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DETERMINING TEACHER FACTORS AND THEIR EFFECT ON THE EFFICIENCY OF ICT INTEGRATION IN REHABILITATION SCHOOLS IN NAIROBI COUNTY, KENYA

Psirmoi Grenzer[1i],
Margaret Murugami[2],
Jessina Muthee[2]
[1]Master's Student,
School of Education,
Department of Special Needs Education,
Kenyatta University,
Nairobi, Kenya
[2]Lecturer, Dr.,
Department of Early Childhood and Special Needs Education,
Kenyatta University,
Nairobi, Kenya

Abstract:
The integration of information and communications technology (ICT) in teaching has improved engagement among learners with EBD. However, challenges persist, such as ensuring equitable access across schools and developing personalised ICT tools for different disorders. This study aimed to determine teacher factors that affect the efficiency of ICT integration in rehabilitation schools in Nairobi County. The study was guided by the Technology Pedagogy and Content of Knowledge (TPACK) model by Mishra and Koehler (2006). The objectives included assessing the availability of assistive ICT in rehabilitation schools, evaluating administrative support for the implementation of ICT, and determining the contribution of ICT to learning in these schools. A mixed-methods research design was employed. The study targeted 17 computer teachers and 114 learners with prior knowledge in ICT in two rehabilitation schools: Kabete and Dagoretti Girls. The researcher employed a purposive sampling technique to select a total of 9 teachers and 57 learners, translating into a total of 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. 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 in nature. The quantitative data were summarised in descriptive statistics using the Statistical Package for Social Science

[i] Correspondence: email grenzerpsirmoi.gp@gmail.com

(version 28.1). This involved operations like summation, calculating frequencies and percentages, 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 summarised thematically. The findings revealed that the majority of teachers in rehabilitation schools rated their ICT competencies as weak in basic computer functions, such as file management, and none rated themselves as good in operating systems. They also rated themselves as weak in software applications like Microsoft Office and video production tools, and in using PowerPoint for classroom presentations. The findings indicate that there is a significant gap in the training provided to teachers regarding ICT use. Most teachers lack the necessary skills to integrate ICT effectively into their teaching practices, particularly in special education settings like rehabilitation schools. The study concluded that teacher factors, particularly ICT competencies, significantly influence the efficiency of ICT integration in rehabilitation schools in Nairobi County. The findings highlight a critical gap in teachers' preparedness to effectively integrate ICT into their teaching practices, which is largely attributed to insufficient training and inadequate administrative support. The study 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.

Keywords: efficiency of ICT integration, Information Communication Technology, learners with emotional and behavioural disorders, rehabilitation schools, and teacher factors

1. Introduction

Information and communications technology (ICT) is a set of diverse high-tech tools and assets which are utilized for the creation, management, storage and dissemination of data. ICT can be classified as either traditional for old ICTs like radio and television or new ICTs to denote the internet and telecommunications (Awamleh, 2024). Advancement of technology has led to digital information technology tools for a wider spectrum and sphere of information sharing using ICT equipment. In the United States, the integration of ICT in special education has made significant strides (Smith & Jones, 2020). Despite these advancements, there remains a gap in teacher preparedness to effectively integrate ICT for learners with emotional and behavioural disorders (EBD) in underfunded schools. In Sweden, where education is highly digitized, ICT has been effectively integrated into mainstream and special education. The Swedish education system emphasizes inclusivity, and ICT plays a vital role in supporting learners with emotional and behavioural disorders (Larsson, 2019).

Canada has made notable efforts in integrating ICT in special education, particularly for students with EBD. The Canadian government provides significant funding for ICT tools, and provinces like Ontario have implemented extensive programs for ICT use in special education settings (Thompson & Keller, 2021). Nonetheless, the availability of ICT resources is still inconsistent across provinces, leading to disparities in access for learners with EBD. In India, ICT integration in special education is at a developing stage, particularly in rehabilitation centres. While government initiatives such as the Digital India campaign have increased access to technology, the use of ICT for learners with EBD is still limited. In South Africa, ICT integration in schools has seen a steady rise, with government initiatives promoting the use of technology in education. However, research by Mhlongo and Dube (2021) indicates that the integration of ICT for learners with EBD remains minimal. The primary challenge is the lack of infrastructure and skilled teachers, particularly in rural areas, which hinders effective ICT usage for EBD learners. The gap lies in ensuring equitable access and targeted teacher training for special needs education.

