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ASSESSING THE EXTENT OF INTEGRATION OF INFORMATION COMMUNICATION TECHNOLOGY IN REHABILITATION SCHOOLS FOR LEARNERS WITH EMOTIONAL AND BEHAVIOURAL DIFFICULTIES IN NAIROBI COUNTY, KENYA

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Abstract:
The purpose of this study was to assess the extent of Integration of Information Communication Technology in Rehabilitation Schools for Learners with Emotional and Behavioural Difficulties in Nairobi County, Kenya. The Technology Pedagogy and Content of Knowledge (TPACK) model by Mishra and Koehler (2006) guided the study. A mixed-methods research design was employed. The study targeted 17 computer teachers and 114 learners with prior knowledge of ICT in two rehabilitation schools: Kabete and Dagoretti Girls. The researcher employed a purposive sampling technique to select teachers and 57 learners, translating into 66 participants. Data was collected using questionnaires for teachers and questionnaires for learners. The pilot study was done in a rehabilitation school in Kiambu County. Expert judgment was also used in the research instruments to enhance the validity. The reliability of the research instruments was calculated using Cronbach's Alpha, and the results showed that the teachers' and learners' questionnaires had correlation values of 0.81 and 0.79, respectively. The collected data were both qualitative and quantitative. The quantitative data were summarized in descriptive statistics using Statistical Package for Social Science (version 28.1). This involved summation, calculating frequencies and percentages, and determining the mean and standard deviation. Measures of central tendency helped show the trend, while measures of variance, such as standard deviation, helped show

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dispersion in the data. Qualitative data collected from the open-ended questions in the questionnaires were subjected to content analysis and were summarized thematically. The findings revealed that while a substantial percentage of teachers have received training in ICT, there are still significant gaps in the actual implementation and integration of these technologies in the classroom. The study revealed that teachers generally possess positive attitudes toward the use of ICT, recognizing its potential to enhance learning outcomes for students with emotional and behavioral disorders. The study concludes that the lack of adequate infrastructure, tailored training, and consistent administrative support are significant barriers that need to be addressed to fully realize the potential of ICT in enhancing the learning experiences of students with emotional and behavioural disorders. It was recommended that the Ministry of Education, in collaboration with other stakeholders, prioritize resource allocation to rehabilitation schools to ensure adequate access to ICT infrastructure.

Keywords: information communication technology, integration, learners with emotional and behavioural difficulties, rehabilitation school

1. Introduction

A collection of various high-tech tools and resources used for data creation, management, storage, and distribution is known as information and communications technology, or ICT. According to Awamleh (2024), ICT can be divided into two categories: traditional, which includes outdated ICTs like radio and television, and new, which includes the internet and telecoms. To support students with a range of disabilities, including emotional and behavioral disorders, the Individuals with Disabilities Education Act (IDEA) has encouraged the use of assistive technology, including ICT. Learners with EBD are now more engaged because of ICT technologies like interactive whiteboards and computer-based learning. But there are still issues, such as making sure all schools have equal access and creating customized ICT resources for various diseases (Smith & Jones, 2020). ICT solutions, including digital evaluations and speech-to-text software assisted students with EBD to control their learning rate, according to a Larsson (2019) study. There is a vacuum in teacher professional development, nevertheless, as it is difficult to guarantee that educators acquire sufficient training to adapt these resources to the particular requirements of every student.

Provinces such as Ontario have established comprehensive programs for ICT use in special education settings, and the Canadian government contributes a substantial amount of financing for ICT tools (Thompson & Keller, 2021). However, there are significant differences in the accessibility of ICT resources between provinces, which affects students with EBD. With government programs encouraging the use of technology in education, ICT integration in South African schools has been steadily increasing. However, Mhlongo and Dube's (2021) research shows that there is still little

ICT integration for students with EBD. ICT in education has drawn a lot of interest in Egypt, where large sums of money have been invested to update the educational system. ICT use for students with emotional and behavioral challenges is still relatively new, despite this. ICT in special education is just being started in Ethiopia. The execution of government attempts to increase classroom access to technology is sluggish. Research indicates that students with EBD are frequently overlooked when it comes to digital teaching methods (Gebre *et al.*, 2020). With an emphasis on expanding access to technology in public schools, Nigeria has attempted to incorporate ICT into the educational system. However, according to research by Adewale and Hassan (2021), students with EBD still use ICT sparingly, mostly as a result of weak infrastructure and teacher preparation in rehabilitation schools. The absence of comprehensive policies that encourage the use of ICT in special education is the reason for the gap in Nigeria's ICT integration for EBD students.

The Kenyan government has implemented programs like the Digital Literacy Program in an attempt to incorporate ICT into the educational system. ICT integration in rehabilitation schools for students with EBD is still difficult, though. ICT can be a useful tool for improving learning. However, research indicates that students with EBD are frequently left behind because of a lack of specialized resources and teacher preparation. According to a study by Otieno (2020), many rehabilitation schools in Nairobi County are still underprepared to accommodate students with EBD despite improvements in ICT infrastructure. To improve ICT integration, the study emphasized the necessity of focused teacher training and administrative assistance.

Mwangi (2022) highlighted in another study that although ICT tools were available, teachers at rehabilitation schools lacked the skills necessary to use them successfully for students with EBD. Regretfully, thorough data and analysis about the efficacy of ICT integration in Nairobi County rehabilitation schools are lacking. Rehabilitation schools in Nairobi County are made to help students with a range of difficulties, including EBD. These students frequently have trouble controlling their emotions, social relationships, and behavior, which seriously impairs their academic achievement. It is crucial to ascertain how equipped Nairobi's rehabilitation schools' teachers are to use ICT for EBD students.

2. Aim of the Objective

The study's purpose was to assess the extent of **the** integration of information communication technology (ICT) in rehabilitation schools for learners with emotional and behavioral difficulties in Nairobi County.

