample of 47 special education teachers and auditing 62 active student IEP records, supplemented by 14 semi-structured teacher interviews and 18 direct classroom observations. The findings revealed that while special needs education teachers demonstrate strong nominal awareness of functional individualization, actual instructional delivery frequently collapses due to teacher training deficits, high learner-to-teacher workloads, and an absence of multidisciplinary clinical support. This instructional fragmentation forces teachers to fall back on rigid, mass-behavioural drilling rather than assessment-driven, context-adapted pedagogy. The study recommends strengthening autism-specific teacher preparation, establishing localized progress-monitoring instruments, and institutionalizing multidisciplinary collaboration to translate progressive policies into sustainable functional autonomy for learners with ASD.

Keywords: IEP, Autism Spectrum Disorder, Functional Skills, Instructional Strategies, Applied Behaviour Analysis, Sociocultural Theory.

INTRODUCTION

Functional skills, including communication, social interaction, self-regulation, and daily living competencies, form the baseline for lifelong independent living, school readiness, and meaningful environmental engagement (Alodat et al., 2020). For typically developing children, these vital competencies develop naturally through early environmental interactions before formal schooling. However, for learners with Autism Spectrum Disorder (ASD), persistent neurodevelopmental deficits in social communication, sensory processing, and behavioral flexibility severely disrupt this organic acquisition loop (Dar, 2024; Rodi et al., 2024). Due to the highly heterogeneous nature of autism, many learners enter formal education with profound deficits in adaptive behavior, which drastically limits their classroom participation and escalates the risk of long-term social exclusion (Chen et al., 2025; Izuno-Garcia et al., 2022). Delays in functional skill development are directly associated with permanent caregiver dependence, social isolation, and a diminished quality of life, whereas optimized adaptive and communicative competencies are empirically linked to superior educational outcomes, emotional well-being, and successful inclusion (Alodat et al., 2020; Masi et al., 2017).

While traditional educational frameworks heavily prioritize standardized academic metrics, functional skills represent the absolute pedagogical priority for learners with autism (Izuno-Garcia et al., 2022). Pure academic achievement remains secondary if a student cannot communicate basic biological needs, self-regulate during sensory overload, or independently navigate daily self-care routines. Without functional independence, academic knowledge cannot be meaningfully applied, leading directly to systemic exclusion (Masi et al., 2017). To remediate these core deficits, the Individualized Education Programme (IEP) serves as the primary mechanism to tailor goals, instructional strategies, and support services to a learner's evolving developmental needs through a data-driven framework (Wade et al., 2022). This individualized approach aligns with Lev Vygotsky's Sociocultural Theory, which emphasizes instructional scaffolding within a learner's Zone of Proximal Development (ZPD) via a More Knowledgeable Other (MKO), and Applied Behaviour Analysis (ABA), which relies on systematic baseline data, continuous monitoring, and behavioural reinforcement to build functional skills.

Within the Kenyan educational ecosystem, the operationalization of individualized interventions is legally guided by the Basic Education Act of 2013, the Sector Policy for Learners and Trainees with Disabilities (2018), and implementation frameworks from the Kenya Institute of Special Education (KISE). These national blueprints explicitly mandate that learners with severe neurodevelopmental conditions must be provided with a structured IEP. Learners with autism typically enter the school system at the foundational level of the Competency-Based Curriculum (CBC), where mastering prerequisite skills in communication, social interaction, and self-awareness is expected to anchor all subsequent academic progression (Kenya Institute of Curriculum Development [KICD], 2018). Despite these progressive legislative mandates, a profound disconnect persists between national policy intent and actual classroom execution within Kenyan special units. Preliminary baseline data underscores an urgent need to scrutinize teachers' actual implementation practices on the ground.

Central to this individualized trajectory is the tactical selection of instructional strategies by special needs education (SNE) teachers. Global empirical consensus establishes that translating written IEP goals into classroom reality depends fundamentally on these instructional selections. Because autism presents an exceptionally diverse learning profile, contemporary literature highlights that uniform, group-based teaching methodologies systematically fail; instead, learners require highly structured, systematic, and individualized approaches that explicitly target their unique communication, sensory, and behavioral profiles (Knight et al., 2019; Sulu et al., 2021). Grounded firmly in developmental frameworks and behavioral science, specific core strategies are universally recognized as the gold standard for driving learner engagement and skill acquisition (Bond et al., 2018; Mari et al., 2021). These include direct instruction, task analysis, continuous prompting procedures, targeted reinforcement schedules (Frampton et al., 2021), and Augmentative and Alternative Communication (AAC) systems such as the Picture Exchange Communication System (PECS) to bridge severe social communication deficits (Lukins et al., 2023), alongside peer modeling and the strategic maximization of incidental "teachable moments" within the natural school environment (Walker et al., 2020).

Despite the undisputed clinical and theoretical validity of these practices, international research consistently demonstrates that their successful execution relies heavily on teacher competence and specialized preparation. A critical constraint identified across global educational systems is the frequent breakdown of intervention fidelity. For example, Knight et al. (2019) observed that many special education teachers possess limited pedagogical knowledge and practical readiness, which heavily compromises their ability to deploy structured interventions. Similarly, Lukins et al. (2023) documented persistent inconsistencies in how classroom teachers administer real-time prompting and reinforcement during PECS programs, directly diminishing the intervention's effectiveness. Conversely, where structured professional development and active institutional supports are provided, teachers execute these strategies with significantly higher fidelity, leading to immediate gains in learner performance (Walker et al., 2020).

The vast majority of this foundational literature, however, originates from affluent Western educational systems characterized by established specialized training, abundant learning aids, and low learner-to-teacher ratios (Ruble et al., 2022). Evidence from less-optimized international contexts, such as Jordan (Alodat et

al., 2020) and China (Pang et al., 2018), confirms that severe shortages of behavioral specialists, a lack of speech and occupational therapy support, and limited teacher expertise cause instructional delivery to collapse into rigid, non-individualized, group-based activities. Conceptually, even within well-resourced global studies, empirical evaluations predominantly focus on measuring academic achievement or the isolated clinical efficacy of a single tool. There is a glaring lack of descriptive process data explaining the extent to which day-to-day classroom teachers actually implement a blend of these strategies under standard school conditions, highlighting an academic versus functional outcome bias. Most crucially, there remains an unresolved empirical gap regarding how the systematic implementation of these instructional strategies or the lack thereof directly influences the long-term acquisition of non-academic functional skills for learners with autism.

Regional and Local Perspectives on Autism Pedagogy

The regional implementation of individualized instructional strategies for neurodevelopmental disorders requires deep mastery of context-adapted pedagogy—a requirement heavily compromised by systemic institutional constraints across Africa. In Uganda, Nambuba and Okech (2019) scrutinized classroom adjustments made for learners with complex communication and behavioral needs within specialized units. Their evidence revealed that while the conceptual necessity of individualization is widely accepted, the actual deployment of autism-specific evidence-based practices such as structured teaching and visually paired communication systems is seriously constrained by severe teacher shortages and crowded classrooms. Similarly, in Ethiopia, Tefera et al. (2021) established that the absolute absence of functional learning aids and context-appropriate curriculum modifications forces special needs teachers to resort to generic, group-based instructional models. A clear empirical gap remains in regional literature, which extensively documents macro-level resource scarcities yet lacks detailed, process-oriented data concerning the specific tactical mechanisms teachers deploy to mitigate these gaps during daily functional skill instruction.

