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The Relationship between Resource Adaptation and the Teaching of Functional Skills to Learners with Cerebral Palsy in Special Units in Kilifi County.

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ABSTRACT

Cerebral palsy presents significant challenges in the teaching of functional skills to learners in Kilifi County, Kenya. These learners face difficulties in mobility, communication, self-care and social interaction skills essential for independent living. Kilifi County records a high prevalence of cerebral palsy, with over 202 learners enrolled in public special needs units. Despite this, the teaching of functional skills remains limited, primarily due to insufficient teacher preparedness. Only 41% of teachers have received specialized training in teaching functional skills, while 53% report challenges in delivering individualized instruction and 47% struggle with curriculum adaptation. Additionally, 62% of teachers cite a lack of adequate teaching and learning resources. These factors hinder effective instructional delivery and the ability of teachers to meet the complex educational needs of learners with CP. This study sought to establish the level of teacher preparedness in teaching functional skills to learners with cerebral palsy in Kilifi County, focusing on four variables: teacher attitudes, teacher training, instructional strategies and resource adaptation. The study adopted a correlation research design, targeting 4 head teachers, 30 special needs education teachers and 119 learners from selected special units. Questions were gathered through the use of checklists for observations, interview scheduling, and document analysis. Results showed that the teacher questionnaire had a reliability coefficient of 0.82, the observation checklist had a coefficient of 0.78, and the interview schedule had a coefficient of 0.80, indicating that the research instruments were valid and reliable according to the test-retest technique and content and face validation, respectively. We used descriptive statistics, Pearson correlation, and regression analysis to examine the quantitative data, and theme analysis to examine the qualitative data. With 84% of teachers believing in the potential of CP learners when properly supported, the data showed that positive attitudes greatly improve the teaching of functional skills ($r = 0.65$, $p < 0.01$). However, 53% of teachers faced difficulties in delivering individualized instruction ($r = -0.50$, $p < 0.01$) and 47% struggled with curriculum modification ($\beta = -0.50$, $p < 0.01$). Teacher training emerged as a key predictor of effective teaching ($\beta = 0.66$, $p < 0.01$), although only 41% of teachers had received specialized practical training. Furthermore, the use of structured, hands-on instructional strategies improved teaching outcomes ($\beta = 0.61$, $p < 0.01$), yet 62% of teachers indicated that resource limitations negatively impacted their ability to effectively teach functional skills ($\beta = -0.55$, $p < 0.01$). The study concludes that teacher preparedness particularly in attitudes, training, instructional strategies and access to adequate teaching resources which is critical to the effective teaching of functional skills to learners with cerebral palsy. It recommends the implementation of enhanced, practical teacher training programs, increased funding for adaptive learning resources and assistive technologies, structured interdisciplinary collaboration among teachers, therapists and caregivers and curriculum reforms that prioritize functional skills development for CP learners. These findings provide valuable insights for policymakers, curriculum developers and special needs education practitioners, informing strategies to improve the teaching of functional skills in resource-constrained settings like Kilifi County. Future research should explore long-term impacts of teacher training, investigate innovative approaches to resource adaptation and develop integrated models of support for teaching functional skills to learners with CP.

INTRODUCTION

Based on Pavo and Rocha (2017), Bax's 1964 definition of cerebral palsy (CP) is the most often used one: it is a disruption of movement and posture resulting from a defect or lesion in the developing brain. CP refers to a spectrum of continuous movement and postural problems arising from non-progressive disorders in the growing fetal or infant brain, therefore restricting activities (Sadowska, Sarecka-Hujar, & Kopyta, 2020). Affecting a child's motor skills, CP is a complicated disorder sometimes accompanied by other developmental and medical issues. Individual differences abound in the degree of the disease, and the symptoms could run from moderate to severe. Common complaints of CP include stiffness, muscle weakness, balance and coordination problems, and delayed motor development. Although there is no cure for CP, early intervention and continuous therapy can let people with the condition control their symptoms and realize their best possibilities. Teachers and care givers have a great responsibility to be aware of the particular needs of students with CP and offer suitable tools and assistance to enable their academic achievement and social settings (Sadowska et al. 2020; Pavo& Rocha, 2017).

Globally, statistics from national cerebral palsy registrations as well as population-based studies in the United States, Europe, and Australia point to a rather 2-3 per 1,000 kid prevalence of CP. Its frequency could maybe be more typical in underdeveloped countries. (Donald and colleagues, 2014). Though there are questions about inadequate data, the prevalence of CP in Africa is calculated to be 3–4 per 1,000 children (Kakooza-Mwesige et al., 2017).

Other deficiencies include hearing, vision, perception, cognition, communication, behavioral problems and visual are sometimes accompanying CP. Consequently, students with CP have rather different educational demands. Apart from the fundamental requirement to acquire knowledge and skills like other typically growing peers, individuals have particular education demands resulting from functional restrictions which influence their capacity to access regular education methods of instruction (Jones, 2018).For instance, learners with motor disability require special assistance to take active part in interaction and communication, while learners with speech disorder require Alternative and Augmentative Communication (AAC). CP is often accompanied by other disabilities such as hearing and vision impairments, perception and cognitive disabilities, communication, behavioral issues, epilepsy and musculoskeletal dysfunction (Colver, Fairhurst, &Pharoah, 2014; Fluss&Lidzba, 2020). Functional skills are essential since they provide children and adults with the abilities, knowledge, and understanding necessary for progress in their vocations, education, and personal life. It pertains to the application of a learner's problem-solving abilities to real-world scenarios (Norris, 2022).

Teacher preparedness refers to a new educator's possession of the requisite skills and knowledge for effective instruction, a comprehensive understanding of the subject matter to be taught, and the personal attributes and competencies necessary for fostering professional relationships (Mercado Jr, 2018). Teacher preparation is defined by the accessibility of instructional technologies and the elements that facilitate or obstruct the teaching of functional skills to learners with Cerebral Palsy (Peebles & Mendaglio, 2014). Teacher readiness encompasses the knowledge and skills that educators acquire through pre-service education and practical experience in the classroom. According to Hero (2020), standardized student testing, regular engagement in professional development, and enrollment in college courses are indications of teacher readiness. Additional indications encompass teacher training, knowledge and abilities, adaptability to curriculum, utilization of instructional aids, and collaboration with pertinent specialists (Chitiyo & Brenda, 2018).

Teacher preparedness is essential because it ensures that educators possess the necessary skills and knowledge required to effectively teach functional skills to learners with cerebral palsy (CP) (Deng, Kiramba, &Viesca, 2021). However, despite teacher preparedness, there may still be gaps or challenges present among learners with CP in acquiring these functional skills. Therefore, the problem lies in identifying and addressing these gaps or challenges to facilitate the effective teaching and learning of functional skills to learners with CP.

Teacher training institutions were established specifically to prepare educators for careers in the classroom. Musyoka, Gentry, and Meek (2017) found that general education teacher candidates lacked the necessary skills to successfully teach in inclusive classrooms and to interact with children who have special needs. Among learners with cerebral palsy (CP), there is often a lack of adequate support and resources tailored to their specific needs when it comes to teaching functional skills. These skills encompass various activities of daily living, mobility, communication and social interaction. There is a significant demand for teachers with the requisite skills to support students with special needs in Kilifi County, which has the highest prevalence of CP cases in the Coast region.

Research on inclusive education is limited, and what little there is has mostly concentrated on how to optimally equip educators for the challenge. One example is a qualitative study by Indrarathne (2019) that found teachers interviewed to have taken a required course on inclusive education but still did not have the ability to effectively teach kids with special needs in an inclusive classroom. Reed and Monda-Amaya (2015) found that aspiring general education teachers did not have the knowledge to successfully include children with special needs in regular classes and to create inclusive learning spaces. The findings should deeply trouble those in charge of training teachers and schools.

Through a number of research, it has been determined that teacher readiness has an impact on how well students are taught as judged by their performance. These investigations go back to the prehistoric era, before there was a clear line between a teacher, a guardian and a parent. A child's performance in a task was thought to be proportional to the amount of direction they received from their parent or teacher (Hsiao, 2015; Chitiyo& Brenda, 2018; Nijakowska, Tsagari, &Spanoudis, 2020).In the 18th and 19th centuries, the Industrial Revolution brought about changes in education. Teacher preparation institutions were created specifically to prepare teachers (teacher preparation) for careers in the classroom. This meant that before being hired as classroom teachers, teachers had to first develop specific teaching skills (Kayembe&Nel, 2019). Teacher readiness is the ability of a teacher to successfully present material to students in a classroom setting. This comprises preparing the teacher through training and planning for the delivery of curriculum information that has been approved, as well as for managing students in a classroom setting. (Shahroom, &Hussin, 2018). Teachers' attitude plays a vital role in promoting the independence and socialization of learners with CP. Functional skills training for students with impairments can be less effective if teachers have a negative attitude towards them. Consequently, educators must acquire the knowledge and resources necessary to meet the individual requirements of students with CP and foster inclusive classroom environments. Educators needed this so they could make their classrooms welcoming places for students of various backgrounds and abilities (Kayembe& Neil, 2019).