2.1 Research Hypotheses

Ha: There is a relationship between teachers' motivation and the use of CBA in pre-primary schools.

3. Conceptual Framework

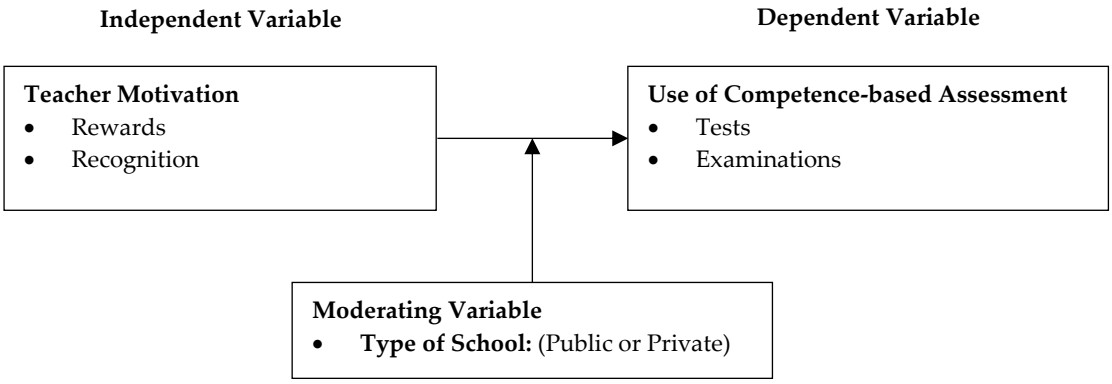

Figure 1: Conceptual Framework

4. Literature Review

4.1 Theoretical Framework

This study was guided by the Technology Pedagogy and Content Knowledge (TPACK) model by Mishra and Koehler (2006). TPACK provided three knowledge areas to consider: Technology, Pedagogy, and Content Knowledge. These three categories were arranged into a Venn diagram, which illustrated the four areas created in Mishra and Koehler's framework. Pedagogical Content Knowledge explains how teachers can design lessons based on how students can best learn specific course material. The second overlap area created is Technological Content Knowledge. That is, how technology influences the content, and the third overlap highlights the area where technology and pedagogy influence each other. Incorporating technology into the classroom often causes a change in how the material is taught.

Mishra and Koehler (2006) assert that technology is treated as if it is separate from teaching and learning. Often teachers may be instructed in the use of some particular software or app, but how to fit it into classroom teaching and learning may not be discussed. They point out that this can result in a negative impact and leads to four problems while using technology in the classroom. First, rapid changes in technology make it difficult to keep up with all the latest advancements and apps. The second problem is that software is designed for business, not for education hence, students learn how to use the program rather than the content of the class. The third problem emanates from the situational nature of the classroom, where a teacher can adjust a lesson to make sure it meets the needs of a specific group of students. Information Communication Technology has an exceptional and significant contribution to the learning experiences of learners with special educational needs. Evidence exists that technology can compensate for students with other identified disabilities, and while the specific research of students with EBD is lacking, students with disabilities, in general, appear to benefit from the support of technology. Likewise, assistive technology can enhance students'

concentration better than face-to-face teaching pedagogy. Many students will accept and understand that a computer is non-judgmental and treats everyone in the same way.

4.2 ICT Integration in Rehabilitation Schools

The contribution of innovations and technology in the classroom to better learning results. A mixed-methods study, "ICT Integration in Special Education for EBD Students: A Nationwide Survey" by Smith *et al.* (2020) in the USA, combined qualitative interviews with quantitative surveys of 120 special education instructors in 50 states. For students with EBD, ICT integration greatly improved communication and participation, according to the study, but it also revealed that a lack of technical support and training posed substantial obstacles. This study's lack of an understanding of the function of administrative support in ICT integration was one of its main weaknesses. In a two-year study called "ICT Tools and Behavioural Interventions: A Study of Canadian Schools for EBD Learners," McKay and Robinson (2021) followed EBD children in 30 schools. They found that ICT integration improved academic performance and decreased behavioral problems, but they also noted that teacher motivation and training were essential to ICT's effectiveness. The current research in Nairobi is to investigate administrative support as a variable, which was not taken into account in the study. A more comprehensive picture of ICT integration will be provided by the current study's investigation of both administrative support and teacher aspects.

In their paper "ICT in Special Needs Education: A Case Study of Indian Schools," Patel and Gupta (2022) used focus groups and interviews with administrators and instructors to evaluate five rehabilitation schools in India. They discovered that although ICT technologies were available, their efficient usage was hampered by infrastructure and training constraints. By doing a thorough assessment of ICT adoption in Nairobi's rehabilitation schools, the current study fills a significant gap in the literature: the absence of a quantitative assessment of ICT integration. A mixed-methods study, "The Effectiveness of ICT in Supporting EBD Learners in South African Special Schools," was carried out in South Africa by Moyo *et al.* (2020). Although teacher preparation was still a problem, the study, which included questionnaires and classroom observations in 25 special schools, discovered that ICT improved learning experiences. The impact of teacher competency and motivation on ICT integration was not examined in this study. By examining these teacher characteristics in Nairobi County schools and their effect on ICT efficiency, the current study closes this gap.

In their qualitative study "Challenges of ICT Integration for Special Needs Learners in Ugandan Schools," Kyambadde *et al.* (2020) used semi-structured interviews with administrators and teachers to examine the context of Uganda. The survey discovered that two of the biggest obstacles were a lack of administrative assistance and ICT tools. The impact of these difficulties was not, however, quantified. By measuring the level of ICT integration in Nairobi and investigating how administrative and instructional elements affect productivity, the current study will offer a more thorough

analysis. The study "ICT Adoption in Kenyan Special Schools: A Study by Wambua *et al.* (2022)" was carried out in Kenya. A Survey of Nairobi County," which collected information from 100 special needs instructors utilizing a quantitative survey design. Despite the availability of ICT tools, the survey discovered that administrative assistance was patchy and the majority of teachers lacked proper training. The impact of administrative support on ICT efficiency and the degree of ICT integration was not thoroughly examined in this study. The results showed that insufficient ICT resources, poor teacher preparation, and a lack of administrative support were the main obstacles to successful integration. Nevertheless, the study did not thoroughly examine teacher influences or quantify ICT integration. By evaluating the degree of ICT integration in Nairobi's rehabilitation schools and looking at the particular teacher aspects that affect its effectiveness, the current study aimed to close this gap.