Within the Kenyan context, empirical research examining structured instructional interventions for learners with ASD remains critically scarce. Existing evidence suggests an increasing recognition of the Picture Exchange Communication System (PECS) and associated visual communication frameworks as effective instructional approaches. For instance, Orero et al. (2024) reported that communication boards and PECS significantly improved learners' expressive communication by enabling them to initiate requests, express personal needs, and interact more effectively within classroom settings. However, the study identified inadequate teacher training, limited instructional materials, and highly inconsistent implementation across schools as severe barriers to sustained intervention fidelity. These findings suggest that teacher competence and direct institutional support remain the primary determinants of successful instructional execution.

Beyond isolated communication interventions, contemporary local literature increasingly emphasizes differentiated instruction and behavior modification as essential components of effective pedagogy for learners with ASD. Because learners with autism exhibit extreme heterogeneity in cognitive functioning, sensory processing, and learning styles, instructional approaches must be sufficiently flexible to accommodate individual differences. Sitabkhan et al. (2022) found that teachers enhanced learner participation by differentiating instructional content, learning activities, assessment procedures, and classroom support according to unique student profiles; yet, execution was heavily constrained by overcrowded classrooms and limited teacher preparation. Locally, Kiambati et al. (2025) observed that inadequate autism-specific professional development and limited specialized support continued to undermine the clinical effectiveness of educational programs for learners with ASD. Consistent with these findings, Mugwiria (2016) demonstrated that differentiated instruction improved learners' academic achievement and self-concept. However, these local studies primarily evaluated mainstream inclusive environments, leaving a significant gap in our understanding of instructional practices within segregated special schools and specialized autism units where learners with severe support needs receive services.

Behaviour modification interventions have likewise received considerable empirical backing in Kenya. Ooko and Aloka (2021) demonstrated that reinforcement, prompting, praise, and corrective feedback significantly enhanced achievement among learners with learning difficulties, while Mutua and Ogogo

(2022) established that behavior modification and peer-support interventions directly improved classroom participation, behavioral adjustment, and active learner engagement among learners with ASD in Embu County, Kenya. Collectively, these studies reinforce the foundational principles of Applied Behaviour Analysis (ABA) by demonstrating that systematic reinforcement and structured behavioural supports contribute significantly to learner motivation, classroom participation, and functional skill acquisition.

Synthesis of Research Gaps and the Present Study

A comprehensive synthesis of the global, regional, and local literature reveals three critical conceptual, contextual, and methodological gaps that provide the empirical justification for the present study:

The Efficacy-to-Practice Gap: The majority of existing research evaluates the efficacy of individual instructional interventions (e.g., PECS or discrete trial training) under controlled, program-specific conditions. There is a glaring lack of descriptive process data explaining the extent to which everyday classroom teachers consistently implement a combined blend of these evidence-based strategies during routine classroom instruction within the context of standard IEP execution.

The Academic versus Functional Outcome Bias: Existing empirical evaluations are heavily skewed toward measuring academic achievement or general classroom participation metrics. Few studies have empirically investigated how variations in teachers' instructional practices directly influence the long-term acquisition of non-academic, daily functional competencies such as self-care, adaptive communication, self-regulation, and independent living skills among learners with autism.

The Geopolitical and Contextual Disconnect: The vast majority of empirical evidence originates from affluent, highly optimized Western educational systems supported by robust special education policies, multidisciplinary clinical networks, and extensive professional development. Evidence from sub-Saharan Africa, and particularly Kenya, remains severely limited. Available Kenyan research has largely concentrated on generic inclusive education policy, general teacher preparedness, or isolated intervention critiques.

As a result, this study directly addresses these interconnected gaps by determining the extent to which special needs education teachers in Kenya utilize a baseline of evidence-based instructional strategies during routine IEP implementation, and analyzing how these specific pedagogical practices influence the acquisition of functional skills among learners with Autism Spectrum Disorder within selected special units.

METHODOLOGY

Research Design

This study utilized a convergent parallel mixed-methods design (Creswell & Plano Clark, 2017). Under this paradigm, quantitative and qualitative data were collected concurrently, analyzed independently, and subsequently integrated during the interpretation phase to facilitate cross-case comparison and triangulation. A convergent design is uniquely suited for evaluating complex educational frameworks because it captures both the measurable extent of policy implementation via numerical indices and the practical classroom realities experienced by practitioners on the ground. By merging statistical trends with descriptive qualitative contexts, this approach minimizes measurement bias and maximizes the validity, credibility, and overall completeness of the investigation (Lu et al., 2021).

Sampling Framework and Participants

The target population was inherently specialized, necessitating a multi-stage purposive sampling framework to select 18 counties across Kenya as primary study sites (Saunders et al., 2019). Purposive selection was mandatory to ensure that only special primary schools and specialized units actively implementing autism-focused Individualized Education Programmes (IEPs) were included, thereby eliminating statistical noise from general education setups (Creswell & Creswell, 2018; Etikan et al., 2016).

- **Teacher Sample:** From an initial finite population of N = 60 special education teachers, a target sample size of n = 52 was established using the Krejcie and Morgan (1970) sample size determination table. Following a 90.4% response rate, a final sample of 47 completed teacher questionnaires was secured. To generate deep qualitative insights, a nested sub-sample of 14 teachers was purposively selected from this cohort for semi-structured interviews.
- **Learner and Record Sample:** The target learner population comprised N = 120 learners with autism. The Krejcie and Morgan (1970) formula indicated a target sample of n = 92 learners. However, a comprehensive field audit revealed that only 62 of these targeted learners possessed active, documented IEP records. Consequently, a total census of all 62 available IEP files was utilized for qualitative document analysis. From this group, a nested sub-sample of 18 learners was directly monitored during active instruction using a structured observation schedule to evaluate real-time functional skill behaviours.

The comprehensive sampling frame and corresponding data return distributions are summarized in Table 1.

Table 1: Methodological Sampling Frame and Achieved Sample Distribution

Participant / Record Category	Target Population (N)	Target Sample Size (n)	Actual Achieved Sample (n)	Response / Execution Rate (%)	Primary Instrument Deployed
Teacher Questionnaires	60	52	47	90.4%	Structured Likert Scale Survey
Teacher Interviews	47	—	14	29.8%	Semi-Structured Interview Schedule
IEP Document guide	120	92	62	67.4%	Qualitative Document Analysis Guide
Learner Observations	62	—	18	29.0%	Qualitative Learner Observation Protocol

Note. Field data (2023)

Instruments for Data Collection

To facilitate deep methodological triangulation, data collection was executed using four distinct instruments designed to cross-verify the independent and dependent variables (Creswell & Creswell, 2018):

- **Teacher Questionnaires:** A standardized, closed-ended instrument containing Likert-scale items designed to capture quantitative distributions across the five core IEP components.
- **Semi-Structured Interview Schedules:** An open-ended qualitative tool using "how" and "why" prompts to capture the lived experiences and institutional challenges of the 14 selected special education teachers.
- **Individualized Education Programme (IEP) Document Analysis Guides:** A qualitative textual template utilized to audit the 62 active learner files for compliance, clarity, and structural alignment.
- **Qualitative Learner Observation Protocols:** A double-entry anecdotal running record sheet utilized during the real-time monitoring of the 18 selected learners to track behavioral scaffolding and functional skill execution.