In Egypt, ICT in education has received considerable attention, with significant investments made to modernize the education system. Despite this, the use of ICT for learners with emotional and behavioural difficulties is still in its infancy. Research by El-Sayed (2020) shows that while there is increasing awareness, teachers are not adequately equipped to integrate ICT into their teaching practices for learners with EBD. In Ethiopia, ICT in special education is still emerging. Although government initiatives aim to improve access to technology in schools, the implementation is slow. Studies show that learners with EBD are often neglected in the digital education strategies (Gebre, 2019). The key challenges are the lack of specialized ICT tools for learners with EBD and insufficient administrative support in schools, leading to a significant gap in the ICT integration process. In Nigeria, Adewale and Hassan (2021) revealed that ICT usage for learners with EBD is still limited, primarily due to inadequate teacher training and poor infrastructure in rehabilitation schools. The gap in Nigeria's ICT integration for EBD learners lies in the lack of comprehensive policies supporting the use of ICT in special education.

In Kenya, the government has made efforts to integrate ICT in the education system through initiatives such as the Digital Literacy Programme. However, the integration of ICT in rehabilitation schools for learners with EBD remains a challenge. Studies have shown that while ICT can be an effective tool for enhancing learning, learners with EBD are often left behind due to the lack of specialized tools and teacher training. A study by Otieno (2020) found that although ICT infrastructure in Nairobi County has improved, many rehabilitation schools are still ill-equipped to support learners with EBD. The study highlighted the need for targeted teacher training and administrative support to enhance ICT integration. Another study by Mwangi and Njuguna (2021) emphasized that despite the presence of ICT tools, teachers in rehabilitation schools lacked the competencies to use them effectively for learners with

EBD. The gap in both studies points to the need for enhanced teacher training and policy support to ensure the efficient use of ICT.

Furthermore, research by Wambua (2022) revealed that administrative support is crucial in sustaining ICT initiatives in rehabilitation schools. However, many school administrations in Nairobi County lack the resources and strategic focus to fully support ICT integration. This underscores the gap in administrative support for ICT initiatives, particularly in rehabilitation settings. Many teachers in these settings may lack the necessary training or resources to integrate ICT into their teaching strategies, which can lead to inefficient use of available technologies and reduced learning outcomes for EBD learners. The gap in teacher preparedness for ICT integration in rehabilitation schools has not been sufficiently explored in local studies, making this investigation necessary. Administrative support is another critical factor in ensuring the success of ICT integration. Given these gaps, this study is necessary to investigate the current status of ICT integration in rehabilitation schools in Nairobi County, focusing on teacher-related factors and administrative support.