A teacher's attitude toward their students, the classroom, and the instruction itself is a psychological tendency (Perienen, 2020). Tang and Hu (2022) argue that school administration should provide instructors with training on maintaining a happy attitude and implementing motivating teaching tactics. According to their findings, teachers' discouraging attitudes and methods have a substantial impact on students' lack of enthusiasm when studying English as a second language. The administration of the university should monitor the instructors' perspectives on English and their methods of teaching in order to avoid any damage that could diminish the motivation of their students. Ookeditse and Mukhopadhyay (2021) set out to get a feel for how teachers at Botswana's secondary and vocational schools feel about transition plans and procedures for their disabled pupils. The majority of teachers had a positive impression of transition ideas and practices for children with impairments, the results show. In addition, with the exception of gender, there were statistically significant disparities in the attitudes of educators across all demographic categories. Positive sentiments toward the change and the necessity of creating a national transition framework to direct and enhance Botswana's transformation are both highlighted by the findings.

A study by King'ori, Mwangi, and Mugo (2015) found that regular and special education teachers lacked the knowledge and abilities necessary to support students with cerebral palsy. According to their recommendations, the Ministry of Education, Science and Technology (MOEST) ought to send out instructors with specialized training to special schools and units for students with cerebral palsy so that these students can receive the individualized attention they need. According to the research, students with cerebral palsy who attend school would greatly benefit from such a policy. Ndambuki and Nzomo (2018) performed a comparable study in Kenya and came to the same conclusion: teachers do not know enough about how to deal with students who have disabilities, such as cerebral palsy. Based on the findings, the government should make special education teacher training a top prioritising the equal access to high-quality education for all pupils, including those with impairments. To better educate instructors to meet varied student requirements, the study emphasized the necessity of incorporating special education courses into teacher preparation programs. The study emphasized the importance of teacher training to ensure that students with disabilities receive equitable and inclusive education. Pedagogical approaches for students with Cerebral Palsy, According to Gitahi (2018), instructional tactics for adapted aquatic lessons include individualized education programs (IEPs), remedial aquatic lesson planning, and after-class aquatic games to help students practice what they have learned. Problems with the swimming gala organization stemmed from a shortage of resources, including insufficient venues, equipment, and money, as well as a failure of the interdisciplinary teams to work together. The study's author suggested modifying the pool and other amenities to better accommodate students with physical limitations. In order to make solutions for teaching children with cerebral palsy feasible and cheap, Rachmadani, Murtiningsih, and Maharani (2021) put out an inclusive education strategy. For children with Cerebral Palsy to fully participate in school and other educational opportunities, there must be a realignment of policies and practices grounded in reality. This will help to physically and emotionally encompass these students.

In order to accommodate the wide range of learning styles exhibited by children with cerebral palsy, it is necessary to adapt existing instructional materials. Deaf pupils with multiple disabilities in four chosen counties of Kenya lacked proper teaching resources and support services, according to Wang'ang'a (2014). Training teachers, providing a viable curriculum, providing appropriate support services, and enough teaching materials were among the many suggestions provided to improve education in the study. Research by Pereira et al. (2019) found that children with Cerebral Palsy were more likely to participate in school activities when they participated in programs that taught them how to control their emotions and behaviors. It is possible to mitigate the effects of specific impairments on academic performance and ADLs through the implementation of narrative-based intervention programs that are both effective and personalized to the requirements of individual children.

Academics from the United States' National Academy of Education looked into what makes a good teacher. According to the findings, students performed better when their teachers had the necessary training to develop effective lesson plans and strategies (Harrington, 2016; Unal&Unal, 2012). Another study by the Centre for The Study of Teaching and Policy found that effective educators are experts in their fields, have a deep understanding of their students' individual learning styles, and can effectively apply theories of learning and teaching to raise their students' academic achievement. Findings from Harrington (2016) indicate a favorable relationship between subject-matter training of educators and student achievement in the classroom.

Special education equips learners with functional skills to become independent and autonomous, regardless of their disability type or form. Functional skills can be grouped into functional academic skills and community-based learning. A person can be considered functionally independent when they are able to carry out their ADLs (such as bathing, dressing, eating, and dressing themselves) without the direct assistance of another person, and when they are able to fully participate in important life circumstances (Bobzien, 2014). The purpose of evaluating functional performance is to find out how well a person can walk, balance, throw, grasp, participate in classroom and playground activities, communicate functionally, understand, take care of themselves, follow directions, follow rules, and complete tasks (Dornelas & Magalhães, 2016).

In addition to classroom instruction, students develop a wide variety of practical and functional skills that will help them succeed in school, on the job, and in their personal lives. In teaching functional skills, teachers teach learners how to practice essential life skills and also guide them in a practical way so that they can apply it in real world. Rather of relying on hypothetical or computer-generated resources, functional teaching activities provide students with practical, real-world skills (Bobzien, 2014). Learning to read the time, count money, greet classmates, and shop are just a few examples. Making accommodations for the learner's age and functional level necessitates designing learning settings that are conducive to skill acquisition (Fukada, 2018). Teachers devise strategies to help older students succeed in the functional areas outlined in their Individualized Education Programs (IEPs) based on their present performance levels (Leko et al., 2015).

A number of competences are necessary for instructors of students with CP to implement the functional skills program (Raphael & Allard, 2013). Educators need to be well-versed in the subject matter in order to create effective lessons, individual education programs (IEPs), classroom supports, accommodations, and alternative forms of assessment (Amador et al., 2022). Teachers also need to be competent in areas such as community engagement instruction, parent collaboration, vocational training, and transition planning (Rich-Gross, 2014). Therefore, teachers need sufficient knowledge of learners' development and individual learning differences as well as knowledge of causes and characteristics of the disability and their educational strengths which are key to developing an IEP (Council for Exceptional Children, 2017).

Kennedy & Ihle (2012) demonstrated in their study that educators must possess the knowledge and skills necessary for assessing learners to ascertain current performance levels, as well as to design instruction and potential lesson modifications to ensure that disabilities do not hinder relevant content acquisition. They consequently advocated for teacher training programs to equip educators with essential abilities for effectively engaging with students. This study primarily concentrated on assessment skills, but the current research aims to determine the degree of teacher preparation in addressing diverse learner requirements and variances in CP, as well as efficiently imparting functional skills to these students. The study determines whether teachers possess the requisite skills to deliver successful instruction to learners with cerebral palsy, beyond mere evaluation.

A study conducted in Kenya by King'ori, Mwangi, and Mugo (2015) on teachers' preparedness to identify cerebral palsy among students in special units in Nyahururu Sub County revealed that teachers were unable to recognize the different manifestations of cerebral palsy in learners. The study indicated that 16 out of 24 (67.7%) teachers could not distinguish the different types of CP from other physical disabilities. This study advocates for teacher training in areas that provide expertise to assist learners with disabilities. This study aimed to compare the training and competency levels of educators in Nyahururu Sub County and Kilifi County with an eye toward determining how well teachers with CP are able to instruct their students in functional skills.

Task analysis, prompts, and error correction are some of the systematic educational tactics recommended by the Council for Exceptional Children (2017). Because students with CP have a broad variety of unique requirements and educational objectives, it is necessary to employ a wide range of instructional strategies and resources while working with them to acquire functional abilities (Makela&Vellonen, 2018). Thus, technology should be continuously adaptable to each user's strengths and demands (Aresti-Bartolome & Garcia-Zapirain, 2014, Vellonen, Karna&Virnes, 2015).

Learners with CP have benefited from the incorporation of ICT into their educational programs, which allows them to actively engage in the communication and interaction processes. According to research by Ahmad (2015), students benefited from more engaging and diverse lessons when they used assistive technology in the classroom. He advocated for the modification of these tools so that students with disabilities and other impairments can work freely and without pain or effort. The present study aims to establish the adaptation of a diverse range of resources used by teachers to assist students with CP in accessing the general curriculum, particularly in the areas of functional skill instruction, while the previous study primarily concentrated on the use of assistive devices as a learning resource.

According to research by Mushtag and Shabana (2012), there is a favorable correlation between learning materials and performance. While most primary school instructors were unaware that many schools had obtained funds from the ministry of education to acquire materials for students with disabilities, research showed that many of these same teachers were also unaware that their students needed specialized help when implementing the school's curriculum. While the previous study established relationships using a correlational methodology, the present study used a descriptive strategy to determine the types, availability, and adaptations of resources utilized by teachers for students with CP.

Teachers lacked the necessary training to differentiate and vary their teaching strategies for students with multiple disabilities, and the support services were insufficient, according to Wang'ang'a (2014), who studied the effectiveness of these strategies in four counties in Kenya. As a result, providing sufficient support services and training instructors to deal with students who have various disabilities were both suggested. Students who have intellectual challenges due to cerebral palsy, autism, and deafness or blindness were the primary focus of this research. However, the present research exclusively looked at ways to modify instruction for students with CP. While the present study

utilized a descriptive design, the previous one used a mixed-methods approach that included triangulation.

Students with cerebral palsy attending Kenyan special schools were the subjects of an examination by Obinga-Ogono (2017) of mediated instructional tactics for the development of reading and writing abilities. The study found that LCP can learn to read and write with the right combination of mediated education, learner methods, instructor competency, and few restrictions. The study suggests that educators should be better prepared to meet the needs of students with learning disabilities (LCP) through heightened awareness of how to scaffold and differentiate literacy instruction, gradual reduction of learner support to prevent students from becoming overly dependent on it, and chances for teachers to advance their careers through in-service training that enhances their mediation abilities. Additionally, the study emphasizes the importance of addressing and minimizing the barriers that teachers encounter when implementing mediated strategies. Findings from the study could help educators and shape policies for the development of better methods of teaching reading to students with LCP. In contrast to the present study, which aimed to determine whether or not teachers in Kilifi County were adequately equipped to teach functional skills to students with cerebral palsy, the previous study examined the role of mediating methods in the acquisition of literacy skills among students with CP in Kenyan schools for the physically handicapped. Students in Kilifi County who have cerebral palsy were the subjects of this research.