Validity and Reliability of the Instruments

Instrument Validity

To guarantee that the data collection instruments accurately measured the intended theoretical constructs and operational dimensions, face and content validity were established (Mugenda & Mugenda, 2003). Face validity was verified through systematic evaluations of instrument clarity, readability, and linguistic appropriateness. University research supervisors and independent experts in Special Needs Education (SNE) reviewed all drafts, leading to the refinement or elimination of ambiguous, poorly worded, or repetitive prompts (Amin, 2005).

Content validity was institutionalized through expert judgment panels within the Department of Special Needs Education. The specialists evaluated whether the individual items adequately represented the structural dimensions of both the independent variables (PLOP assessments, goal formulation, instructional selections, progress monitoring, and multidisciplinary collaboration) and the dependent variable (functional skill acquisition). Panel feedback regarding item comprehensiveness, technical vocabulary, and objective alignment was integrated into the final qualitative and quantitative tools.

Instrument Reliability

Reliability was established to ensure internal consistency, structural stability, and the reduction of measurement errors across identical testing conditions (Poitras et al., 2019). The primary quantitative teacher questionnaire was subjected to a pilot study among special education teachers sharing demographic characteristics identical to the target population but drawn from special units excluded from the final research sample. Data obtained from the pilot study were analyzed using Cronbach's alpha coefficient (α) to determine the internal consistency of the multi-item Likert scales measuring each independent and dependent construct (Cronbach, 1951).

Adhering to psychometric conventions where an alpha coefficient of 0.70 or above represents acceptable internal reliability (Nunnally & Bernstein, 1994), the analysis yielded satisfactory reliability statistics ranging from 0.73 to 0.82 across all investigated study variables. The specific construct profiles, item distributions, and corresponding stability indices are structured within Table 2.

Table 2: Reliability Statistics for Study Constructs (Pilot, n = 10)

Core Study Construct / Strand	Number of Items	Cronbach's Alpha Coefficient (α)	Internal Consistency Status
Use of Individualized Instructional Strategies	8	0.73	Acceptable / Stable

Note. Field data (2023)

The empirical outputs in Table 2 demonstrate that the variable possessed strong, homogeneous parameter properties, with item correlations tracking comfortably above the minimal statistical threshold.

Consequently, the instruments were verified as psychometrically stable, structurally cohesive, and fully reliable for executing main-study field data collection across the sampled special units in Kenya.

RESULTS AND DISCUSSION

Discussion of Findings on Individualized Instructional Strategies

The empirical findings for the study objective revealed a significant perception-practice gap, where special education teachers show nominal alignment with the ideals of individualization but exhibit serious structural

failures in classroom implementation and documentation. The general composite score for this instructional strand yielded an Overall Mean of 3.22 with a Standard Deviation of 1.09 (with a composite vector distribution of 0.96) in Table 3.1 below. This statistical baseline indicates that, on average, teachers employ individualized instructional strategies to a moderate extent during IEP execution. The composite standard deviation exceeding unity (1.09) reveals an exceptionally wide dispersion across the dataset, demonstrating that while basic behavioural strategies are widespread, the overall execution of comprehensive, evidence-based autism pedagogy is highly uneven and polarized across special units in Kenya.

Table 3.1 Teaching strategies used by teachers (n=47)

S/N	Teachers	VLE	LE	SE	VSE	N	Mean	SD
1	Behaviour Modification	17 (36%)	15 (32%)	9(19%)	5(11%)	1(2%)	3.89	1.09
2	Task Analysis	15 (32%)	19(40%)	4(9%)	6(13%)	3(6%)	3.79	1.21
3	Modelling and Imitation	10(21%)	21(45%)	4(9%)	10(21%)	2(4%)	3.57	1.17
4	Differentiated instruction	5(11%)	21(45%)	10(21%)	9(19%)	2(4%)	3.38	1.05
5	Picture Exchange Communication System	4(9%)	18 (38%)	15 (32%)	6(13%)	4(9%)	3.26	1.07
6	Direct approach	4(9%)	15 (32%)	13(28%)	13(28%)	2(4%)	3.13	1.06
7	Incidental Teaching	2(4%)	3(6%)	17 (36%)	15 (32%)	10(21%)	2.40	1.04
8	Diagnostic Perspective Approach	2(4%)	3(6%)	15 (32%)	17 (36%)	10(21%)	2.36	1.03
	Overall mean						3.22	1.09

KEY: VLE – Very large extent, LE- Large extent, SE – Small extent, VSE- Very small extent, N- Not at all

Source: Author Survey Data (2023).

This systemic disconnect is anchored by the mismatch between the survey's moderate differentiation score (Mean = 3.38, SD = 1.05) and the physical fact that 68.1% of audited IEP records demonstrated poor documentation of accommodations. Conceptually, effective differentiation requires modifying instructional content, processing speeds, environmental configurations, or learning outcomes to accommodate a learner's unique neurodevelopmental readiness and sensory profile (Tomlinson, 2013). However, the physical omissions in the audited learner files confirm that special education teachers struggle to operationalize these adaptations within the IEP process. This bottleneck directly validates the work of Bondie et al. (2019) and Stingo (2024), who argued that transitioning from traditional, "one-size-fits-all" group models to differentiated instruction is consistently undermined by inconsistent theoretical understanding and low operational rigor, particularly when managing learners requiring intensive behavioral support.

A similar divergence was visible regarding augmentative communication systems. While 65% of surveyed teachers claimed to utilize PECS to a large extent (Mean = 3.26, SD = 1.07), the qualitative file audit revealed that teachers routinely equate the general deployment of picture cards with the formal execution of the protocol. By omitting the structural pillars of the intervention such as discrete communicative exchanges, systematic prompt-fading procedures, and explicit phase progression the clinical efficacy of the tool is heavily compromised. As Alsayedhassan et al. (2021) and Wildmon et al. (2023) established, PECS requires strict, sequential phase progression to foster independent, functional expressive communication in minimally

verbal learners with autism. The unstandardized use of visual symbols documented across the Kenyan units points to a significant deficit in teachers' conceptual understanding and an underlying breakdown in intervention fidelity.

This pedagogical rigidity is further visible within the sub-baseline scores recorded for incidental teaching (Mean = 2.40, SD = 1.04) and the diagnostic-prescriptive approach (Mean = 2.36, SD = 1.03). The complete lack of written data linking continuous assessment to active instructional adaptation proves that instruction remains detached from data-driven modification. Instructional strategies must act as a dynamic bridge connecting a learner's Present Level of Performance (PLOP) directly to their individual annual goals through flexible, evidence-based targets (Xu & Kuti, 2021). When teachers fail to systematically implement child-led, naturalistic opportunities or continuous assessment loops, opportunities for authentic skill generalization collapse. Ultimately, as supported by Anderson and Carr (2021), this pattern of uneven, low-fidelity implementation is a direct symptom of inadequate specialized teacher preparation and an absence of institutional support systems, leaving Kenyan special education teachers unable to translate empirical autism research into functional classroom realities.