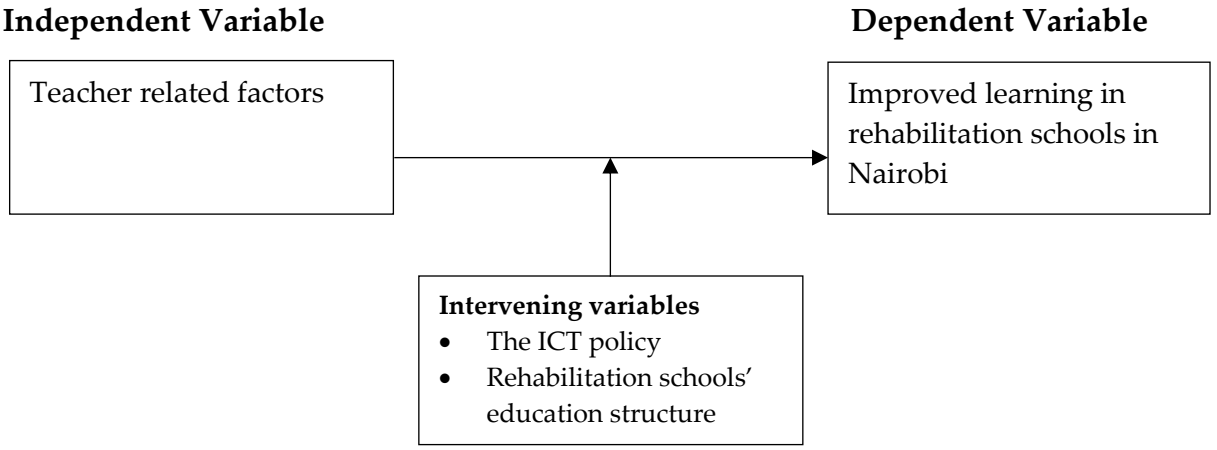
1.2 Purpose of the Study

To determine teacher factors that affect the efficiency of ICT integration in rehabilitation schools in Nairobi County.

1.3 Conceptual Framework

The relationship between the study variables is diagrammatically shown in Figure 1.1.

Figure 1: Relationship Between the Study Variables



2. Literature Review

This section discusses the theories and review of related literature under the following sub-sections:

2.1 Theoretical Framework

The 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. 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 lead 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.

Using technologies such as instructional videos may not be adjusted, meaning it is the same video every time it is played. Finally, Mishra and Koehler say that keeping technology separate places an emphasis on "what", not "how". From the teacher's perspective, the lesson becomes about what technology we are going to use today, what it says, and what skills it requires, instead of how I can teach my students. Information and Communication Technology has an exceptional and significant contribution to make 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 on 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.

2.2 Empirical Literature

Children who have LDs experience abnormalities and challenges in reading, writing, and math in school, as well as an inability to process information quickly and understand what their teachers are teaching them (Tuggar, 2019). Academic issues arise for LWLDs because of disruptions in the way they receive and process stimuli (Rudiyati & Mumpuniart, 2019). According to Antonis (2022), a learning impairment impairs a person's perception or processing of information, which leads to academic underachievement that is out of line with a learner's intellectual capacity. He further posits that there are different types of LDs depending on the intensity of their manifestation, the consequences they have, the symptoms and the nature of difficulties. Such disorders can be mild, moderate, severe or profound, and it can be challenging to diagnose mild LDs since the individuals experiencing such often mix well and get along with others and often cope with daily tasks.

In the USA, a study by Johnson and Peterson (2020) examined teacher factors influencing ICT integration in special education classrooms for learners with emotional and behavioural disorders (EBD). Using a quantitative survey of 150 special education teachers across 30 states, the study revealed that teachers' attitudes toward ICT and their technological competence were critical to successful ICT integration. In Sweden, Svensson et al. (2019) conducted a qualitative study on "Teacher Preparedness for ICT Integration in Special Schools," focusing on 20 rehabilitation schools for learners with EBD. The research employed in-depth interviews with teachers and found that those with positive attitudes toward technology were more likely to integrate ICT tools effectively. Patel and Chandra (2020) explore India's context through a case study on "Teacher Readiness for ICT in Special Education". The study conducted interviews and observations with 10 teachers from special needs schools in Mumbai. The key findings indicated that teachers' lack of technological knowledge and limited motivation were major barriers to effective ICT use. Moreover, the study noted that cultural attitudes toward ICT and a lack of administrative support further hindered integration. While the research provided helpful information about teacher factors, it failed to quantify the extent of ICT use.

In South Africa, Moyo et al. (2020) conducted a study titled "The Effectiveness of ICT in Supporting EBD Learners in South African Special Schools," using a mixed-methods design. The study involved questionnaires and classroom observations in 25 special schools and found that ICT enhanced learning experiences, though teacher preparedness remained an issue. The study did not explore how teacher motivation and competence affected ICT integration. The present study fills this gap by investigating these teacher factors in Nairobi County schools and their impact on ICT efficiency. In Nigeria, Okeke and Anya (2021) conducted a cross-sectional survey titled "Barriers to ICT Integration in Nigerian Special Education" with 200 teachers in Lagos. The study found that, despite the presence of ICT infrastructure, training and administrative support were lacking. However, it did not measure the extent of ICT integration in rehabilitation schools. The present study will fill this gap by quantifying ICT adoption in Nairobi's rehabilitation schools and investigating how teacher factors influence its efficiency.