Kanana (2015) conducted research with the same overarching goal of emphasizing the challenges that kids with CP face when trying to attend school. According to the findings, educators failed to properly accommodate students with CP because they relied on teacher-centered methods rather than learner-centered ones. Teachers should implement tactics that prioritize the needs of their students in order to enhance their learning. The present study aimed to determine the extent to which instructors modify their techniques when teaching functional skills, since this influences the acquisition of these skills, whereas the previous study concentrated on instructional obstacles. Even more specifically, this research focused on Kilifi County, whereas the previous study included Machakos and Kiambu.

As part of their research on educator readiness, Chemagosi (2020) in Kilifi and Nandi County provided substantial support for the concerns about low performance among learners in the acquisition of functional skills, casting doubt on teacher preparedness. The study conducted a comprehensive assessment which involved measuring the functional skills of students with cerebral palsy across various domains such as mobility, communication, self-care and social interaction. The findings revealed a significant discrepancy in functional skill acquisition compared to established benchmarks and norms. The observed performance levels consistently fell below the expected standards, indicating a clear struggle among learners in Kilifi County.

Centre for The Study of Teaching and Policy research found that good educators have thorough subject-matter knowledge, insight into student learning processes, and the capacity to use learning and teaching concepts to raise student accomplishment. Subject knowledge training for teachers was associated with improved student achievement (Hafeez, 2021). While a previous study used a correlational design to determine whether or not there is a connection between teacher training and student performance, the present study used a descriptive design to determine whether or not teachers are prepared to teach functional skills. Learners with CP were the primary focus of the study.

Although substantive researches conducted in Kenya have dealt with teacher preparedness, majority of them have focused on other variables other than teaching functional skills to learners with CP. Therefore, there is limited knowledge on the extent to which teachers are prepared to teach functional skills to learners with CP. It has been established that functional skills are important to these learners as they help them become independent in doing particular things regardless of their disability type or form. This also enables them to perform activities of daily living without anyone's direct support hence ensuring ones' full participation in life situations that are meaningful. Therefore, it is important that it be established if teachers are well equipped in handling their diverse needs to enable them become independent. Hence the study seeks to establish the influence of teacher preparedness in teaching functional skills to learners with CP in special units in Kilifi County.

A preliminary survey in the country on CP indicated that Kilifi County had the highest number of learners with CP majority of whom were in grades one to four. In comparison to other neighboring counties, Kilifi County had 202 learners with CP, Mombasa has 112, Lamu 8, TaitaTaveta 2 and Kwale 2 (Directorate of Special Needs Education, State of basic education and early learning, 2019). Therefore, this study was be conducted in Kilifi County amongst learners in grades one to four. Kilifi County would the most suitable for the research since the number in this county was make generalization of results more reliable compared to other with smaller population. Table one shows the data:

Table 1: Data on the number of learners with CP in different counties.

County	Number of learners with CP
Kilifi	202
Kwale	2
Mombasa	112
TaitaTaveta	2
Lamu	8

Source: (Directorate of Special Needs Education, State of basic education and early learning).

Government policies supporting the establishment of "special units" in regular schools are crucial for promoting inclusivity and avoiding discrimination. Sessional Paper No. 1 of 2005 highlights the significance of Special Needs Education (SNE) as a key component of human capital development, advocating for inclusive educational practices. The Dr. Kochung Taskforce Report (2003) recommended creating barrier-free special needs schools and enhancing Educational Assessment and Resource Centers (EARCs) to improve accessibility. The Free Primary Education (FPE) Policy (2003) facilitated the integration of various special needs categories into public schools, ensuring more equitable access to education. Established in 1986, the Kenya Institute of Special Education (KISE) focuses on building capacity through teacher training and research to support special needs education. The United Nations Convention on the Rights of Persons with Disabilities (2006) shows the right to education in inclusive settings, influencing national policies towards greater inclusivity. The Ministry of Education's policy frameworks address barriers such as stigma, physical environment and resource allocation, aiming to support a more equitable education system. These policies and legislative measures work together to integrate special units within regular schools and eliminate discrimination.

Empirical studies confirm that many teachers in special units lack structured teaching methods for CP learners, leading to poor functional skills acquisition (Chemagosi, 2020). The Kilifi County Directorate of Special Needs Education (2021) reported delays in self-care, mobility and social interaction among Learners with Cerebral Palsy (LCP) due to inadequate teacher training. If these issues are not addressed, LCP will continue facing lifelong dependence, making this study necessary to examine teacher preparedness and its impact on functional skills instruction.

In Kenya, the teaching of functional skills to learners with cerebral palsy (CP) varies significantly across counties due to disparities in teacher preparedness, resource availability and policy implementation. With the highest recorded CP learner count—202—teachers in Kilifi County struggle constantly to provide successful instruction in functional skills including mobility, communication, self-care, and social engagement. Although there are quite many CP students, teaching strategies remain uneven mostly because of inadequate curriculum adjustments, poor access to teaching and learning materials, and little specialized training.

Neighboring counties offer similar teaching difficulties. With 112 CP students, Mombasa County also suffers with a scarcity of teachers qualified especially in the teaching of functional skills and many special units lack adapted instructional resources needed to run successful functional skills programs. Lamu County, where just eight CP students are formally registered, has limited infrastructure for special needs education, therefore affecting the teaching of functional skills. Many teachers depend on broad teaching methodologies without the specific tools needed to properly guide LCP in critical life skills.

With insufficient accurate data on CP frequency and pervasive educational issues, Tana River County offers an even more complicated scenario. Lack of formal special education programs and qualified professionals limits teaching of functional skills for LCP, thereby making it challenging to apply organized instructional approaches. Only two CP students have been formally put in special units in Taita Taveta County, and not enough information exists to assess the impact of functional skill training. Teachers in other counties, however, also deal with challenges like poor assistive learning tools to support their efforts and insufficient training in delivering functional skill lessons.

Through programs like the Special Needs Education (SNE) Policy Framework (2009) and the Competency-Based Curriculum (CBC), which stress pragmatic, functional skills in the curriculum for students with disabilities, Kenya has made progress towards national inclusive education. Effective teaching strategies still need work, especially for students with CP, nevertheless. Many special units around the nation still lack teachers sufficiently qualified to teach functional skills, customised curriculum materials and access to assistive technologies required for differentiated instruction. The Kenya Institute of Special Education (KISE) notes that most special education teachers get basic training and pay little attention to specific techniques for teaching functional skills to CP students.

Although the Ministry of Education developed Educational Assessment and Resource Centers (EARCs) to assist students with disabilities, their efficacy in supporting teaching practices for functional skill education differs significantly throughout provinces. Although Kenya has made commendable attempts to include functional skills training into national education policies, gaps in teacher preparedness, instructional resource availability and policy implementation still impede the delivery of effective teaching of functional skills to students with cerebral palsy.

Affecting over 2 to 2.5 per 1,000 live births worldwide, cerebral palsy (CP) is acknowledged as the most frequent motor disability in childhood (Oskoui et al., 2013). Often coupled by impairments in sensation, cognition, communication and behavior, CP is defined by a collection of permanent mobility and posture disorders (Rosenbaum et al., 2007). Achieving autonomy, engaging in community life and reaching a better quality of life depend critically on the learning of functional skills including mobility, communication, self-care and social interaction for people with CP (Novak et al., 2020; World Health Organization, 2011).

The scene of global policies has stressed more and more the need of inclusive education and fair possibilities for students with disabilities. Goal 4 of the Sustainable Development Goals (SDGs) further calls for inclusive, fair and quality education for everyone (UNESCO, 2016). Explicitly noting the right of persons

with disabilities to education free from discrimination and based on equal opportunity, the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD, 2006) aim to eradicate inequalities in educational access and outcomes. The Salamanca Statement (UNESCO, 1994) is still a basic text using flexible curricula, adaptable teaching practices and enough resource support advocating for schools to accommodate all students regardless of physical, intellectual, social, emotional, linguistic or other impairments.

Notwithstanding these legislative changes, significant challenges still exist globally in implementing inclusive education concepts, particularly in low- and middle-income countries (LMICs). Research shows that lack of teacher education, inadequate assistive technology, unfavorable society attitudes and limited resource allocation still impede the implementation of effective functional skills training for students with disabilities (Engelbrecht et al., 2017; Kuyini et al., 2018). Teaching individuals with CP requires particular teaching strategies that change traditional pedagogy to match their particular motor and cognitive profiles. Adapted instructional strategies including task analysis, differentiated instruction, use of visual aid and assistive devices (Kennedy & Ihle, 2012; Mäkelä & Vellonen, 2018) are clearly important in promoting functional independence among students with impairments.

Policies covering the Basic Education Act (2013) and the acceptance of the Competency-Based Curriculum (CBC), which prioritizes practical skill development for all students, have progressively addressed the education of learners with disabilities in Kenya (Ministry of Education, 2019). Still, the real use of changed teaching strategies is still inadequate, particularly in rural communities like Kilifi County where systematic barriers, limited teacher capacity and resource constraints reign (Chemagosi, 2020; Muriithi, 2018). Kilifi County provides a necessary environment for examining how well fitted teaching practices improve the acquisition of functional abilities among learners with cerebral palsy given its higher than average frequency of the condition.