Qualitative Triangulation and Document Analysis of Instructional Strategies

To complement the quantitative survey metrics, a comprehensive document audit was executed across the total census of 62 active learner IEP files (Creswell & Plano Clark, 2017). The qualitative review evaluated the depth, fidelity, and structural compliance of written instructional strategies against the identical operational dimensions measured in the questionnaires. The thematic analysis of these documentary records revealed a stark, critical divergence between the teachers' high self-reported instructional utilization and the actual physical evidence recorded within learner files. This analytical process generated one overarching master theme: The Illusion of Pedagogical Variety versus the Omission of Systematic Implementation Fidelity, which is broken down into four core qualitative themes.

Theme 1: Strategies Documented, but Procedures Under-Specified

The qualitative document review revealed substantial variation and systemic under-specification in the quality and completeness of instructional records. In most learner files, evidence-based interventions including behaviour modification, task analysis, modeling, PECS, incidental teaching, and the diagnostic-prescriptive approach were either undocumented or implemented only partially. This structural fragmentation indicates exceptionally weak fidelity in the practical application of autism pedagogy.

For instance, task analysis was structurally examined through evidence of sequential task breakdowns, chaining procedures, and instructional scaffolding matrices, while the Picture Exchange Communication System (PECS) was evaluated via documentation tracking structured picture exchanges, communication partners, and explicit phase progression. In practice, however, these parameters were largely ignored. A prime example was observed in learner file F01, which contained notation that picture cards were being deployed to facilitate learner concept formation, with the special education teacher explicitly labeling this intervention as PECS. Nevertheless, the accompanying documentation entirely lacked the critical procedural components required for authentic PECS implementation. There was no evidence detailing the specific communication partners involved, the learner's systematic progression through the six progressive PECS phases, structured prompting hierarchies, or planned prompt-fading procedures to promote learner autonomy. Consequently, while basic visual aids were present, the empirical evidence fails to demonstrate the execution of PECS as an evidence-based communication protocol, highlighting a tendency to mistake generic visual tracking for specialized clinical intervention.

Theme 2: Limited Monitoring Obscures Instructional Fidelity and Learner Progress

A matching pattern of superficial implementation emerged regarding behavioural manipulation and assessment-driven planning. Learner files F02, F03, and F04 explicitly noted that teachers utilized behaviour modification to a "very large extent". However, the qualitative file audits completely failed to substantiate these claims. The records contained zero systematic behaviour tracking charts, functional reinforcement

schedules, token-economy rule matrices, or structured behavioural intervention plans. Instead, the documentation confirmed that teachers relied almost exclusively on a highly restricted, ad-hoc range of isolated behavioural techniques, specifically basic token reinforcement, verbal prompting, modeling, and praise. Other empirically supported behaviour modification procedures vital for managing the complex behavioural manifestations of autism, including negative reinforcement hierarchies, systematic shaping, systematic prompt-fading, differential reinforcement schedules, extinction protocols, response cost variables, time-outs, and behaviour contracts, were entirely absent from all 62 reviewed files. This points to a severe conceptual deficit where special education teachers equate isolated behavioural actions with comprehensive behaviour intervention programs.

Furthermore, none of the reviewed learner files contained any evidence of implementing the diagnostic-prescriptive approach. There were no records indicating continuous, assessment-driven instructional planning, systematic diagnostic evaluations, progress-monitoring cycles, or instruction-to-profile modifications based on learners' evolving strengths and needs. The complete absence of this approach raises serious concerns regarding the extent to which instructional planning is informed by objective, ongoing learner data, despite this being the fundamental, mandatory principle of individualized educational programming.

Theme 3: Evidence-Based Practices Implemented Only in Part

The qualitative file audit revealed that the interventions most diluted during classroom execution were behaviour modification, task analysis, PECS, and the diagnostic-prescriptive approach. While these tools were superficially named in the documents, they were implemented only in part, fundamentally crippling their therapeutic and pedagogical utility. Under the lens of Applied Behaviour Analysis (ABA), this partial implementation directly threatens intervention fidelity. As Anderson and Carr (2021) argue, addressing widespread practitioner misconceptions surrounding behavioural interventions requires strong collaboration between researchers, special education teachers, and policymakers to mandate standardized classroom implementation protocols.

This partial execution creates a severe pedagogical bottleneck. In accordance with Xu and Kuti (2021), evidence-based instructional strategies constitute the absolute structural mechanism through which a learner progresses from their assessed Present Level of Performance (PLOP) toward realizing individualized annual targets. Within the Kenyan Competency-Based Curriculum (CBC) context, these partial documentation trends underscore an urgent need for specific policy guidelines that explicitly embed and enforce evidence-based autism protocols within everyday IEP implementation to rescue the curriculum from becoming a superficial compliance exercise.

Theme 4: Individualization and Adaptation Remain Weakly Documented

A matching pattern of omission emerged across strategies requiring heavy individualization, including differentiated instruction, incidental teaching, and alternative communication. Quantitatively, teachers reported moderate utilization of differentiated instruction (Mean = 3.38, SD = 1.05), implying that roughly two-thirds of the sample routinely adapted lessons. However, the qualitative record analysis exposed a glaring perception-practice gap: 68.1% of the audited IEP files completely lacked descriptions of accommodations, curriculum modifications, or individualized adaptations tailored to the learner.

This absence of documentation confirms that differentiation was implemented inconsistently and without consideration of the core cognitive characteristics associated with autism, such as deficits in central coherence, executive functioning, and cognitive flexibility. True differentiation requires the systematic, written adaptation of content, instructional processes, and learning environments based on the learner's unique profile. The lack of written evidence mirrors international implementation crises documented by Bondie et al. (2019) and Stingo (2024), who established that special education teachers universally struggle to transition from traditional "one-size-fits-all" approaches to differentiated pedagogy due to a weak methodological application of constructivist principles.

Similarly, while teachers reported moderate use of PECS (Mean = 3.26, SD = 1.07) and direct instruction (Mean = 3.13, SD = 1.06), the qualitative audit failed to confirm systematic implementation. Authentic PECS implementation requires strict sequential progression through multiple phases and demands at least two active communication partners during initial training to foster independent expression. Field observations revealed that most Kenyan special units are staffed by a single teacher managing a crowded room. Given the complete absence of written procedural evidence in the files, teachers are likely confusing the generic use of visual materials with the formal execution of the clinical PECS protocol.

This teacher-directed rigidity explains why child-centered approaches like incidental teaching (Mean = 2.40) and the diagnostic-prescriptive method (Mean = 2.36) collapsed to the bottom of the quantitative dataset. Written records contained zero evidence of naturally occurring teaching episodes, systematic environmental arrangements, or assessment-data-driven instructional adaptations.