In Kenya, Wambua et al. (2022) conducted a study titled "ICT Adoption in Kenyan Special Schools: A Survey of Nairobi County," using a quantitative survey design that gathered data from 100 special needs teachers. The study found that while ICT tools were available, most teachers lacked adequate training, and administrative support was inconsistent. The study did not examine in depth how administrative support impacts ICT efficiency or the extent of ICT integration. Kimani and Omollo's (2020) study, "Challenges of ICT in Special Education in Kenya," used qualitative methods, including focus groups and interviews with 50 teachers and administrators from three counties. Their findings indicated that lack of administrative support, inadequate teacher training, and insufficient ICT resources were major barriers to effective integration. However, the study did not quantify ICT integration or investigate teacher factors in detail. The present

study fills this gap by assessing the extent of ICT integration in Nairobi's rehabilitation schools and examining the specific teacher factors that influence its efficiency.

3. Methods And Materials

3.1 Research Design and Setting

A descriptive survey design was utilised 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. The study was conducted in Nairobi County, which includes Kenya's capital city. Nairobi is characterised 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.

3.2 Study Population

The target population comprised computer teachers and learners with prior knowledge in ICT in the two selected rehabilitation schools. The population details are summarized in Table 1.

Table 1: Study Population

Schools	Learners	Teachers	Total
Kabete	56	8	64
Dagorreti Girls	58	9	67
Total	**114**	**17**	**131**

3.3 Sampling Techniques and Sample Size

In this section, the researcher presents the sampling methods and sample size.

3.3.1 Sampling Techniques

The study employed a purposive sampling technique to select participants from the two rehabilitation schools in Nairobi County, which included both teachers and learners. Purposive sampling was deemed appropriate because the target population consisted specifically of computer teachers and learners who had prior exposure to Information and Communication Technology (ICT) or had been taught in schools equipped with ICT resources. Furthermore, by focusing on a specific subgroup, purposive sampling saves time and resources, as the researcher can concentrate on participants who are most likely to provide valuable insights.

3.3.2 Sample Size

As per Ary and Razariah (1972) as well as Gay (1976), a sample of 10 percent of the population is termed minimum, whereas 20% or more of the total population is needed in research. Thus, this study selected a sample population that consisted of 50% of the teachers and 50% of the pupils. The sampling frame is as provided in Table 2.

Table 2: Sampling Frame

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

Source: Research Work (2024).

3.4 Research Tools

So as to examine the ICTs' use in improving teaching and learning, data collection was done using two research instruments: questionnaires for teachers and questionnaires for learners. 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 behavioural disorders. No interviews, focus group discussions (FGDs), or observation schedules were employed in this study. The teacher questionnaire was semi-structured, comprising both open-ended and closed-ended questions. This design allowed the teachers to provide detailed responses in some sections while responding to predefined options in others. The questionnaire sought to gather information on the extent of ICT integration, teacher factors influencing its efficiency, and the administrative support available in the rehabilitation schools. The learner questionnaire was structured to ensure simplicity and clarity, making it age-appropriate and easy for the learners to comprehend. The questionnaire included a combination of open-ended and closed-ended questions aimed at capturing the learners' experiences and perceptions of ICT use in their learning process. The closed-ended questions provided quantitative data, while the open-ended questions allowed learners to share their personal insights and experiences.