Although several Kenyan research have focused on general issues of inclusive education, there is insufficient empirical data particularly focusing on the relationship between changed teaching strategies and functional skill development among children with CP. Most recent research have concentrated either on teacher attitudes toward disability (Muriithi, 2018) or general barriers to inclusion without relating instructional adaptation especially to learner results (Directorate of Special Needs Education, 2019).

This study examines how students with cerebral palsy in public special units in Kilifi County, Kenya, get customized teaching strategies and the learning of functional abilities in order to bridge this difference. Awareness of this link will help Kenya's educational outcomes to be improved and guide global practices on how best to promote functional independence among learners with disabilities in different educational environments.

Research Questions

This study was guided by the following research question What is the relationship between resource adaptation and the teaching of functional skills to learners with cerebral palsy in special units in Kilifi County?

LITERATURE REVIEW

Functional Skills Development for Learners with Cerebral Palsy

Cerebral palsy is a group of permanent disorders affecting the development of movement and posture, leading to activity limitations (Rosenbaum et al., 2007). Many times, students with CP need focused treatments to acquire fundamental functional abilities required for autonomy. Foundational for academic access and community involvement are functional skills including feeding, clothing, toileting, communication and basic movement (Novak et al., 2020). Early organized and customized therapies improve functional results for children with CP, therefore enhancing their quality of life and long-term independence (Novak et al., 2020; World Health Organization, 2011).

Adapted Teaching Resources for Functional Skill Acquisition

Adaptation of Resources used in teaching functional skills to learners with CP

The adaptation of teaching and learning resources plays an integral role in the successful instruction of functional skills to learners with cerebral palsy (CP). Functional skills including mobility, self-care, communication and social interaction demand not only specific instructional strategies but also the integration of suitable teaching tools to enhance learning (Mäkelä & Vellonen, 2018). Assistive technology, visual aids, tactile materials and adapted equipment enable students with CP overcome physical, cognitive and communication obstacles faced by them, therefore boosting their independence and involvement in classroom activities (Fernández-López et al., 2013).

Notwithstanding advances in inclusive education, teachers in many settings still find it difficult to adapt their resources to match the specific needs of students with CP (Vellonen, Kairaluoma, & Ahonen, 2021). Structured from a global, continental, regional, and national perspective, this section provides a comprehensive review of pertinent research on the modification of teaching strategies for children with CP.

Teaching functional abilities to students with CP requires changing the assistive technologies and teaching tools. Information and communication technology (ICT) can greatly assist children with

disabilities like CP, according to the 2006 UNESCO Institute for Information technology in Education. Resti-Bartolome & Garcia-Zapirain 2014; Vellonen et al., 2015 Students with CP can participate in instructional activities and build up functional skills using ICT resources including communication software, electronic books, and learning management systems.

According to Fernández-López et al. (2013), adapted learning tools like AAC devices and customised visual schedules encouraged communication, independence and involvement among students with CP. Similarly, assistive technologies enabled students to properly communicate and access learning materials, therefore improving their functional outcomes. Lidström and Hemmingsson (2014) also observed this.

Notwithstanding these benefits, several global studies revealed continuous challenges to the effective use of modified resources. Among the challenges Okolo and Diedrich (2014) identified were teachers' low knowledge and skills in using ICT tools, lack of technical assistance and the large cost of assistive devices. Teachers sometimes felt unprepared to use assistive technologies into their teaching practices without enough training, according to Vellonen and Mäkelä (2014).

More lately, Novak et al. (2020) stressed the requirement of evidence-based treatments including the deployment of adaptive tools and technology in functional skills development. According to their systematic study, students with CP showed considerable increases in self-care and mobility when integrating assistive tools with goal-directed teaching approaches.

Low financing, inadequate teacher preparation, and limited access to assistive technologies make it still challenging to adapt instructional resources in special needs education all throughout Africa. While inclusive education policies were in place, Engelbrecht et al. (2017) in South Africa reported varying availability of adapted resources in special units. Many times, teachers lacked the skills to properly modify materials and use assistive technologies.

Notwithstanding government efforts to promote inclusive education, Akyeampong and Fobih (2022) found in Ghana many special schools lacked the necessary teaching tools and adaptive materials to support functional skills instruction. Limited resources and procurement delays forced teachers to construct learning materials from scratch.

Teachers in low-resource settings were often unable to incorporate new technologies, according to Aresti-Bartolome and Garcia-Zapirain (2014), due of their significant cost and lack of technical help. Students with CP in these settings were consequently deprived of essential instruments meant to enable them to acquire their functional skills.

Similar problems still exist in East Africa. According to Mugo, Orangi, and Singal (2010), teachers in Kenya, Uganda, and Tanzania allegedly have limited access to customised instructional resources. Research on special schools and units revealed that they lacked basic teaching tools such visual assistance needed for functional skills education, AAC devices, and mobility aids.

Chemagosi (2020) found in her studies on Kenyan Kilifi and Nandi counties that the lack of adaptive instructional resources negatively impacted pupils with CP. Many students lagged in developing self-care and communication skills due to inadequate appropriate assistive technologies and tailored learning resources. The research recommended additional government funding and coordinated resource allocation to close these differences.

The Kenyan government has made tremendous headway towards inclusive education by means of laws as the CBC and the Special Needs Education Policy (2009). Still, several studies have highlighted the continuous lack of specifically designed instructional resources for pupils with cerebral palsy.

King'sori, Mwangi, and Mugo (2015) found several special units in Nyahururu Sub-County lacking basic teaching resources including communication boards and mobility devices. Finding and changing instructional materials to meet the functional needs of students with CP proved challenging for teachers. Teachers often lacked education in the use of adaptive learning aids and assistive technologies, claims Ndambuki and Nzomo (2018). Students with CP sometimes struggled to access instructional resources and develop fundamental functional skills.

Teachers in Machakos and Kiambu counties still depended on conventional, non-adaptive teaching tools according to Kanana (2015). The study found that learners with CP lacked the functional abilities required for independence without access to specialised learning materials.

Wang'ang'a (2013) observed that special schools in Kenya faced significant resource constraints. Despite the allocation of capitation grants for special needs education, many schools lacked the capacity to procure and maintain assistive devices and adaptive learning materials.

According to the Ministry of Education (2018), inclusive education in Kenya emphasizes the need for specialized teaching and learning resources. However, implementation gaps remain, particularly in rural and under-resourced counties like Kilifi. The Kilifi County Directorate of Special Needs Education (2021) further confirmed that the lack of resources hindered the teaching of functional skills, resulting in delays in learners' self-care, communication and mobility.

Despite government efforts to promote inclusive education, no documented studies had examined the specific relationship between resource adaptation and the teaching of functional skills to learners with CP in Kilifi County. There was also no structured framework guiding the procurement, adaptation and use of instructional resources for functional skills instruction in the county's special units.

Teacher preparedness is widely recognized as a key determinant in the effective teaching of functional skills to learners with cerebral palsy (CP). The reviewed

literature consistently emphasizes that teachers' attitudes, professional training, instructional strategies and access to adapted teaching resources are central to their capacity to support learners with CP in developing skills necessary for independence. However, despite the presence of inclusive education policies, there remains limited empirical evidence on how these components of teacher preparedness influence the actual teaching of functional skills, particularly in the context of special units in Kilifi County.

Existing studies have shown that positive teacher attitudes enhance learner engagement and commitment to individualized instruction, yet many teachers still hold uncertain perceptions about the abilities of learners with CP. Furthermore, although broad special needs education training is provided, few teachers get specific, useful instruction on adaptive strategies for teaching functional skills including mobility, self-care, and communication. Moreover, the implementation of learner-centred, adaptive teaching strategies is still uneven; many teachers depend on conventional approaches that neglect the several functional demands of students with CP. Further restricting instructors' capacity to provide successful functional skills education are the dearth of suitable teaching tools including assistive technologies and tailored learning materials.

These problems together draw attention to the significant shortcomings in teacher preparation, which finally influences the standard of instruction given to students with CP. By looking at how teacher attitudes, training, instructional strategies and resource adaptation affect the teaching of functional skills in special units in Kilifi County, this study filled in these voids.

Research Gap and Rationale for the Study

Although inclusive education has gained traction globally and Kenya has made commendable strides through policies such as the Competency-Based Curriculum (CBC) and the Special Needs Education Policy Framework (2009), significant gaps remain in the empirical understanding of how adapted instructional resources influence the acquisition of functional skills among learners with cerebral palsy (CP). Most existing studies in the Kenyan context (e.g., King'ori, Mwangi, & Mugo, 2015; Ndambuki & Nzomo, 2018) have concentrated on teacher preparedness or general challenges of inclusive education, without isolating the variable of resource adaptation or empirically linking it to functional skills development which is a core component of autonomy and lifelong participation for learners with CP.

Moreover, previous research has predominantly adopted generalized approaches across heterogeneous disabilities, thereby overlooking the nuanced and context-specific needs of learners with CP, who require highly individualized support strategies. There is a critical need for localized empirical data to inform targeted interventions, particularly in regions where systemic barriers such as limited assistive technology, insufficient instructional materials and under-resourced teacher support systems persist.