5. Methodology

5.1 Location of the Study

The study was conducted in Nairobi County, which includes Kenya's capital city. Nairobi is characterized by a mix of affluence and numerous slums, contributing to a high incidence of delinquency and other issues among school-age children. This context explains the higher number of rehabilitation schools in Nairobi compared to other counties. The study focused on two rehabilitation schools, Dagoreti Girls and Kabete Rehabilitation Schools.

5.2 Research Design

A descriptive survey design was utilized for this study. According to Cresswell (2009), descriptive survey research aims to generate statistical information that describes the phenomenon under investigation. This design was appropriate as the data were collected from a sample population drawn from two rehabilitation schools in Nairobi County.

5.3 Target Population, sampling technique and sample size

The study targeted 17 computer teachers and 114 learners with prior knowledge of ICT in two rehabilitation schools: Kabete and Dagoretti Girls. The study employed a purposive sampling technique to select a total of 9 teachers and 57 learners, translating into a total of 66 participants. The sampling frame is provided in Table 1.

Table 1: Sampling Frame

School	Teachers	Pupils	Sample	Percent (%)
Kabete	4	28	32	50
Dagorreti Girls	5	29	34	50
Total	**9**	**57**	**66**	**50**

Source: Research work (2024).

5.4 Research Instruments

Questionnaires for teachers and questionnaires for learners were used to collect the data. The selection of these instruments was guided by the study's objectives, which focused on assessing the efficiency of ICT integration in rehabilitation schools for learners with emotional and behavioral disorders. The teacher questionnaire was semi-structured, comprising both open-ended and closed-ended questions.

5.5 Pilot Study

The pilot study was done in a rehabilitation school in Kiambu County. Expert judgment was also used in the research instruments to enhance the validity. The reliability of the research instruments was calculated using Cronbach's Alpha, and the results showed that the teachers' and learners' questionnaires had correlation values of 0.81 and 0.79, respectively.

5.6 Data

The researcher began by obtaining the necessary permissions from relevant authorities to access the two rehabilitation schools in Nairobi County. The researcher distributed the questionnaires directly to the teachers, providing clear instructions on how to complete them. Respondents were asked to rate some of the questions on a Likert scale to determine the quantitative value of their responses Teachers were given adequate time to complete the questionnaire to ensure the accuracy and depth of their responses.

5.7 Data Analysis

Data in this study was collected using a semi-structured questionnaire. This meant that the collected data were both qualitative and quantitative. The quantitative data were summarized in descriptive statistics using Statistical Package for Social Science (Version 28.1). This involved operations like summation, determining the range, calculating frequencies and percentages, and determining the mean and standard deviation. Measures of central tendency helped show the trend, while measures of variance, such as standard deviation, helped show dispersion in the data. Qualitative data collected from the open-ended questions in the questionnaires were subjected to content analysis and were summarized thematically.

5.8 Logistical and Ethical Considerations

Ethical considerations were measures or rules of ethics that had to be observed when the study was carried out and in the development of the research report (Kothari, 2004). Prior to data collection, the researcher sought an introductory letter from the graduate school approval letter Kenyatta University Ethical and Review Committee. Subsequently, the researcher sought a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). For proper identification, the researcher requested authorization from the Nairobi County Ministry of Education and permission

from the relevant authorities of the sampled schools. The researcher exercised full disclosure by properly identifying and explaining research intentions. Confidentiality was not compromised in this study as the names of the participants were not indicated or required on the research tools.

6. Study Results

This study aimed to assess the extent of ICT integration schools in rehabilitation schools in Nairobi County.

6.1 General Information and Demographic Data

Out of the sampled respondents, all 9 teachers and 46 pupils participated in the study, translating to a response rate of 83%. A response rate of more than 80% maximizes the representativeness of the sample, enabling researchers to make more accurate inferences about the population as a whole (Table 2).

Table 2: Response Rate

Category	Initial sample	Final sample	Percentage (%)
Teachers	9	9	100%
Pupils	57	46	80.7%
Total	66	55	**83.3%**

The response rate of 83% indicated robust participation from the sampled respondents, comprising 14 teachers and 46 pupils. A complete response rate from teachers (100%) and a high response rate from pupils (80.7%) ensured that the data collected was representative of the target population, enhancing the reliability and validity of the study's findings.

6.2 Demographic Information

The demographic characteristics of the participants were analyzed and discussed in terms of gender, age, highest level of education, experience, number of years served in the current stations as the class teachers, and enrolment size of grade 8 pupils. The data is as presented in Table 3.

Table 3: Demographic Information of the Teachers

	Demographic information	**Frequency**	**Percentage (%)**
Distribution of teachers by gender	Male	3	33.3
	Female	6	66.7
	Total	**9**	**100.0**
Distribution of teachers by age	26-30 years	0	0.0
	31-35 years	2	22.2
	36-40 years	2	22.2
	46-50 years	3	33.3
	51-55 years	1	11.1
	>55 years	1	11.1
	Total	**9**	**100.0**
Distribution of teachers by the highest level of education	P1	4	44.4
	Bachelor's Degree	4	44.4
	Masters	1	11.1
	Total	**9**	**100.0**
Distribution of teachers by working experience	<1 year	1	11.1
	1-5 years	2	22.2
	6-10 years	1	11.1
	11-15 years	3	33.3
	16-20 years	1	11.1
	>20 years	1	11.1
	Total	**9**	**100.0**
Distribution of teachers as class teachers in current stations	<1 year	1	11.1
	1-5 years	1	11.1
	6-10 years	2	22.2
	11-15 years	3	33.3
	16-20 years	1	11.1
	>20 years	1	11.1
	Total	**9**	**100.0**