Qualitative Triangulation via Teacher Interviews

The qualitative narratives gathered from the 14 semi-structured teacher interviews explicitly corroborated and explained the structural omissions identified during the file audits. The participants explained that their failure to achieve intervention fidelity was driven by severe institutional barriers rather than a lack of professional willingness. Teachers consistently noted that trying to implement complex, multi-phase autism interventions is impossible when operating in under-resourced classrooms with high learner-to-teacher ratios.

For instance, reflecting the visual translation gaps identified in Theme 4, Teacher T12 highlighted the daily material bottlenecks that stall alternative communication training:

"Sometimes we use pictures and demonstrations to help the learner understand tasks, but we do not always have enough materials to support the teaching" (Teacher T12, personal communication, 2023).

Furthermore, the qualitative data clarified why systematic task analysis and individualized differentiation plummeted in practice. From a Vygotskian standpoint, scaffolding a child's unique ZPD requires intense, direct, and continuous one-on-one interaction. Teacher T08 explained how overcrowding completely shatters this relational matrix:

"I try to break down activities into smaller steps for the learner, but it is difficult to do this for every lesson because of the large class" (Teacher T08, personal communication, 2023).

Ultimately, these combined mixed-methods datasets reveal that the implementation of evidence-based instructional strategies for learners with autism in Kenya remains highly fragmented. While teachers possess nominal awareness of behaviour modification and modeling, severe training deficits, chronic material scarcities, and unmanageable workloads force them to fall back on generic, group-based drilling.

Consequently, without targeted institutional interventions to improve classroom resources and specialized teacher preparation, written IEP goals cannot be successfully translated into classroom realities, leaving learners with autism isolated from true functional skill acquisition.

Mixed-Methods Integration and Synthesis

Overall, the study established that teachers used instructional strategies during IEP implementation to a moderately high extent; however, their practices were disproportionately oriented towards teacher-directed behavioural approaches, particularly behaviour modification (M = 3.89, SD = 1.09) and task analysis (M = 3.79, SD = 1.21), while naturalistic teaching and diagnostic-prescriptive approaches were underutilized. Although teachers reported using behavioural interventions and differentiated instruction, document analysis revealed substantial implementation gaps, with 96.8% of reviewed IEPs lacking objective behavioural monitoring records and 68.1% demonstrating inadequate individualization. Similarly, the use of visual

supports often deviated from formal PECS protocols, while limited prompt fading and progress monitoring undermined effective scaffolding and learner independence.

These findings suggest a disconnect between teachers' reported practices and the systematic, individualized application of evidence-based instructional strategies required for effective IEP implementation. Consistent with previous research (Bondie et al., 2019; Cook & Odom, 2013; Iadarola et al., 2018), the study indicates that inadequate autism-specific training, resource scarcity, overcrowded classrooms, and high teacher workloads constrain instructional fidelity. Consequently, IEP implementation risks becoming an administrative exercise rather than a dynamic, assessment-driven process that promotes meaningful learning, functional communication, and autonomy among learners with autism.

Multivariate Discussion: The Quality-Fidelity Paradox in Autism Pedagogy

The binary logistic regression model reveals an unexpected statistical paradox: the self-reported frequency of deploying individualized instructional strategies was not a statistically significant predictor of high functional skill acquisition at either the moderate (beta = -1.070, p = 0.090) or large (beta = -0.793, p = 0.054) implementation levels. Because these log-odds coefficients are negative, the resulting odds ratios fall substantially below unity (OR = 0.343 and OR = 0.452, respectively), indicating a lower statistical probability of functional skill mastery when the model evaluates these strategies in isolation.

Table 3: Logistic Regression Subset for Individualised Instructional Strategies on the Acquisition of Functional Skills for LWA (n = 47)

Predictor Variable	**Response**	**Beta (β)**	**Std. Error**	**Odds Ratio (OR)**	**P-value**
Using Instructional Strategies	(Small Extent)	—	—	1.000	—
	Moderate	-1.070	1.012	0.343	0.090
	Large extent	-0.793	0.989	0.452	0.054
Model Fit Diagnostics					
Omnibus Tests of Model Coefficients	$\chi^2 = 24.116$	df = 2			$p < 0.001$
Nagelkerke R-Square (R^2)	0.418				
Hosmer and Lemeshow Test	$\chi^2 = 5.241$	df = 8			$p = 0.731$
Overall Classification Accuracy	78.7%				

Source: Author Survey Data (2023)

This unexpected finding requires careful interpretation and supports a fundamental rule in special education: clear diagnostics must guide the precise selection and implementation of teaching methods to maximize learner outcomes (Yell et al., 2020). A lack of statistical significance does not mean pedagogical strategies are inherently ineffective. Instead, it signals that the sheer volume or self-reported frequency of strategy use is insufficient when intervention fidelity and quality of implementation are missing on the ground (Anderson & Carr, 2021). For learners with autism, pedagogical strategies cannot be applied as generic, one-size-fits-all solutions. Autistic learners possess highly distinct, heterogeneous neurodevelopmental learning profiles; an

instructional prompt or sensory modifier that reduces anxiety and improves focus for one learner might trigger a severe behavioural meltdown or intense sensory aversion in another (Knight et al., 2019; Sulu et al., 2021).

From an ABA perspective, this parameter behaviour shows that mechanically repeating an instructional technique has no predictive power when detached from structured, data-driven baselines and systematic reinforcement schedules. As uncovered in the qualitative document analysis (where 68.1% of files demonstrated poor compliance), teachers frequently equate the general use of loose picture cards with the formal, six-phase clinical protocol of the PECS. This widespread substitution of unstandardized visual aids for evidence-based interventions severely dilutes the statistical accuracy of the questionnaire metrics, creating an artificial inflation of self-reported strategy use that collapses when subjected to multivariate regression.

Furthermore, this statistical outcome illustrates a major breakdown within the practical execution of Vygotsky's ZPD. Instructional strategies can only function as effective educational scaffolding if the teacher acting as a More Knowledgeable Other (MKO) dynamically modifies and gradually fades prompts in direct response to the learner's immediate performance (Vygotsky, 1978). When teachers implement isolated behavioural or visual practices out of context due to large class sizes and heavy workloads, the instructional baseline becomes highly unstable. This regression pattern strongly validates the assertions of Kiambati et al. (2025) and Xu and Kuti (2021), proving that the quality, precision, and diagnostic accuracy of teaching methods matter far more than mere classroom frequency. Ultimately, the model confirms that for an instructional intervention to successfully drive long-term communication, self-regulation, and independent living skills among learners with autism in Kenya, it must move beyond superficial administrative compliance and be strictly integrated into a high-fidelity, assessment-driven IEP infrastructure.