Kilifi County presents a scientifically valid site for this investigation due to a confluence of factors: its disproportionately high burden of CP cases, documented delays in functional skill development, and chronic underinvestment in special needs infrastructure and teacher support (Directorate of Special Needs Education, 2021; Chemagosi, 2020). This context allows for a robust examination of how resource adaptation—amid infrastructural and pedagogical constraints—affects functional skills instruction in real-world, low-resource educational settings.

By addressing this underexplored intersection, the present study provides evidence-based insights with broader implications for policy reform, teacher training curricula, and the operationalization of inclusive education frameworks in similarly constrained settings. The findings are not only locally relevant but also contribute to the global discourse on equity, inclusion and quality education for learners with complex disabilities.

3.0 METHODOLOGY

Research Design

This study used a correlational research approach appropriate for examining the relationship between teacher preparedness and the instruction of functional skills to students with cerebral palsy (CP) in special units in Kilifi County. Without intervention, a correlational method lets researchers assess the degree and direction of relationships between variables (Creswell & Creswell, 2023; Saunders, Lewis, & Thornhill, 2019). With the teaching of functional skills as the dependent variable, this study found as independent factors teacher attitudes, teacher training, adaptation of teaching strategies, and adaptation of teaching resources.

The study's objective of determining the type and intensity of association between teacher preparedness characteristics and teaching results sufficiently justified adopting a correlational design instead of trying to show causality. This design was suitable for the study environment, however in an educational environment experimental manipulation was neither ethical nor useful (Kumar, 2019). Through standardized questionnaires and observation checklists, the design helped to gather and analyses quantitative data under Pearson correlation and regression techniques. Interviews and document analysis provided contextual insights that matched the quantitative results and enabled a complete knowledge of the relationships among the study variables, hence gathering qualitative data (Creswell & Plano Clark, 2018). This design successfully caught the present conditions inside the special units, noted trends, and guided suggestions to improve teacher readiness in

teaching functional skills to Kilifi County students with cerebral palsy.

3.2 Area of Study

This research was carried out in Kilifi County, Kenya, focusing on public special schools that provide specific units for students with cerebral palsy (CP). Because of its high concentration of students with cerebral palsy and ongoing issues with teacher preparedness in special needs education, Kilifi County was specifically selected. These problems cover inadequate training, limited use of adaptive learning strategies, and a dearth of necessary teaching and learning resources needed for successful functional skill development.

Relatively to the dependent variable teaching of functional skills, the study concentrated on four independent variables: teacher attitudes, teacher training and adaption of instructional methodologies and resources for instruction and guidance. In this context, functional skills—that is, basic daily living skills including mobility, communication, self-care and social interaction that help students with CP reach more independence have considerable importance. There were 4 head teachers, 42 special needs education (SNE) instructors, 202 students with CP registered in public special schools across the county. Purposive, saturated and random sampling methods were used to choose a sample of 119 students and 30 teachers. The results of the study would guide treatments meant to increase teacher readiness and instructional strategies for teaching functional skills to students with CP in Kilifi County and maybe in like learning environments.

3.3 Target Population

This study's intended participants were of 4 head teachers, 42 special needs education (SNE) teachers and 202 learners with cerebral palsy (CP) enrolled in 4 public special units within Kilifi County. The total population was 248 participants. The inclusion of 4 head teachers corresponded to the 4 special units designated for learners with CP in the county. These groups were targeted because they represented key stakeholders involved in the teaching and learning process of functional skills in special education settings.

3.4 Sample Size and Sampling Techniques

To guarantee sufficient participation of members from important subgroups, the study applied stratified random sampling technique. Within Kilifi County, the population was split into head teachers, special needs education (SNE) instructors, and students with CP in public special units. Because of their restricted number, all four head teachers were selected by saturation sampling; thirty instructors and 119 students were selected by stratified random selection. Using Slovin's method, appropriate for known population numbers with a designated margin of error (Briandana & Dwityas, 2019), the sample size was computed. This approach guaranteed that the statistical representation of the population under investigation was faithful and helped to lower selection bias, therefore producing reliable and legitimate conclusions.

The Slovin's formula is calculated as follows,

$n= N/(1+Ne^2)$

Where
n=Total Sample
N=Population
e=Margin of error

The population size of this research was 248. A sampling error of 5% was be taken. The sample size was:

$n= 248/ (1+248(0.05^2))$
$n= 153$

The sample size was approximately 153.

Table 2 Study Sample

Category	Population	Sample	%
Head teachers	4	4	3
Teachers	42	30	20
Learners	202	119	77
Total	248	153	100

3.5 Instruments of Data collection

The study used questionnaires, interview schedules, observation checklists and document analysis to collect data.

3.5.1 Teachers' Questionnaire

A structured questionnaire was used to assess teachers' preparedness in teaching functional skills to learners with CP. It gathered data on four key areas: teacher training, instructional strategies, instructors' stances and the

accessibility of instructional materials. Teacher attitudes were measured using a 5-point Likert scale adapted from Block et al. (2013). The items assessed teachers' beliefs, perceptions and motivation regarding their role in teaching functional skills. Statements included both positive (e.g., "Learners with CP can achieve independence if well-prepared") and negative items (e.g., "I consider it a waste of time repeating concepts for learners with CP"). Negative statements were reverse scored to ensure accuracy in the overall attitude measurement. Attitude scores were interpreted as follows; Positive Attitude: Mean score of 3.50 to 5.00, Neutral Attitude: Mean score of 2.50 to 3.49 and Negative Attitude: Mean score of 1.00 to 2.49

3.5.2 Observation Schedule

With the use of an observation checklist, assess how teachers implemented adapted teaching strategies in the delivery of functional skills to learners with CP. The observation concentrated on teacher preparedness as shown by instructional strategies, resource use, and encouragement of learners' involvement in activities aiming at communication, social interaction, mobility, and self-care skills. Observations took place during assemblies, lunch breaks, playground games, and classroom instruction. These settings gave chances to see how educators helped students apply functional skills in diverse contexts (Creswell & Creswell, 2023).

The checklist asked teachers how often they used customised tactics, differentiated instruction, and modified learning materials. It also assessed the consistency and accuracy with which teachers supported functional skills during regular activities and routines. The observation added more information on how students' involvement in functional tasks changed depending on teacher readiness (Ary, Jacobs, Irvine, & Walker, 2022).

By means of the observation checklist in conjunction with other instruments, a thorough evaluation of teacher practices and their direct impact in the framework of guiding pupils with CP in the application of functional skills guaranteed. This approach provided real-time insights into classroom practices and instructional efficacy, therefore strengthening data validity (Saunders, Lewis, & Thornhill, 2019).

3.5.3 Document Analysis Guide

Document analysis was used to review official school records to verify and complement data from other tools. Key documents analysed included curriculum guides to determine the functional skills targeted in teaching, Individualized Education Plans (IEPs) to assess recommended programs and learner support and behaviour policy documents. Additional documents such as behaviour monitoring plans, daily occurrence logbooks and class registers were reviewed to validate information on learner participation and teacher preparedness in supporting functional skills development (Rapley, 2018).

3.5.4 Interview Schedule

An interview schedule was administered to head teachers to gather detailed information on the teaching of functional skills to learners with CP. The interviews focused on the strategies used by teachers, available resources and the level of teacher training in the schools. This method provided deeper insights into institutional practices and challenges related to teacher preparedness (Kumar, 2018).

3.6 Validity of Research Instruments

The accuracy and relevance of the study instruments were ensured by means of content and face validity. Professionals in Special Needs Education from the Department of Special Needs Education and Rehabilitation assessed the instruments—including questionnaires, observation checklists, interview schedules, and document analysis guides. The experts assessed whether the materials fully satisfied the study objectives of instructor preparedness in guiding functional skills to students with cerebral palsy (CP). Their comments focused on item clarity, relevancy, and the thoroughness of the key concepts. Changes were carried out in line with their advice before the machinery was put into use on the ground (Taherdoost, 2019).

Presenting the instruments to the same experts helped to establish face validity by guaranteeing that, at face value, they seemed to evaluate the intended dimensions teacher readiness and its impact on teaching functional skills. This procedure guaranteed congruence between the variables tested, research questions, and study objectives, therefore strengthening the validity of the instruments (Bolarinwa, 2021).

3.7 Reliability of Research Instruments

Reliability denotes the consistency of a research instrument in producing analogous outcomes upon repeated trials. This study established dependability by a pilot test conducted with 10 educators from specialized units for students with cerebral palsy (CP). The test-retest procedure was employed, wherein the identical questionnaire was delivered to the same subjects on two occasions, separated by a two-week gap.

The scores from both administrations were correlated using Pearson's Product Moment Correlation Coefficient to determine the stability of the instruments over time. A reliability coefficient (r) of 0.70 or higher was considered acceptable for internal consistency and instrument reliability (Heale & Twycross, 2019; Bolarinwa, 2021). Necessary adjustments were made based on the pilot results to improve the clarity and consistency of the instruments before the main data collection.

3.8 Data Collection Procedure

This work did not proceed without first obtaining ethical approval from the Scientific Ethics and Review Committee at Maseno University (MUSERC). Authorization to carry out the research in Kilifi County was granted by the County Directorate of Special Needs Education and the Department of State and Basic Education.

In order to notify school authorities about the study and acquire their informed consent, the researcher visited the designated special units. We made sure that participants understood the goal of the study and gave their consent before we started collecting data.