As shown in Table 3, the gender distribution among teachers revealed a higher proportion of females (66.7%) compared to males (33.3%). This disparity highlighted the possible gender dynamics within the teaching profession in rehabilitation schools in Nairobi County, where female teachers were more dominant. The age distribution showed that the majority of teachers were aged between 31 and 50 years, with a significant portion (33.3%) in the 46-50 years age bracket. Teachers in this age group typically have considerable experience, which may positively influence their ability to integrate ICT into their teaching practices. The distribution of teachers by the highest level of education indicated that most teachers had either a P1 certification (44.4%) or a Bachelor's degree (44.4%), with only a small percentage (11.1%) holding a Master's degree. The relatively low level of advanced education among teachers might have implications for the effectiveness of ICT integration, as higher educational qualifications often correlate with better pedagogical and technological skills. The majority of teachers had over 10 years of experience, with 33.3% having worked for 11-15 years. This extensive

experience is a positive factor, as it suggests that teachers are likely to be knowledgeable and skilled in handling students with EBD. However, long-term experience without concurrent professional development in ICT could also mean that these teachers might be less adaptable to new technologies, potentially hindering the integration process. The findings showed that most teachers had been in their current positions for 6-10 years (22.2%) or 11-15 years (33.3%). While stability in their roles could lead to a deep understanding of the students' needs, it might also suggest a potential resistance to change or innovation, particularly in adopting ICT tools.

Further, the class size distribution was established and the results are as presented in Figure 2.

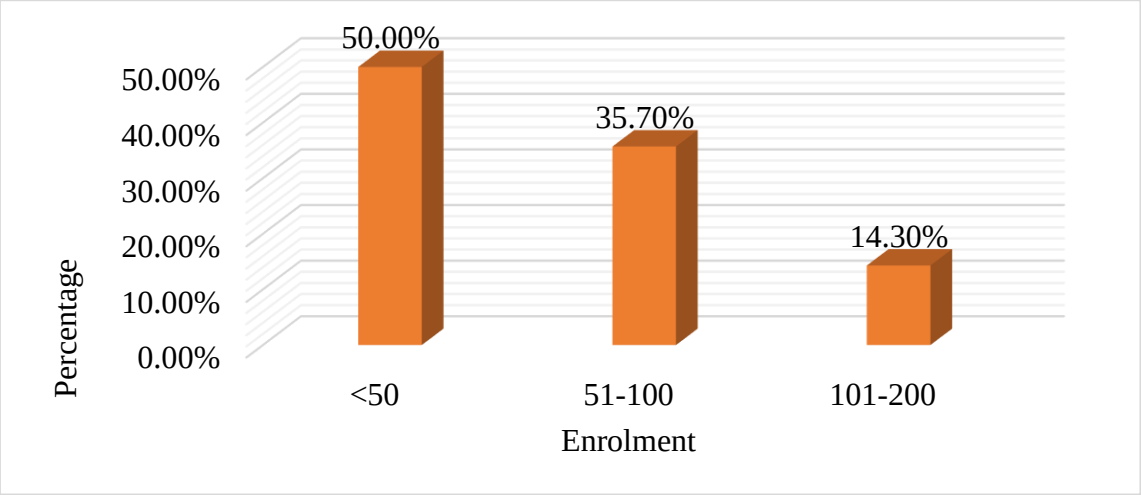

Figure 2: Distribution by Enrolment in School

The majority of schools had fewer than 50 pupils enrolled in Grade 8 (50%), with only a small proportion (14.3%) having 101-200 pupils. Smaller class sizes could facilitate more personalized attention to students, which is crucial for learners with EBD. However, limited resources and smaller school sizes might also mean less funding and fewer opportunities for acquiring and maintaining ICT tools, thereby affecting the efficiency of ICT integration.

Further, the demographic characteristics of the learners with emotional and behavioral difficulties in Nairobi County were analyzed and discussed in terms of gender, the period they had been in this rehabilitation school and the enrolment size of grade 8 pupils (Table 4).

Table 4: Demographic Information of the Learners with EBD

Demographic data of the Learners		**Frequency**	**Percentage (%)**
Please specify your gender	Male	17	37.0
	Female	29	63.0
	Total	**46**	**100.0**
Please indicate the period you have been in this rehabilitation school	< 1 year	17	37.0
	2 years	17	37.0
	3 years	12	26.1
	Total	**46**	**100.0**
Do you have ICT training?	Yes	25	54.3
	No	21	45.7
	Total	**46**	**100.0%**

Findings in Table 4 showed that the gender distribution among learners with EBD indicated a higher number of females (63%) compared to males (37%). This gender disparity might reflect differences in the prevalence of emotional and behavioural disorders between genders, which could influence the outcomes of ICT integration. The data showed that the majority of learners had been in rehabilitation schools for either less than one year (37%) or two years (37%). The relatively short duration of stay might suggest that many students are new to the rehabilitation environment, which could impact their adaptability to ICT tools and the overall effectiveness of ICT integration. Slightly more than half of the learners (54.3%) reported having ICT training, while 45.7% had not received any training. The lack of ICT training among a significant portion of the learners could pose a challenge to the effective integration of ICT in their learning processes.

6.3 The Extent of ICT Integration Schools in Rehabilitation Schools

The purpose of this study was to assess the extent of ICT integration schools in rehabilitation schools in Nairobi County. To accomplish this, teachers were asked to show whether they had ICT training or not, and the findings are presented in Figure 3.