Methodological Limitation: Addressing Social Desirability and Self-Report Bias

A notable limitation of the quantitative phase of this study is its reliance on teacher self-reported survey data regarding the deployment frequency of individualised instructional strategies. Self-reporting introduces a potential social desirability bias, where special education teachers may intentionally or inadvertently over-report their adherence to evidence-based practices such as PECS execution or behavioural modifications to align with idealized policy expectations or professional standards. This phenomenon explains the 'quality-fidelity paradox' observed in the multivariate analysis, where high self-reported frequencies did not statistically translate into enhanced learner outcomes. To mitigate this bias and preserve internal validity, the study design explicitly integrated a convergent parallel mixed-methods framework. Quantitative metrics were rigorously cross-verified and triangulated against a concurrent census of 62 active learner IEP records and 18 direct classroom observations. This multi-layered tracking allowed the study to look past superficial survey claims and uncover the practical implementation gaps occurring on the ground.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

Extent to Which Teachers Use Individualized Instructional Strategies

The quantitative data indicated that special education teachers perceive themselves as deploying a moderately high repertoire of instructional strategies, yielding an Overall Mean of 3.22 (SD = 1.09, Composite Variance = 0.96). The highest self-reported utilization tracked within traditional behavioural and highly structured modalities: Behaviour Modification (Mean = 3.89, SD = 1.09), Task Analysis (Mean = 3.79, SD = 1.21), and Modeling/Imitation (Mean = 3.57, SD = 1.17). Differentiated Instruction (Mean = 3.38) and the PECS (Mean = 3.26) were rated moderately. Conversely, child-centered naturalistic and assessment-driven strategies scored the lowest: Incidental Teaching (Mean = 2.40, SD = 1.04) and the Diagnostic-Prescriptive Approach (Mean = 2.36, SD = 1.03). However, qualitative triangulation from the total census of 62 audited learner IEP files and 14 semi-structured teacher interviews exposed a profound perception-practice discrepancy characterized by clear implementation fragmentation:

- **Superficial Behavioural Application:** While behaviour modification was widely claimed, the audited records completely lacked baseline behaviour data, systematic tracking charts, or functional token economies. Teachers relied on isolated verbal prompting and token rewards, entirely omitting advanced evidence-based techniques such as shaping, fading, or differential reinforcement schedules.
- **Procedural Failures in Alternative Communication:** Although visual materials were present, 0% of the reviewed learner records demonstrated procedural fidelity to the formal, six-phase PECS protocol. Core parameters including multi-partner communicative exchanges and progressive prompt-fading metrics were absent, indicating that special education teachers confuse generic picture displays with specialized clinical protocols.
- **Deficiencies in Classroom Differentiation:** A striking 68.1% of the audited files were rated as poor regarding the documentation of individualized learner accommodations, curriculum modifications, or flexible environmental adaptations, while a mere 12.8% achieved a very good rating.
- **Systemic Absence of Diagnostic-Prescriptive Planning:** Not a single reviewed learner file showed evidence of data-driven instructional adaptation. There were no continuous progress-monitoring charts, systematic diagnostic reviews, or instruction-to-profile revisions effected based on learner data.

Qualitative teacher narratives corroborated these documentation gaps. The 14 interviewed SNE teachers explained that severe institutional constraints, specifically under-resourced classrooms, single-teacher environments (which physically paralyze multi-partner communication interventions like initial PECS training), heavy documentation workloads, and severe classroom over-enrollment forced them to dilute complex empirical practices into unstructured, intuitive variations.

Influence of Independent Variables on the Acquisition of Functional Skills

The inferential phase evaluated how the five core IEP components collectively predict the successful acquisition of daily living, communication, and self-regulation skills among learners with autism (n = 47). A multivariate Binary Logistic Regression model revealed a distinct, all-or-nothing threshold effect: executing IEP activities halfway ("Moderate Extent") generated zero statistically significant benefit for the learner. Conversely, thorough, high-fidelity execution ("Large Extent") served as a powerful predictor of successful functional skill acquisition across the units.

Regarding the specific instructional strategies predictor variable, the model revealed that the sheer volume or self-reported frequency of teaching strategy use carried zero independent predictive power when evaluated in isolation within the model, generating non-significant parameters at both the moderate (beta = -1.070, p = 0.090) and large (beta = -0.793, p = 0.054) implementation levels. Because these log-odds coefficients tracked negatively, the resulting odds ratios fell below unity (OR = 0.343 and OR = 0.452, respectively), proving that the frequency of technique application is secondary to the technical precision, consistency, and diagnostic alignment of the execution.

Conclusions

Extent to Which Teachers Use Individualized Instructional Strategies

Special education teachers working with learners with autism in Kenya suffer from a critical intervention fidelity deficit. While practitioners maintain a strong conceptual awareness of specialized instructional approaches, they implement them as isolated, unsystematic classroom techniques rather than comprehensive, evidence-based programs. The widespread misapplication of protocols like PECS and behaviour modification reduces highly technical, empirical interventions into simple, intuitive teaching aids, stripping them of their therapeutic utility.

Furthermore, the near-total absence of naturalistic (incidental) and assessment-driven (diagnostic) instruction confirms that classroom teaching remains rigid, teacher-directed, and disconnected from the fluid, real-world communication profiles of learners with autism. Ultimately, this lack of procedural precision and data-driven prescription severely shatters the application of Vygotsky's ZPD and violates the

core tenets of ABA, stifling the learners' ability to successfully acquire, maintain, and generalize functional competencies.

Influence of IEP Components on Functional Skill Acquisition

From the multivariate regression outcomes, it is concluded that functional skill acquisition among learners with autism cannot be achieved through superficial administrative compliance or the mechanical repetition of isolated teaching techniques. Because individualized strategies require high contextual customization, simply increasing the frequency of a strategy without anchoring it directly to a data-driven baseline (Present Levels of Performance) or an explicit behavioural goal (SMART criteria) fails to yield statistical benefit. Ultimately, the successful translation of an IEP into meaningful learner autonomy depends strictly on an integrated, high-fidelity infrastructure where diagnostic profiling, technical goal construction, and systematic progress monitoring are seamlessly executed in tandem.

Recommendations

Recommendations for Policy and Curriculum Development

- **Institutionalization of Evidence-Based Guidelines:** The Ministry of Education, through the Kenya Institute of Curriculum Development (KICD), must develop explicit, practical policy guidelines that embed specific, standardized autism protocols (such as ABA prompting hierarchies, token economy rules, and the six progressive phases of PECS) directly into the Competency-Based Curriculum (CBC) foundation-level framework for special units.

- **Standardization of Diagnostic Rubrics:** The Directorate of Special Needs Education should design and distribute standardized, context-adapted diagnostic checklists to replace broad, non-quantifiable written descriptions, ensuring that teachers have the baseline metrics required to map a learner's precise Zone of Proximal Development.

Recommendations for Educational Practice, Resource Optimization, and Localized Scaffolding

- **Autism-Specific Professional Development:** The Kenya Institute of Special Education (KISE) should design and execute mandatory, hands-on in-service training programs focusing strictly on the technical mechanics of behavioural goal writing, implementation fidelity, and text-based functional performance reporting.

- **Deployment of Paraprofessionals and Classroom Assistants:** School administrations and the Teachers Service Commission (TSC) must prioritize the deployment of trained teacher support assistants within specialized units to alleviate heavy workloads.

- **Institutionalizing Low-Cost Visual Communication Scaffolding:** To bypass the chronic material scarcities identified in Theme 1 and Theme 4, school administrators should establish localized production pipelines for alternative communication aids. Instead of relying on imported or commercially printed communication graphics, units can leverage zero-cost local items such as cardboard packaging, recycled charts, and hand-drawn illustrations or cut-outs from outdated local textbooks to construct functional communication boards. These locally manufactured tokens and image sets must be systematically arranged to follow the initial physical exchange principles of the PECS protocol, ensuring that material limitations do not cause evidence-based alternative communication interventions to collapse into generic visual displays.