Questions were gathered through the use of checklists for observations, interview scheduling, and document analysis. Teachers' questionnaires were administered in person, while observation checklists were used to record teacher practices during classroom sessions, mealtimes and playground activities. A total of two observation sessions per week were conducted over a period of 2 months. Structured interviews were conducted with three head teachers to gather detailed information on school practices and to triangulate data collected from questionnaires, observations and documents. Each interview session lasted approximately 50 minutes and was recorded with consent from participants. Document analysis focused on the Individualized Education Plans (IEPs), behaviour monitoring plans, daily occurrence logs, class registers and school behaviour policy documents. These documents were analysed to validate and complement data collected through other methods. Both qualitative and quantitative data were collected concurrently to ensure triangulation and enhance the validity and reliability of the findings (Badu, O'Brien, & Mitchell, 2019).

3.9 Data Analysis Procedure

Descriptive and inferential statistics were used to analyze over quantitative data. Descriptive statistics (frequencies, averages, and standard deviations) captured teacher preparation related training, attitudes, methods, and resource adaptability using SPSS Version 25 coding. The relationship between teacher preparedness (independent factors) and functional skill instruction (dependent variable) was assessed using Pearson's Product Moment Correlation Coefficient. Considering the hierarchical arrangement of students inside teachers, multilevel modelling (MLM) was used to examine how teacher attitudes affect the instruction of functional skills (Field, Miles, & Field, 2018).

Following Braun and Clarke's (2019) six-phase technique, theme analysis was applied to qualitative data obtained from observations and interviews. With an eye towards teacher preparedness issues in teaching functional skills, NVivo tools facilitated coding and theme development.3.10 Ethical Considerations

Before commencing the study, ethical approval was obtained from the Maseno University Ethics Review Committee (MUERC). Authorization to conduct the study in Kilifi County was granted by the County Directorate of Special Needs Education. Informed consent was sought from all adult participants (head teachers and teachers) after explaining the purpose, procedures and potential risks and benefits of the study. For learners with cerebral palsy, parental or guardian consent was obtained, alongside assent from the learners where possible.

All participants were guaranteed complete anonymity and confidentiality. No identifying information was collected on questionnaires, interview guides, or observation checklists. Data was used strictly for academic purposes and was securely stored in password-protected files. Hard copy documents were kept in locked cabinets accessible only to the researcher.

To protect participants' well-being, interviews and observations were conducted respectfully to minimize any discomfort. Upon completion of the study, all data was securely destroyed according to Maseno University ethical guidelines and policies.

4.0 RESULTS

Adaptation of Resources used to teach learners with CP

This section presents findings on how teachers adapt teaching and learning resources in special units for learners with cerebral palsy (CP) in Kilifi County. Table 4.10 summarizes the responses of teachers on the availability, adequacy and use of teaching resources, as well as the challenges they face in adapting these resources to meet the needs of learners with CP.

The table below presented the responses on the adaptation of resources used to teach learners with CP

Table 4.10: Adaptation of resources

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Mean	Std. Deviation
I use real objects in teaching.	3 (2.5%)	10 (8.5%)	30 (25.4%)	38 (32.2%)	37 (31.4%)	4.36	.843
My school has appropriate teaching and learning resources and assistive technology required by learners in the school.	4 (3.4%)	9 (7.6%)	32 (27.1%)	39 (33.1%)	34 (28.8%)	4.30	.799
I have enough resources to use in the process of teaching.	5 (4.2%)	10 (8.5%)	30 (25.4%)	38 (32.2%)	35 (29.7%)	4.27	.844
I am unable to adapt resources to meet individual needs and challenges.	5 (4.2%)	11 (9.3%)	31 (26.3%)	38 (32.2%)	33 (28.0%)	4.26	.810
It is challenging to vary and adapt different materials in one lesson.	6 (5.1%)	12 (10.2%)	34 (28.8%)	36 (30.5%)	30 (25.4%)	4.18	.833
I use consistent schedules in teaching.	6 (5.1%)	14 (11.9%)	30 (25.4%)	36 (30.5%)	32 (27.1%)	4.18	.712
My school receives support from the Ministry of Education for the purchase of relevant resources required by learners.	8 (6.8%)	14 (11.9%)	28 (23.7%)	36 (30.5%)	32 (27.1%)	4.18	.975
Most resources are inaccessible to learners with CP.	8 (6.8%)	15 (12.7%)	30 (25.4%)	37 (31.4%)	28 (23.7%)	4.15	.966
I am aware that different forms of CP require different resources or materials for manipulation.	12 (10.2%)	18 (15.3%)	36 (30.5%)	29 (24.6%)	23 (19.5%)	3.69	1.292

The findings in Table 4.10 indicate that teachers generally agreed that they use adaptive resources in teaching learners with cerebral palsy. The mean scores ranged from 3.69 to 4.36, suggesting that, overall, teachers demonstrate moderate to high levels of agreement with statements on resource adaptation. The overall average mean was 4.17, which falls within the range of 3.50 to 5.00 on the Likert scale used in this study. This categorizes the responses as positive, reflecting a favorable perception of resource adaptation in teaching functional skills.

The highest mean score was 4.36 for the statement "I use real objects in teaching," with 38 respondents (32.2%) agreeing and 37 (31.4%) strongly agreeing. This highlights a strong reliance on tangible, real-world materials to aid instruction, consistent with evidence that hands-on learning enhances functional skills acquisition (Bornman & Rose, 2019).

Another significant finding was that teachers agreed that their schools had appropriate teaching and learning resources and assistive technology, with a mean of 4.30 and a relatively low standard deviation of 0.799, suggesting consistent responses across participants. However, despite the availability of these resources, teachers reported challenges in adapting them, as reflected by the statement "I am unable to adapt resources to meet individual needs and challenges," which had a mean of 4.26 and a standard deviation of 0.810.

A notable observation was that the statement on teachers' awareness that different forms of CP require different resources had the lowest mean score of 3.69 and the highest standard deviation of 1.292. This suggests variability in teachers' understanding and application of differentiated resource use, indicating a knowledge gap in customizing teaching aids for diverse CP learners.

Frequency Counts and Percentages

On average, 27.5% of respondents selected "Agree" and 26.9% selected "Strongly Agree" across all statements. A smaller proportion, about 9.5% on average, selected "Disagree" or "Strongly Disagree," suggesting minimal outright disagreement. The frequency counts indicate that the majority of teachers were clustered around neutral to positive responses, reinforcing the moderate-to-high perception of resource adaptation practices.

The data highlights a general consensus among teachers on the use of adaptive teaching resources to support learners with CP. However, the findings also reveal that while resources may be present, challenges persist in adapting them to meet individual learner needs. This suggests a potential disconnect between resource availability and effective utilization, possibly due to inadequate training on differentiated instruction or limited access to assistive technology suited for varying CP severities.

The researcher pointed out that findings are indicative of the need for targeted capacity-building initiatives, focusing on equipping teachers with practical skills for resource adaptation and customization. Additionally, interdisciplinary collaboration with occupational therapists and assistive technology experts could bridge the gap between resource availability and effective classroom implementation.

The study findings align with Bornman & Rose (2019), who emphasized the role of resource adaptation in enhancing functional independence among learners with disabilities. Similar challenges in resource adaptation were reported by Wang'ang'a (2014), who found that while schools may have teaching materials, they often lack the expertise and support systems to adapt them effectively.

Conversely, this study contrasts with Kuyini et al. (2018), who reported higher levels of resource use and adaptation confidence among special needs educators in other sub-Saharan African contexts. Unlike Kuyini's findings, teachers in Kilifi County continue to face challenges in aligning resources to the diverse needs of learners with CP.

Multiple Regression Analysis

A multiple regression analysis was conducted to examine whether resource availability and adaptability predict teaching of functional skills.

Table 4.11: Multiple Regression Analysis

Variable (Predictor)	Beta Coefficient (β)	Significance (p-value)
Use of real objects in teaching	0.65	$p < 0.01$
Availability of school teaching resources	0.61	$p < 0.01$
Consistent schedules in teaching	0.58	$p < 0.01$
Inaccessibility of resources	-0.55	$p < 0.01$
Difficulty adapting resources	-0.50	$p < 0.01$

Students in Kilifi County who have cerebral palsy (CP) were the subjects of a multiple regression study that aimed to ascertain how resource adaptation affected the efficacy of functional skill instruction. The model was statistically significant ($F = 13.47$, $p < 0.001$), confirming that the predictors collectively explain a significant proportion of the variance in functional skills instruction outcomes. The analysis revealed that the use of real objects in teaching was the strongest positive predictor ($\beta = 0.65$, $p < 0.01$). This indicates that hands-on learning

approaches, where learners manipulate and interact with real materials, greatly enhance the teaching and learning of functional skills for CP learners. Similarly, the availability of school teaching resources ($\beta = 0.61$, $p < 0.01$) was another significant positive predictor, demonstrating that schools with sufficient and appropriate teaching resources are better able to support learners' acquisition of functional skills.

On the other hand, inaccessibility of resources ($\beta = -0.55$, $p < 0.01$) and difficulty in adapting resources ($\beta = -0.50$, $p < 0.01$) were negative predictors, meaning that where resources are either unavailable or difficult to adapt to meet individual learners' needs, the effectiveness of functional skills instruction is significantly diminished. These findings suggest that resource inadequacy remains a critical barrier to effective instruction in special needs education.