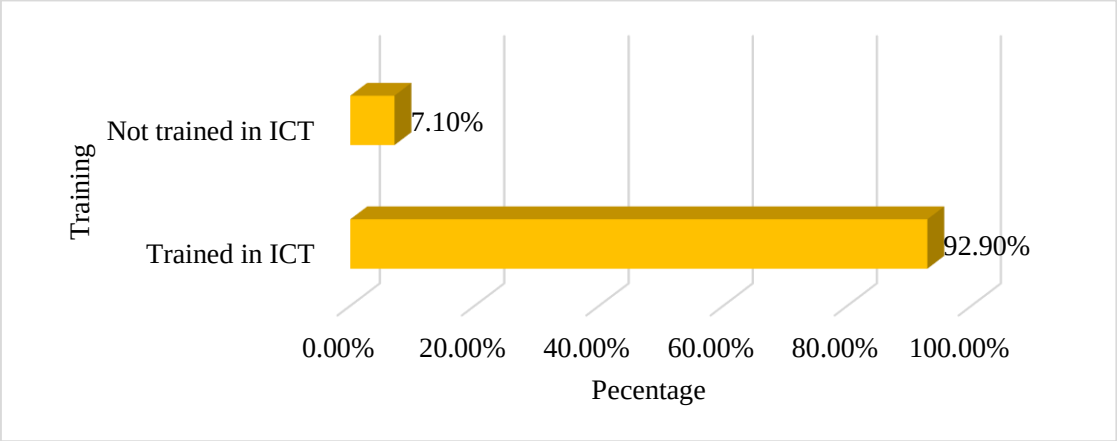

Figure 3: Distribution of Teachers by Training in ICT

The results in Figure 3 indicate that a significant majority of teachers (92.9%) in the rehabilitation schools have received ICT training. This high percentage suggests that most teachers are equipped with basic knowledge and skills related to ICT, which is a positive indicator of the potential integration of ICT in their teaching practices. The presence of ICT-trained teachers is crucial for the successful implementation of ICT in education, as it reflects a readiness to incorporate technology into classroom activities. On the other hand, a small percentage (7.1%) of teachers have not received ICT training. This minority represents a potential barrier to ICT integration, as untrained teachers may lack the confidence or competence to effectively use technology in their teaching. Addressing this gap through targeted training programs could enhance the overall level of ICT integration in these schools. According to Cuban (1993), the integration of ICT in schools is heavily reliant on teachers having access to technology and a supportive school culture. The high percentage of trained teachers in this study aligns with Cuban's emphasis on the importance of making technology accessible to educators to unlock their potential. Additionally, Kiptalam and Rodrigues (2010) noted that teachers who frequently use ICT in their teaching recognize its benefits and are more likely to integrate it into their professional practices. The findings of this study suggest that the teachers in rehabilitation schools are likely to recognize the value of ICT, as indicated by the high level of training.

Further, teachers were asked to specify the training core theme they had trained in, and the results are shown in Table 5.

Table 5: Teachers' Training Core Theme

Core Theme		Frequency	Percentage (%)
Basic computer literacy is not essentially associated with education	Yes	5	55.6
	No	3	33.3
	Other	1	11.1
	Total	**9**	**100.0**
ICT hardware and software were used but associated with education and learning	Yes	3	33.3
	No	5	55.6
	Other	1	11.1
	Total	**9**	**100.0**
Use of ICT to improve pedagogical practices in distinct areas of education and management of class	Yes	6	66.7
	No	2	22.2
	Other	1	11.1
	Total	**9**	**100.0**

Findings in Table 5 indicate that slightly more than half of the teachers (55.6%) had been trained in basic computer literacy, though not specifically related to education. This indicates that while these teachers possess foundational ICT skills, they may not be fully equipped to apply these skills in an educational context. The lack of educational focus in their training could limit the effectiveness of ICT integration in teaching and learning. A smaller proportion (33.3%) of teachers have received training specifically related to using

ICT hardware and software in educational settings. This is a crucial skill set for integrating technology into pedagogical practices, suggesting that more teachers need to be trained in this area to maximize the benefits of ICT in education. A majority (66.7%) of teachers have been trained in using ICT to enhance pedagogical practices and manage classrooms. This is a positive finding, as it shows that a significant number of teachers are equipped to use technology to improve their teaching methods and effectively manage their classrooms, which is key to successful ICT integration. The findings of this study align with international research, indicating that ICT training for teachers is crucial for successful integration. For instance, Smith *et al.* (2020) and McKay & Robinson (2021) both found that ICT training enhances the ability of teachers to use technology effectively. The present study corroborates these findings by showing that a high percentage of teachers with ICT training are likely to integrate technology into their teaching practices. However, the present study highlights gaps that were not fully addressed in these international studies. For example, Patel and Gupta (2022) reported that despite ICT tool availability, the lack of focused training hindered effective use. The current study similarly finds that while many teachers are trained, the specificity of their training needs improvement.

Comparisons with regional studies, such as Wambua *et al.* (2022) and Kimani & Omollo (2020), reveal similar trends in ICT training but with some distinctions. Both studies reported that ICT training was inconsistent among Kenyan teachers. The present study's findings align with this observation, showing that while a high percentage of teachers are trained, the focus of their training varies. The study adds depth to this understanding by breaking down the core themes of training and highlighting areas needing further development. The study's findings emphasize the importance of addressing training gaps identified in previous research. For instance, while many teachers have basic ICT skills, the lack of education-specific training can limit effective integration. The study suggests that targeted training programs should focus on educational applications of ICT to better support teachers in integrating technology into their teaching practices.

6.3 Qualitative Data Analysis

In an open-ended question, learners who agreed that they had trained were further asked to specify the type of training they had received. Among those who agreed that they had been trained identified several ICT training. Data was analysed through the use of a thematic analysis approach as follows:

6.3.1 Basic ICT Training

This theme includes responses where learners reported receiving basic training in using computers. This training typically covered fundamental skills such as typing, navigating through educational software, and using the internet. Over half of the learners (55.4%) have received basic ICT training. These findings corroborate with the study by Durlak *et*

al. (2011), who argued that developing basic skills is a crucial step for learners, as it builds a sense of competence and autonomy. Basic ICT training provides learners with the tools they need to engage with technology on their terms, facilitating more personalized and independent learning experiences.