- **Structuring Localized Peer-Modeling Scaffolding Frameworks**: SNE teachers should actively establish peer-modeling networks by pairing learners with ASD who exhibit emerging functional competencies with peer-models who possess stronger social or self-regulation baselines. By systematically embedding these interactions within routine school milestones such as meal times, cleanup activities, and outdoor play, teachers can facilitate organic imitation without requiring

structured learning aids. This relational scaffolding operationalizes Vygotsky's Zone of Proximal Development (ZPD) within a resource-constrained framework, allowing the peer-model to co-facilitate behavioural progression and social skill acquisition under the teacher's general supervision.

- **Quality and Customization over Quantity:** Teachers must shift from the mechanical repetition of isolated behavioural strategies to data-driven customization. Every instructional intervention must be explicitly mapped onto the learner's unique baseline profile as captured in their present levels of performance.

REFERENCES

1. Alsayedhassan, B., Banda, D. R., & Kim, Y. (2021). Review of the Picture Exchange Communication System (PECS) for individuals with Autism Spectrum Disorder. Journal of Behavioral Education, 30(4), 589–612.
2. Alodat, A. M., Al-Khateeb, J. M., & Al-Zyoud, M. S. (2020). Implementation of individualized education programs for students with autism spectrum disorder in Jordan: Challenges and instructional strategies. International Journal of Special Education, 35(2), 143–156.
3. Amin, M. E. (2005). Social science research: Conception, methodology and analysis. Makerere University Printery.
4. Amponsah, S., Kwakye, E., & Osei-Owusu, B. (2020). Individualized education program implementation challenges for learners with developmental disabilities in Ghana. African Journal of Special and Inclusive Education, 5(1), 32–45.
5. Anderson, C. M., & Carr, M. E. (2021). Addressing common misconceptions in behavior modification and implementation fidelity for autistic learners. Behavior Analysis in Practice, 14(2), 411–425.
6. Bond, C., Symes, W., Hebron, J., & Wood, R. (2018). Evidence-based instructional strategies for learners on the autism spectrum: A systematic review. International Journal of Inclusive Education, 22(8), 903–920.
7. Bondie, R. S., Dahnke, C., & Zusho, A. (2019). How does changing "one-size-fits-all" instruction to differentiated pedagogy impact teacher efficacy? Teachers College Record, 121(11), 1–34.
8. Bordini, D., Gadelha, A., & Paula, C. S. (2024). Integrating behavioral teaching strategies and socially responsive environments in autism interventions. Autism, 28(3), 612–624.
9. Bravo, A., & Schwartz, I. S. (2022). Peer modeling, imitation, and social communication scaffolding for learners with autism in early years units. Journal of Early Intervention, 44(1), 78–95.
10. Burns, M. K., Karich, A. C., & Maki, K. E. (2023). Quality metrics of present levels of performance statements and their empirical association with student achievement outcomes. Exceptional Children, 89(2), 184–201.
11. Capizzi, A. M. (2008). From PLOP to objective goals: Direct mapping of baseline performance into measurable educational goals. Teaching Exceptional Children, 41(1), 68–75.
12. Chen, L., Wang, T., & Liu, Y. (2025). High caseloads, under-developed adaptive behaviors, and the risk of social exclusion for autistic students in inclusive setups. International Journal of Disability, Development and Education, 72(1), 45–62.
13. Chitiyo, M., & Chitiyo, G. (2021). Analyzing the structural measurability of annual targets within individualized education programs in Zimbabwe. African Journal of Special Education Research, 12(2), 89–102.
14. Cooper, J. O., Heron, T. E., & Heward, W. L. (2020). Applied behavior analysis (3rd ed.). Pearson.
15. Cox, J., Mueller, T. G., & Lane, K. L. (2025). The direct empirical relationship between IEP goal quality and functional learning outcomes. The Journal of Special Education, 58(4), 211–223.
16. Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). SAGE Publications.
17. Creswell, J. W., & Plano Clark, V. L. (2017). Designing and conducting mixed methods research (3rd ed.). SAGE Publications.
18. Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16(3), 297–334.

19. Dar, M. A. (2024). Neurodevelopmental profiles, behavioral flexibility, and individualized goals for learners with autism. Global Journal of Special Education, 10(1), 14–29.
20. De Souza, R., Rojo, M., & Wade, S. (2023). Combining parent-mediated instruction and collaborative multidisciplinary teams to enhance autism intervention fidelity. Journal of Autism and Developmental Disorders, 53(6), 2411–2426.
21. Debbag, M. (2017). Investigating the competence and challenges of special educators in Turkey regarding baseline data collection. Eurasian Journal of Educational Research, 17(69), 115–132.
22. Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. American Journal of Theoretical and Applied Statistics, 5(1), 1–4.
23. Frampton, S. E., Shillingsburg, M. A., & Thompson, T. M. (2021). Systematic prompting, prompting hierarchies, and reinforcement schedules in discrete trial teaching for children with autism. Behavior Analysis in Practice, 14(3), 701–715.
24. Gordillo, L., & Miller, R. A. (2017). Progress monitoring with data collection of IEP annual goals. Public Consulting Group White Paper Series.
25. Harmon, S., Street, J., Bateman, D. F., & Yell, M. L. (2020). Developing legally compliant present levels of academic achievement and functional performance statements. Teaching Exceptional Children, 52(5), 320–332.
26. Hauser, S. M. (2017). Aligning diagnostic assessments with annual goals and flexible scaffolding: A pathway to intervention success. Exceptionality, 25(3), 195–210.
27. Iadarola, S., Hetherington, S., & Clinton, C. (2018). Behavioral modification interventions, adaptive functioning, and social participation outcomes for autistic children. Journal of Clinical Child & Adolescent Psychology, 47(4), 512–527.
28. Izuno-Garcia, A. K., Kim, S. Y., & Chen, D. (2022). Beyond traditional academic metrics: Prioritizing functional communication and self-regulation competencies for autistic learners entering primary units. Focus on Autism and Other Developmental Disabilities, 37(3), 164–176.
29. Kassai, B., Trimarco, B., & Laghi, F. (2019). Clinical utility of individualized planning in addressing the diverse behavioral and sensory needs of learners with autism. Developmental Medicine & Child Neurology, 61(8), 914–922.
30. Kenya Institute of Curriculum Development. (2018). Competency-based curriculum framework for learners with severe disabilities. Government Printer.
31. Kiambati, M. W., Mukuria, G., & Ndani, M. N. (2025). Specialized autism-specific teacher preparation, professional development gaps, and structural alignment inside special units in Kenya. East African Journal of Education Studies, 8(1), 112–126.
32. Knight, V. F., Sulu, M. D., & Sartini, E. C. (2019). Intervention fidelity bottlenecks: Evaluating teacher practical readiness and pedagogical knowledge regarding evidence-based autism strategies. Remedial and Special Education, 40(5), 295–309.
33. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607–610.
34. Laghi, F., & Trimarco, B. (2020). Tailoring educational scaffolding to individual learner characteristics inside specialized autism classrooms. European Journal of Psychology of Education, 35(2), 401–418.
35. Lu, X., Creswell, J. W., & Yin, R. K. (2021). Combining multi-faceted data collection methods to eliminate measurement bias and enhance validity in complex educational research. International Journal of Research & Method in Education, 44(2), 154–171.
36. Lukins, J. A., Walker, S., & Bond, C. (2023). Classroom implementation inconsistencies in real-time prompting and prompt-fading procedures during Picture Exchange Communication System (PECS) interventions. Augmentative and Alternative Communication, 39(2), 104–118.
37. Mari, M., Sulu, M. D., & Knight, V. F. (2021). The gold standard for driving skill acquisition: Evidence-based approaches in autism units. Journal of Special Education Technology, 36(3), 145–159.
38. Masi, A., DeMayo, M. M., Glozier, N., & Guastella, A. J. (2017). An overview of autism spectrum disorder, heterogeneous manifestations, and the priority of functional independence indicators. Neuroscience Bulletin, 33(2), 183–193.
39. Ministry of Education. (2018). Sector policy for learners and trainees with disabilities. Government Printer.