The findings align with studies by Fernández-López et al. (2013) and Okolo and Diedrich (2014), who emphasized that access to adapted teaching resources and assistive technologies significantly impacts learning outcomes for learners with disabilities. However, the findings contrast with Kuyini et al. (2018), who found that some African schools were adequately resourced but lacked skilled personnel to utilize those resources effectively. The findings pointed out that successful teaching of functional skills to learners with CP is highly dependent on both the availability and adaptability of teaching resources. Practical teaching strategies that incorporate real objects and consistent scheduling enhance learner engagement and skill development. The study recommends prioritizing resource allocation, adaptation and teacher training to maximize learning outcomes for CP learners.

Thematic Analysis of Adaptation of Teaching Resources in Teaching Functional Skills to Learners with Cerebral Palsy

Inadequate Adaptation and Utilization of Teaching Resources: which significantly impacted the teaching of functional skills to learners with CP. Many teachers reported a lack of adapted learning resources specifically designed to support CP learners in acquiring functional skills. While some schools possessed basic assistive devices such as communication boards and mobility aids, these were often outdated, insufficient, or in poor condition. Additionally, most teachers lacked adequate training on how to effectively integrate these resources into their daily instructional practices. One teacher remarked, "We have wheelchairs and communication boards, but we are not fully trained on how to use them effectively during lessons. Sometimes they just remain idle."

Another recurring issue was the teachers' personal initiative to modify existing resources to meet their learners' unique needs. Teachers described this process as time-consuming and challenging due to limited technical skills. As one participant noted, "I try to adapt visual aids and materials from home, but it is difficult without professional guidance or proper tools." These efforts, though commendable, were not always successful in bridging the resource gaps within their classrooms.

Government support and Funding: Teachers consistently emphasized the need for increased government support and funding to ensure the availability of relevant assistive technologies and teaching aids. They highlighted that without sufficient resources, their ability to deliver effective functional skills instruction was significantly hampered. Furthermore, they recommended ongoing professional development programs to enhance their capacity in adapting and utilizing instructional materials. One head teacher commented, "Training on resource adaptation and use of assistive technology should be part of our regular professional development. We are willing, but we need support."

The thematic analysis demonstrated that while some teachers made commendable efforts to adapt resources, systemic challenges such as resource scarcity, lack of training and limited technical support negatively affected their ability to teach functional skills effectively to learners with CP.

Challenges Hindering Effective Teaching of Functional Skills to Learners with CP: Teachers consistently identified large class sizes as a significant barrier to individualized instruction. Learners with CP require tailored support, yet overcrowded classrooms made it difficult for teachers to provide one-on-one guidance. One teacher noted, "With so many learners in one room, it's impossible to give enough attention to those who need it most."

Time Constraints: Another recurring issue was time constraints, particularly due to the demands of the mainstream school curriculum. Teachers explained that the rigid academic schedules left little time for practical, hands-on instruction in self-care, mobility, communication and social skills. As one participant described, "We're rushing to cover the syllabus and there's hardly any time left to focus on teaching life skills."

Limited Collaboration: Thematic analysis also revealed limited collaboration with parents and caregivers, which negatively affected the reinforcement of functional skills outside the classroom. Teachers expressed concern that without consistent practice at home, learners with CP often struggled to retain and apply what they learned. One educator remarked, "Most parents don't continue with the exercises we teach in school, so learners lose progress." teachers highlighted the importance of interdisciplinary collaboration among educators, therapists, caregivers and policymakers. They believed that coordinated efforts across different stakeholders would bridge gaps in functional skills instruction, ensuring more comprehensive support for learners with CP.

Emotional and Psychological Strain: The intensive support required by CP learners, coupled with limited resources and institutional support, left many teachers feeling overwhelmed and underappreciated. Some highlighted the need for mental health support and professional counseling to manage the emotional demands of teaching. A participant stated, “Sometimes the emotional burden is too much. We need counseling and peer support.”

Recommendations for Improvement: Based on these challenges, several key recommendations emerged. Teachers strongly advocated for continuous in-service training, particularly in functional skills instruction and adaptive teaching methodologies. They emphasized that specialized training would empower them to meet the complex needs of learners with CP more effectively. Participants also recommended the establishment of mentorship programs, where experienced special needs educators would support less experienced teachers in developing practical and effective strategies for teaching functional skills.

4.4 Document Analysis

Document analysis was conducted to complement the findings obtained through questionnaires, interviews and observations. The documents reviewed included observation checklists, Individualized Education Plans (IEPs) and school behavior policy documents. Triangulation of these data sources provided corroborative evidence on teacher preparedness, instructional strategies and resource adaptation in the teaching of functional skills to learners with cerebral palsy (CP). The analysis reinforced key findings regarding challenges in individualized instruction, resource inadequacy and the need for interdisciplinary collaboration.

4.4.1 Observation Checklist

The observation checklist assessed teacher engagement, instructional strategies and the adaptation of classroom environments for CP learners. Findings confirmed that while teachers demonstrated commitment and used structured routines, hands-on learning and behavior management techniques, challenges persisted in differentiated instruction and individualized learning. Many teachers employed a uniform approach to instruction rather than tailoring lessons to meet individual learners' needs. This observation supports the regression analysis, where difficulty in varying instructional strategies negatively affected functional skills instruction ($\beta = -0.50$, $p < 0.01$). The checklist revealed a scarcity of assistive devices, adaptive learning materials and specialized teaching aids in most classrooms. This finding aligns with the regression results, which indicated that resource shortages significantly hinder the teaching of functional skills ($\beta = -0.55$, $p < 0.01$).

4.4.2. Individualized Education Plans (IEPs)

The analysis of IEPs highlighted inconsistencies in their development and implementation across schools. While a few teachers documented structured and individualized plans, the majority lacked comprehensive goals specific to functional skills. Most IEPs focused on academic targets, with minimal attention to self-care, mobility, communication and social skills. There was limited evidence of collaboration with therapists, caregivers, or interdisciplinary teams in designing and implementing these plans. This gap reinforces findings from qualitative data and regression analysis, where limited interdisciplinary collaboration negatively impacted functional skills instruction ($\beta = -0.42$, $p < 0.05$). The findings underscore the need for a more holistic and collaborative approach in developing and executing IEPs for learners with CP.

4.4.3 School Behavior Policy

The school behavior policies reviewed in the study revealed a general emphasis on discipline and social conduct but lacked specific guidelines for managing CP learners’ unique behavioral and emotional needs. There was an absence of structured frameworks for behavior reinforcement strategies and positive behavior support tailored to CP learners. Although classroom observations indicated that teachers employed behavior management strategies, there was no formalized institutional support to guide these interventions. This aligns with findings from the teacher questionnaire, where educators reported using behavior management techniques without formal training in CP-specific behavioral interventions. The absence of clear policy guidelines highlights the need for institutional frameworks that address the behavioral management of learners with CP comprehensively.

4.5 Regression Analysis for the Study Variables

The purpose of the regression analysis was to establish a straight line link between the study's independent variables—teacher preparedness—and the dependent variable (the instruction of functional skills). In the sections that follow, you can see the tabulated and discussed results;

4.5.1 Regression Model Summary

The regression analysis reveals a highly significant model. The Model Summary indicates an R value of 0.945, suggesting a very strong correlation between the predictors (Teacher Attitude, Teacher Strategies, Teacher Resource Adaptation and Teacher Training) and the dependent variable (Teaching of Functional Skills). With the modified R Square value of 0.890

verifying the model's robustness even if the number of predictors is modified, the R Square value of 0.894 shows that over 89.4% of the variance in functional skills can be explained by these predictors. With a rather low standard error of the estimate—0.27464—the model fits the data rather well. This is presented in Table 4.4

Table 4.12 Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.945[a]	.894	.890	.27464

a. Predictors: (Constant), Teacher Attitude, Teacher Strategies, Teacher Resource Adaptation, Teacher Training

b. Dependent Variable: Teaching Functional Skills

4.5.2 Analysis of the Variance of the Study Variables (ANOVA)

The ANOVA table for the regression analysis provides further insight into the significance of the model used to examine teacher preparedness in teaching functional skills to learners with cerebral palsy in Kilifi County, Kenya. With 4 degrees of freedom, the regression model's Sum of Squares is 71.833, producing a Mean Square of 17.958. With 113 degrees of freedom, the residual sum of squares is 8.523; this yields a mean square of 0.075. With an F-statistic of 238.89, which is noticeably high, the related p-value (Sig%) is 0.000, therefore indicating a highly significant regression model ($p < 0.001$).

This significant F-statistic demonstrates that the combined effect of the predictors (Teacher Attitude, Teacher Strategies, Teacher Resource Adaptation and Teacher Training) is statistically significant in explaining the variance in the dependent variable, Teaching of Functional Skills. The low Residual Mean Square further supports the model's accuracy, suggesting that the predictors effectively explain the majority of the variation in functional skills among learners with cerebral palsy. This reinforces the importance of teacher preparedness factors in enhancing the functional skills of these learners

Table 4.13 Analysis of Variance

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	71.833	4	17.958	238.089	.000[b]
Residual	8.523	113	.075		
Total	80.356	117			

a. Dependent Variable: Teaching Functional Skills

b. Predictors: (Constant), Teacher Attitude, Teacher Strategies, Teacher Resource Adaptation, Teacher Training

The coefficients table for the regression analysis provides detailed information about the impact of each predictor on the dependent variable, Functional Skills, in the context of teaching learners with cerebral palsy in Kilifi County, Kenya. The constant (intercept) has an unstandardized coefficient (B) of 0.083 with a standard error of 0.116 and its t-value of 0.716 is not statistically significant ($p = 0.475$). The specific contributions of each predictor are as follows:

Teacher Resource Adaptation: The unstandardized coefficient is 0.150 with a standard error of 0.050. The standardized coefficient (Beta) is 0.146 and the t-value is 2.973, which is statistically significant ($p = 0.004$). This suggests that adapting resources to meet learners' needs positively affects their functional skills.