6.3.2 Specialized Educational Software Training

Learners indicated that their training included the use of specific educational software designed to aid learning. This software might include programs tailored for learners with special needs, such as reading or math programs with adaptive features. Specialized software training is particularly significant for learners with emotional and behavioral difficulties as it can provide customized learning experiences that cater to individual needs. This finding aligns with the literature on the use of ICT for inclusive education. According to Gündüz & Hakkun (2017), specialized educational software plays a vital role in creating individualized learning experiences for learners with special needs. By tailoring instruction to the unique abilities and challenges of each learner, such software enhances engagement and learning outcomes.

6.3.3 Digital Literacy and Internet Safety

Responses under this theme reflect training that focused not only on basic ICT skills but also on digital literacy, including understanding how to use the internet safely. This could involve lessons on identifying reliable sources, understanding digital footprints, and being aware of online risks. Digital literacy is becoming increasingly important, particularly for young learners who are often more exposed to online content. The findings of this study are supported by those of Livingstone *et al.* (2017), who argued that digital literacy, particularly regarding internet safety, is essential for young learners in today's technology-driven society. For learners with emotional and behavioral difficulties, understanding how to use the internet responsibly is crucial, as they may be more vulnerable to online risks such as cyberbullying or exposure to inappropriate content.

6.3.4 Assistive Technology

This theme captures responses where learners mentioned receiving training on specific assistive technologies that help in their learning process. This could include tools like speech-to-text software, screen readers, or specialized input devices. Assistive technologies play a critical role in supporting learners with disabilities. The mention of such training suggests that there is an effort to make ICT more accessible and beneficial for learners with specific needs. The findings are in line with the work of Edyburn (2020), who highlighted the importance of assistive technologies in supporting learners with disabilities by providing them with the means to engage with educational content in a way that accommodates their specific needs.

6.3.5 Collaborative and Group Learning through ICT

Some learners reported that their training involved collaborative learning exercises using ICT. This might include group projects facilitated by digital platforms, encouraging teamwork and social interaction among peers. Collaborative learning through ICT can help improve social skills among learners with emotional and behavioral difficulties. The integration of such training reflects an understanding of the importance of social learning environments, which can be particularly beneficial for learners who might struggle with traditional forms of interaction. The present study's findings align with those of Smith *et al.* (2020), who found that ICT significantly enhances communication and engagement for students with EBD. The high engagement in collaborative and group learning reported in this study supports Smith *et al.*'s conclusion that ICT facilitates better interaction and learning outcomes. Both studies highlight the importance of ICT in creating more interactive and engaging educational experiences for learners with emotional and behavioral difficulties (EBD).

6.3.6 Basic ICT Training

The study found that 55.4% of learners received basic ICT training, which included fundamental skills such as typing and internet navigation. This finding is consistent with the literature on the necessity of foundational ICT skills for effective technology use. The study by Kimani and Omollo (2020) supports this, emphasizing that basic ICT training is essential for effective integration. However, the present study adds that while basic skills are important, they need to be complemented by more specialized training to fully support learners with EBD.

6.3.7 Specialized Educational Software Training

Specialized software training was noted as significant for learners with special needs. This finding is supported by Johansson *et al.* (2019), who highlighted the importance of assistive technology in providing customized learning experiences. The study's focus on specialized educational software aligns with Johansson *et al.*'s findings, demonstrating that tailored software can enhance learning outcomes for EBD learners. However, the present study further explores how this specialized training is integrated into the overall ICT framework, offering a more nuanced view of its effectiveness.

6.3.8 Digital Literacy and Internet Safety

The study highlighted the importance of digital literacy and internet safety, which aligns with the increasing emphasis on these skills in the literature. Moyo *et al.* (2020) underscore the need for digital literacy to protect learners and enhance their online experiences. The current study’s focus on internet safety and digital literacy reflects a proactive approach, complementing Moyo *et al.*'s findings by incorporating these aspects into the broader ICT integration framework.

6.3.9 Assistive Technology Training

The mention of assistive technology training aligns with Patel and Gupta (2022), who identified the importance of such technologies in supporting learners with disabilities. The present study's findings on assistive technology reflect an understanding of its critical role in making ICT more accessible for learners with specific needs. This focus complements Patel and Gupta's findings but extends them by quantitatively assessing the extent of assistive technology training.

Participants (teachers) who took part in the study were further asked to rate their levels of agreement with various statements associated with how they perceived ICT. A 5-point item scale was used to analyze their responses and the results were presented in Table 6.

Table 6: Teacher's Perception of ICT Integration in Schools

Item		Frequency	Percentage (%)	Mean	Std. Dev
Computers may assist me in learning things in more easier way	Strongly Disagree	0	0.0%	4.29	0.611
	Disagree	0	0.0%		
	Not Sure	1	11.1%		
	Agree	5	55.6%		
	Strongly Agree	3	33.3%		
Understanding computers is difficult	Strongly Disagree	0	0.0%	4	0.877
	Disagree	1	11.1%		
	Not Sure	2	22.2%		
	Agree	4	44.4%		
	Strongly Agree	2	22.2%		
Knowledge of computer use will assist me excel in my career	Strongly Disagree	0	0.0%	4	0.877
	Disagree	1	11.1%		
	Not Sure	2	22.2%		
	Agree	4	44.4%		
	Strongly Agree	2	22.2%		
Use of a computer implies working independently without contacting others	Strongly Disagree	0	0.0%	3.93	0.829
	Disagree	1	11.1%		
	Not Sure	1	11.1%		
	Agree	5	55.6%		
	Strongly Agree	2	22.2%		
There is need to give a chance to every teacher and their students to learn about computers at school	Strongly Disagree	0	0.0%	3.79	0.893
	Disagree	1	11.1%		
	Not Sure	2	22.2%		
	Agree	4	44.4%		
	Strongly Agree	2	22.2%		
Everything that a computer can be used for, I can do it using other ways	Strongly Disagree	0	0.0%	3.71	0.914
	Disagree	1	11.1%		
	Not Sure	3	33.3%		
	Agree	3	33.3%		
	Strongly Agree	2	22.2%		
Education will be	Strongly Disagree	0	0.0%	4.21	0.802