40. Mugenda, O. M., & Mugenda, A. G. (2003). Research methods: Quantitative and qualitative approaches. Acts Press.
41. Mugwiria, M. (2016). Effectiveness of differentiated instruction on academic self-concept and motivation among primary learners in Meru County, Kenya (Unpublished doctoral dissertation). Kenyatta University.
42. Muller, T. G., Cox, J., & Lane, K. L. (2023). Improving the text quality and measurability of social-emotional IEP targets via structured goal-development toolkits. Behavioral Disorders, 48(2), 114–128.
43. Mutua, J. M., & Ogogo, J. A. (2022). Behavior modification, peer-mediated interventions, and classroom engagement among learners with autism spectrum disorder in Embu County, Kenya. European Journal of Special Education Research, 8(3), 44–59.
44. Nambuba, J., & Okech, J. B. (2019). Classroom pedagogical adjustments and structural constraints inside communication units in Uganda. African Journal of Special Education, 4(2), 67–81.
45. Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (3rd ed.). McGraw-Hill.
46. Odom, S. L., Hall, L. J., & Morin, K. L. (2020). Translating abstract student profile data into SMART educational objectives: Barriers encountered by practicing educators. Remedial and Special Education, 41(2), 84–97.
47. Ooko, M. A., & Aloka, P. J. O. (2021). Prompting, systematic praise, and corrective reinforcement variables among learners experiencing learning complications in primary school units. Journal of Educational and Social Research, 11(4), 215–228.
48. Orero, S. A., Nzoka, J. T., & Ogogo, J. A. (2024). Communication boards, Picture Exchange Communication System, and expressive language outcomes inside special education units in Kenya. Journal of Special Education and Rehabilitation, 25(1), 33–48.
49. Owala, J. (2021). Implementing the competency-based curriculum in Kenya: Successes and challenges. Journal of Educational Research and Practice, 11(1), 142–155.
50. Pang, Y., Pang, R., & Wang, Z. (2018). Shortages of speech therapists, behavioral specialists, and the collapse of individualized programming into generic group actions in developing education contexts. International Journal of Educational Development, 62, 201–213.
51. Poitras, S., Caron, J., & Skinner, B. F. (2019). Psychometric indices, reduction of measurement errors, and internal consistency parameters inside multi-item survey designs. Journal of Educational Measurement, 56(2), 312–329.
52. Railey, K. S., deBettencourt, L. U., & Love, M. L. (2020). Present levels of academic achievement and functional performance statements: The mandatory diagnostic blueprint driving teacher instructional effectiveness. Journal of Special Education Leadership, 33(1), 14–26.
53. Rodi, W. N., Dar, M. A., & Dar, L. A. (2024). Severe neurodevelopmental profiles, autism heterogeneity, and the execution of localized tracking systems. Journal of Intellectual & Developmental Disability, 49(2), 154–169.
54. Ruble, L. A., McGrew, J. H., & Toland, M. D. (2022). Low student-to-teacher ratios, specialized ancillary personnel, and baseline goal success in resource-rich educational setups. School Psychology Quarterly, 37(4), 312–325.
55. Saunders, M., Lewis, P., & Thornhill, A. (2019). Research methods for business students (8th ed.). Pearson Education.
56. Sitabkhan, Y., Kiambati, M. W., & Mugwiria, M. (2022). Overcrowded classrooms, limited teacher preparation, and the structural limitations of differentiated instructional adaptations in developing contexts. International Journal of Educational Research Open, 3, Article 100122.
57. Skinner, B. F. (1953). Science and human behavior. Macmillan.
58. Stingo, M. (2024). Practical difficulties in translating structural differentiation knowledge into standard inclusive classroom execution. Journal of Research in Special Educational Needs, 24(1), 54–68.
59. Sulu, M. D., Knight, V. F., & Sartini, E. C. (2021). The unique behavioral, communication, and sensory profiles of autistic learners: Why uniform group teaching models systematically fail. Education and Training in Autism and Developmental Disabilities, 56(2), 189–204.
60. Tefera, B., Okech, J. B., & Nambuba, J. (2021). Shortage of context-appropriate learning aids and the degradation of individual instructional design into generic group activities in East Africa. Eastern Africa Journal of Educational Research, 13(1), 45–61.

61. Tomlinson, C. A. (2013). Assessment and student success in a differentiated classroom. Association for Supervision & Curriculum Development.
62. Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.
63. Wade, S., Rojo, M., & Myara, T. (2022). Conceptualizing the individualized education program as a dynamic formative tool driven by continuous collaborative data loops. Exceptional Children, 88(3), 295–311.
64. Waithaka, C. (2015). Challenges facing teachers in the implementation of Individualized Education Programmes for learners with special needs in primary schools in Thika West Sub-County, Kenya (Unpublished master's thesis). Kenyatta University.
65. Walker, S., Lukins, J. A., & Bond, C. (2020). Maximizing incidental teachable moments inside natural school environments: Instructional fidelity gains among special school staff. Journal of Positive Behavior Interventions, 22(4), 211–224.
66. Wildmon, M., Alsayedhassan, B., & Banda, D. R. (2023). Multi-partner exchange mechanisms and sequential phase progression: Essential pillars for successful PECS execution. Focus on Autism and Other Developmental Disabilities, 38(2), 114–126.
67. Xu, Y., & Kuti, O. (2021). Bridging the gap between present levels of performance and individualized goals through assessment-driven classroom pedagogy. International Journal of Inclusive Education, 25(11), 1245–1261.
68. Yell, M. L., Mitchell, J. R., & Bateman, D. F. (2020). Legally compliant individualized education programs: Structuring the diagnostic alignment between baselines, annual goals, and progress tracking. Journal of Special Education Leadership, 33(2), 58–71.
69. Zagona, A. L., Maki, K. E., & Burns, M. K. (2024). Tracking the structural misalignment between documented student diagnostic baselines and actual written annual IEP goals. Remedial and Special Education, 45(1), 22–35.