Table 4.14 Coefficients of the Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.083	.116		.716	.475
	Teacher Training	.253	.074	.306	3.435	.001
	Teacher Strategies	.192	.037	.194	5.230	.000
	Teacher Resource Adaptation	.150	.050	.146	2.973	.004
	Teacher Attitude	.367	.078	.416	4.677	.000

a. Dependent Variable: Teaching Functional Skills

The regression analysis indicates a strong correlation between teacher preparedness factors and the functional skills of learners with Cerebral Palsy, as demonstrated by the high R value of 0.945 and an R Square value of 0.894. This suggests that nearly 89.4% of the variance in functional skills can be explained by the predictors: Teacher Attitude, Teacher Strategies, Teacher Resource Adaptation and Teacher Training. The low standard error of the estimate (0.27464) further supports the model's reliability. The ANOVA results, with a significant F-statistic of 238.089 and a p-value of 0.000, confirm the model's significance, indicating that the combined effect of these predictors significantly impacts the functional skills of learners.

The coefficients table reveals the specific contributions of each predictor to the model. In line with current research stressing the interdependence of teacher characteristics and student outcomes, the results of the regression analysis show the significant link between teacher readiness elements and the instruction of functional skills to learners with cerebral palsy. The high R Square value of 0.894 shows that almost 89.4% of the variance in functional skills can be ascribed to teacher-related elements, so underlining the results of Indrarathne (2019) and Reed and Monda-Amaya (2015), who underline how directly teacher preparedness influences the effectiveness of inclusive education. The significant F-statistic of 238.089 ($p = 0.000$) further supports the notion that a structured approach to teacher training and preparedness is essential for fostering positive educational outcomes for learners with exceptional needs. This finding resonates with the call for ongoing professional development for teachers, as discussed by Hero (2020), highlighting the need for continuous skill enhancement and resource access to meet diverse learner requirements.

Moreover, the ranking of predictors in their contribution to functional skills emphasizes the pivotal role of teacher attitude and strategies in achieving positive learner outcomes. The prominence of Teacher Attitude, in particular, reflects Mercado Jr.'s (2018) assertion regarding the importance of building strong relationships with students, which can enhance engagement and learning effectiveness. This is complemented by the high significance of Teacher Strategies, which align with Peebles and Mendaglio (2014) advocating for tailored teaching methods and instructional technologies. The findings also reveal that while Teacher Training and Teacher Resource Adaptation are statistically significant, their relatively lower impact suggests that these areas require targeted improvement to maximize their effectiveness. Addressing these gaps, as highlighted by Ahmad (2015), could enhance the learning experiences of students with cerebral palsy, ensuring that all pedagogical elements are effectively aligned to support their functional skills development.

SUMMARY OF FINDINGS

In determining the extent to which teachers adapt resources to teach functional skills to learners with cerebral palsy in special units of Kilifi County

The research determined that the modification of educational materials is essential for the effective provision of functional skills instruction to students with cerebral palsy. Correlation study indicated a robust positive association between the utilization of real objects and the acquisition of functional abilities ($r = 0.68$, $p < 0.01$), whereas resource inaccessibility adversely affected learning results ($r \approx -0.55$, $p < 0.01$).

The multiple regression analysis confirmed that real object-based teaching ($\beta = 0.65$, $p < 0.01$) and the availability of school resources ($\beta = 0.61$, $p < 0.01$) were the strongest predictors of successful functional skills acquisition. In contrast, resource inaccessibility ($\beta = -0.55$, $p < 0.01$) was a significant barrier to instructional effectiveness.

Qualitative findings reinforced these results, with teachers consistently citing financial constraints and insufficient government support as key challenges in acquiring and utilizing appropriate assistive devices and adaptive learning materials. One teacher remarked, "Most of the assistive devices are too expensive and the school doesn't have enough for every learner."

These findings are consistent with Kim et al. (2021), who demonstrated that shortages in resources directly hinder the quality of special needs education. Similarly, Bornman and Rose (2019) emphasized the effectiveness of hands-on, practical learning approaches, though they acknowledged the difficulty of implementation in under-resourced environments.

CONCLUSION

Relationship between Resource Adaptation and Teaching Functional Skills

The study shows that the adaptation of teaching and learning resources markedly affects the efficacy of imparting functional skills to learners with cerebral palsy in Kilifi County. Teachers who utilized real objects and had access to appropriate resources were more effective in delivering instruction. However, challenges such as resource shortages, difficulties in adapting materials and limited support from the government hindered effective teaching. Quantitative findings showed strong positive correlations between resource adaptation and functional skills acquisition, while resource inaccessibility negatively impacted outcomes. Qualitative data reinforced that lack of training and inadequate funding limited teachers' ability to fully adapt resources.

Addressing these gaps is essential for improving the teaching and learning experience for learners with CP.

RECOMMENDATION

This study's findings led to numerous crucial recommendations aimed at enhancing teacher preparedness for instructing learners with cerebral palsy in special units in Kilifi County. The Ministry of Education (MoE) and the TSC were urged to enhance and prioritise continuous professional development (CPD) programs for educators working with students with cerebral palsy. These programs must advance beyond conventional special needs education to emphasise specialised training in teaching functional skills, individualised education planning (IEP), curriculum adaptation and the proficient use of assistive technology. Practical, experiential training was essential to reconcile theoretical understanding with classroom application.

Deliberate efforts were recommended to foster positive teacher attitudes toward learners with cerebral palsy. This could have been achieved through regular sensitization programs, workshops and mentorship initiatives aimed at promoting inclusive education and reducing stigma. In addition, schools were encouraged to implement teacher motivation strategies such as recognition programs, incentives and emotional support services to address teacher burnout and frustration, which were observed in the study.

The government and other educational stakeholders were advised to increase funding for special needs education, with specific emphasis on providing and adapting teaching and learning resources. Schools needed to be adequately equipped with assistive devices, adapted instructional materials and supportive infrastructure to enhance the learning experience for learners with cerebral palsy. It was also recommended that school administrators ensure these resources were accessible and effectively used by both teachers and learners.

Schools were encouraged to implement collaborative teaching approaches by involving multidisciplinary teams. Teachers needed to work closely with therapists, caregivers and other professionals to develop and implement individualized teaching strategies tailored to the diverse needs of learners with cerebral palsy. Such collaboration would have ensured consistency between school-based instruction and home-based support.

The study also recommended that school management and policymakers address systemic challenges such as large class sizes and rigid school schedules, which were found to hinder individualized instruction and practical skills training. Reducing class sizes in special units and creating flexible timetables would have provided teachers with opportunities to offer personalized attention and effectively implement adaptive teaching strategies.

Lastly, it was recommended that the Ministry of Education develop a monitoring and evaluation framework specifically for special units catering to learners with cerebral palsy. This framework would have assessed teacher preparedness, resource availability and instructional quality and learner outcomes and provided feedback to inform continuous improvement in the teaching of functional skills.

5.4 Suggestions for Further Research

While this study provided valuable insights into teacher preparedness, instructional strategies and resource adaptation in teaching functional skills to learners with CP, several areas require further exploration to strengthen the body of knowledge in special needs education.

First, future studies should conduct longitudinal research to assess the long-term impact of teacher training on the effectiveness of teaching functional skills. This study established the link between teacher preparedness and instructional quality but did not examine whether ongoing professional development leads to sustained improvements in teaching practice. Longitudinal studies tracking teachers and learners over several years would provide a deeper understanding of whether continuous capacity building enhances instructional effectiveness for CP learners.

There is need to conduct comparative studies across different counties in Kenya or regions in Africa. This study focused solely on Kilifi County and it remains unclear whether similar challenges and outcomes exist elsewhere. Comparative research would help establish whether issues such as limited teacher training, resource constraints and instructional challenges are specific to Kilifi or prevalent across other contexts. Such studies would also identify best practices from regions with more successful models of special needs education.

Research is needed on the role of caregivers and home-based learning in supporting the teaching of functional skills. While this study concentrated on classroom-based instruction, it did not explore how caregiver involvement outside school settings contributes to reinforcing functional skills for learners with CP. Future research should examine how parental engagement, home routines and caregiver-led interventions support the continuity and consistency of teaching functional skills.

Further research should evaluate the impact of assistive technology and adaptive learning materials on the teaching of functional skills. Although this study highlighted the lack of resources as a barrier, it did not assess how specific assistive devices and technologies enhance instructional delivery. Studies focusing on tools such as speech-generating devices, mobility aids and customized learning applications would provide valuable insights into effective strategies for improving classroom engagement and participation for learners with CP.

While this study identified attitude as a significant factor influencing instructional effectiveness, it

did not explore the long-term psychological impact of teaching in resource-constrained environments. Future studies should investigate how emotional exhaustion, workload and institutional support affect teacher performance and explore interventions that promote teacher well-being, such as counseling programs, peer support networks and workload management.

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