enhanced by computers.	Disagree	0	0.0%		
	Not Sure	2	22.2%		
	Agree	3	33.3%		
	Strongly Agree	4	44.4%		
I am uninterested in the hurdle of problem-solving using computers.	Strongly Disagree	2	22.2%	1.86	0.663
	Disagree	6	66.7%		
	Not Sure	1	11.1%		
	Agree	0	0.0%		
	Strongly Agree	0	0.0%		
ICT should be withdrawn from the school timetable.	Strongly Disagree	5	55.6%	1.64	0.745
	Disagree	3	33.3%		
	Not Sure	1	11.1%		
	Agree	0	0.0%		
	Strongly Agree	0	0.0%		
Using a computer encourages creativity.	Strongly Disagree	0	0.0%	4	0.877
	Disagree	1	11.1%		
	Not Sure	1	11.1%		
	Agree	5	55.6%		
	Strongly Agree	2	22.2%		
Having access to a computer would increase my overall satisfaction.	Strongly Disagree	0	0.0%	3.64	0.929
	Disagree	1	11.1%		
	Not Sure	4	44.4%		
	Agree	2	22.2%		
	Strongly Agree	2	22.2%		
Teachers will be relieved of routine responsibilities by computers.	Strongly Disagree	0	0.0%	4	0.961
	Disagree	1	11.1%		
	Not Sure	2	22.2%		
	Agree	3	33.3%		
	Strongly Agree	3	33.3%		

The findings from Table 6 indicate that teachers generally perceive ICT integration positively, with a mean score of 4.29 for the statement, "Computers may assist me in learning things more easily." This high level of agreement underscores the recognition of ICT's potential to enhance learning experiences. This finding corroborates with the results of Wambua *et al.* (2022), who also observed that while ICT tools were available in Kenyan special schools, their integration was not maximized due to factors such as inconsistent administrative support and inadequate teacher training. The present study, however, adds a layer by quantifying the extent of integration and highlighting areas where ICT has been effectively employed. Despite the overall positive outlook on ICT, the finding that teachers have some difficulty in understanding computers, with a mean score of 4.00 for "Understanding computers is difficult," reveals a gap that needs addressing. This aligns with the study by Kimani and Omollo (2020), which found that lack of adequate training was a significant barrier to effective ICT integration in Kenyan special education settings. The present study's emphasis on this challenge underscores the need for

targeted training programs to enhance teachers' competencies and ease their integration of ICT in teaching.

The perception that knowledge of computer use will assist teachers in excelling in their careers, with a mean score of 4.00, is indicative of teachers' recognition of the career benefits of ICT skills. This finding supports McKay and Robinson (2021), who noted that ICT tools are valued for their potential to improve academic performance and reduce behavioral issues among students. However, the present study extends this perspective by investigating how these perceptions translate into practical integration and effectiveness in Nairobi's rehabilitation schools. The statement "Use of computer implies working independently without contacting others" received a mean score of 3.93, suggesting that while some teachers view ICT as promoting independent work, there is also an acknowledgement of the need for collaboration. This contrasts with Johansson *et al.* (2019), who found significant variability in teachers' attitudes towards ICT, with some emphasizing collaborative benefits while others faced challenges in this aspect. The present study's results highlight the necessity of a balanced approach that leverages both independent and collaborative uses of ICT to maximize its benefits for EBD learners.

The finding that there is a need to provide opportunities for every teacher and student to learn about computers (mean score of 3.79) reflects a broader recognition of the importance of equitable access to ICT. This aligns with Patel and Gupta (2022), who identified infrastructure and training limitations as barriers to effective ICT use in Indian special needs schools. The current study's focus on Nairobi's context emphasizes the need for comprehensive strategies to ensure all stakeholders benefit from ICT integration. The positive perception of ICT as a tool for enhancing creativity (mean score of 4.00) and the low agreement with the idea of ICT being unnecessary (mean score of 3.71) highlight the value placed on ICT in fostering innovative thinking. This supports the findings of Smith *et al.* (2020), who reported that ICT integration enhanced engagement and creativity among EBD students in the USA. The present study's results reinforce the potential of ICT to contribute to creative problem-solving, underscoring its role in educational innovation.

The finding that teachers expressed strong disinterest in the challenges of problem-solving with computers (mean score of 1.86) and believed ICT should not be withdrawn from the timetable (mean score of 1.64) points to a significant gap in engagement and perceived relevance of ICT. This contrasts with the findings of Moyo *et al.* (2020), who found that while ICT enhanced learning experiences, teacher preparedness was an issue. The present study's results highlight the need for initiatives that address these challenges and improve teacher attitudes towards ICT. The findings from this study provide a nuanced understanding of ICT integration in Nairobi County's rehabilitation schools. While there is overall positive perception and recognition of ICT's potential benefits, challenges related to understanding, training, and attitudes persist. The present study fills important gaps identified in the literature by providing a quantitative assessment of ICT integration and examining both teacher and

administrative factors. Future research and practical initiatives should focus on addressing these challenges to enhance the effectiveness of ICT integration in special education settings.

7. Conclusion

The study concludes that the lack of adequate infrastructure, tailored training, and consistent administrative support are significant barriers that need to be addressed to fully realize the potential of ICT in enhancing the learning experiences of students with emotional and behavioural disorders. The findings suggest that a more targeted approach, focusing on equipping schools with the necessary resources and providing ongoing, specialized training for teachers, is essential for improving ICT integration in these educational settings.

8. Recommendations

1) The study found that limited access to ICT resources significantly hinders effective integration despite positive teacher attitudes and training. It is recommended that the Ministry of Education, in collaboration with other stakeholders, prioritize the allocation of resources to rehabilitation schools to ensure adequate access to ICT infrastructure. This includes providing sufficient computers, reliable internet connectivity, and assistive technologies tailored to the needs of learners with emotional and behavioral disorders.
2) The study revealed significant gaps in teachers' ICT skills, which hinder effective ICT integration in rehabilitation schools. It is recommended that rehabilitation schools implement intensive and ongoing ICT training programs tailored specifically for teachers. These programs should focus on enhancing teachers' competencies in using basic and advanced ICT tools, particularly those relevant to special education.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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Psirmoi Grenzer is a passionate Special Needs educator currently teaching at New Ellenton Middle STEAM Magnet School in Aiken County, USA. Prior to her role there, she taught at Wagener Salley High School in Aiken, USA, where she refined her expertise in supporting students with diverse needs. Grenzer's career extends internationally, having served as an Instructional Coach for Education Development Trust Project, a program funded by the UK's Department for International Development (DFID). She played a pivotal role in the success of educational initiatives across Kenya and Sub-Saharan Africa, particularly in teacher training and Board of Management development. Her work focused on some of the most challenging regions, including Arid and Semi-Arid Lands (ASAL) and urban slums in Nairobi and Mombasa. Grenzer's impact also extended to G.K Prison and Kapese Schools in Kenya, where she made significant contributions to education in underserved communities. Her academic background underscores her deep commitment to inclusive education. She holds a Master's Degree in Special Needs Education, specializing in Emotional and Behavioral Disorders, from Kenyatta University in Kenya. Bachelor's degree in special Needs Education and Counselling from the Kenya Methodist University (KEMU), a Diploma in Special Needs Education from Kenya Institute of Special Education (KISE) and a Primary Teacher Education qualification from Kamagambo Teachers Training College. Additionally, she earned graduate certifications in Gifted and Talented Education and English for Speakers of Other Languages (ESOL) from the University of South Carolina, USA. Her dedication to inclusive education and expertise in working with students with emotional behaviour disorders and other exceptionalities has made Grenzer a key figure in transforming the educational landscape of New Ellenton. She advocates for inclusive practices like the push-in model, which integrates students with special needs into regular classrooms. Her efforts have inspired fellow educators and positively influenced the academic journey of countless students, particularly those from multilingual backgrounds. Grenzer's contributions extend beyond the classroom. She is deeply involved in research, focusing on Emotional and Behavioural Disorders. Her ongoing research continues to shape educational practices and policies, further advancing special education. Her unwavering commitment to enhancing the learning experiences of students with diverse needs has left an enduring impact on the field of special needs education, establishing a legacy of progress and advocacy.

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References

Ahmed, R., & Hassan, A. (2021). Barriers to ICT integration in special needs education: The Egyptian context. *International Journal of Special Needs Education*, 12(3), 102-117. http://dx.doi.org/10.9782/2331-4001-24.1.25

Cuban, L. (1993). Computers Meet Classroom: Classroom Wins. *Teachers College Record*, Vol. 95, 185-210. https://doi.org/10.1177/016146819309500202

Gebre, W., Mulugeta, A., & Asfaw, D. (2020). The role of school leadership in ICT adoption for special needs education in Ethiopia. *African Journal of Education*, 40(1), 73-85. Retrieved from https://www.academia.edu/68041499/Understanding_the_role_of_school_leaders_in_realizing_the_potential_of_ICTs_in_education

Johansson, L., Karlsson, P., & Eriksson, M. (2019). The role of technology in supporting EBD learners in Swedish special schools. *Journal of Special Needs Education*, 45(3), 234-245.

Kimani, D., & Omollo, P. (2020). Challenges of ICT in special education in Kenya. *International Journal of Education and Development*, 28(4), 120-134.

Kiptalam, G. K., & Rodrigues, A. J. (2010). Accessibility and utilization of ICTs among secondary school teachers in Kenya. In *The International Conference on Computing and ICT Research* (pp. 246-263). Uganda: Kampala.Retrieved from https://docs.edtechhub.org/lib/LRH5W4WW

Kyambadde, H., Namakula, D., & Ssenyonga, R. (2020). Challenges of ICT integration for special needs learners in Ugandan schools. *African Journal of Educational Technology*, 12(2), 76-88. Retrieved from http://dx.doi.org/10.46606/eajess2021v02i03.0114

McKay, A., & Robinson, T. (2021). ICT tools and behavioral interventions: A study of Canadian schools for EBD learners. *Journal of Behavioural Education*, *33*(1), 45-62.

Mishra, S. (2002). A Design Framework for Online Learning Environments, *British Journal of Educational Technology, 33*(4). Retrieved from http://dx.doi.org/10.1111/1467-8535.00285

Moyo, S., Ndlovu, T., & Dube, M. (2020). The effectiveness of ICT in supporting EBD learners in South African special schools. *South African Journal of Education and ICT*, 17(2), 89-103.

Mwangi, P. (2022). Administrative support and ICT integration in Kenyan rehabilitation schools. *Kenya Journal of Education*, 19(1), 99-114.

Otieno, R. (2021). Challenges in ICT integration in Nairobi rehabilitation schools. *East African Journal of Education* 12(2), 110-127.

Patel, S., & Gupta, R. (2022). ICT in special needs education: A case study of Indian schools. *Asian Journal of Special Education*, 9(3), 101-115.

Smith, J., Williams, R., & Brown, T. (2020). ICT integration in special education for EBD students: A nationwide survey. *American Journal of Special Education*, 54(2), 110-128.

Wambua, K., Mutisya, M., & Ndungu, P. (2022). ICT adoption in Kenyan special schools: A survey of Nairobi County. *Kenyan Journal of Educational Technology*, 10(1), 66-79.