3.5 Pilot Study

The pilot study was done in a rehabilitation school outside Nairobi. For convenience purposes, a rehabilitation school in Kiambu County was chosen for piloting. This was also important in order to get a school with learners whose characteristics were similar or closest to those in Nairobi. During the study, the procedures to be used in the main study were tested to examine the feasibility of the approaches selected. To ensure validity, expert judgement was utilised by engaging professional judgement from the supervisors, who are specialists in the field under investigation. Their suggestions were used to improve the instruments' content validity, guaranteeing that every question matched the goals of the study and fully collected the necessary data. The Statistical Package for the Social Sciences (SPSS) was used to compute Cronbach's Alpha in order

to assess the reliability of the structured questionnaires for educators and students. A set of items' internal consistency is measured by Cronbach's Alpha, and good dependability is indicated by a value of 0.7 or higher (Kothari, 2004). According to the reliability analysis, the teachers' and learners' questionnaires had Cronbach's Alpha values of 0.81 and 0.79, respectively. These results showed that the study instruments were dependable for gathering data and had a high degree of internal consistency. Although Cronbach's Alpha was used to examine the reliability of the structured sections of the questionnaires, the open-ended questions' qualitative nature limited this approach. The open-ended questions were improved based on input from the pilot research participants to make sure they were precise, straightforward, and pertinent to the goals of the research, to guarantee the validity of these qualitative parts.

3.6 Data Collection Procedure

The researcher began by obtaining the necessary permissions from relevant authorities to access the two rehabilitation schools in Nairobi County. The process of collecting data started with the researcher visiting each school and engaging the head teachers in an interview. Upon gaining access, the researcher visited each school and coordinated with the head teachers to organise the data collection process. The teacher questionnaire was administered first. The researcher distributed the questionnaires directly to the teachers, providing clear instructions on how to complete them. The researcher was available on-site to clarify any questions and to ensure that all sections of the questionnaire were understood. Teachers were given adequate time to complete the questionnaire to ensure the accuracy and depth of their responses. For learners, the questionnaires were administered in a controlled environment to ensure that the process was efficient and orderly. The researcher, assisted by two trained research assistants, guided the learners through the questionnaire to ensure they understood the questions and responded appropriately. The research assistants provided additional support to ensure learners who required clarification or assistance could participate fully. The entire data collection process emphasised ethical considerations, including obtaining informed consent from teachers and guardians of learners, ensuring anonymity, and maintaining confidentiality of the responses. Quantitative data collected through the closed-ended questions in the questionnaires were coded for statistical analysis.

3.7 Data Processing and Analysis Procedure

Data analysis involved both qualitative and quantitative analysis. The quantitative data were summarised in descriptive statistics using the Statistical Package for Social Science (Version 28.1). This involved operations like summation, determining the range, calculating frequencies and percentages, determining the mean, and calculating the standard deviation. Measures of central tendency helped show the trend, while measures of variance, such as standard deviation, helped show dispersion in the data. The descriptive statistics helped summarise all data on the status of integration of ICT in rehabilitation schools in Nairobi County. Qualitative data collected from the open-ended

questions in the questionnaires were subjected to content analysis and were summarised thematically.

3.8 Logistical and Ethical Considerations

Ethical considerations were rules that had to be followed during the study and when writing the report (Kothari, 2004). Prior to data collection, the researcher sought an introductory letter from the graduate school and an approval letter from the 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 an authorisation 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. Study results were thus anonymously presented. The researcher gave consent and assent forms to ensure voluntary participation.

4. Findings and Discussion

4.1 General and Demographic Information

4.1.1 Response Rate

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 3)

Table 3: Response Rate

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

The 83% response rate demonstrated strong participation from the sampled respondents, which included 9 teachers and 46 kids. The full response rate from teachers (100%) and a substantial response rate from students (80.7%) guaranteed that the collected data accurately represented the target population, hence augmenting the reliability and validity of the study's conclusions. Although the elevated response rate reduced the likelihood of non-response bias, it may not have completely encompassed the viewpoints of non-participants, thereby resulting in a minor under-representation of diverse beliefs within the community.

4.1.2 Demographic Information

The demographic characteristics of the participants were analysed 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 4.

Table 4: 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 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 4, 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. However, older teachers might also face challenges related to adapting to new technologies, which could negatively impact the efficiency of ICT integration. 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 majority of teachers had

over 10 years of experience, with 33.3% having worked for 11-15 years. 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

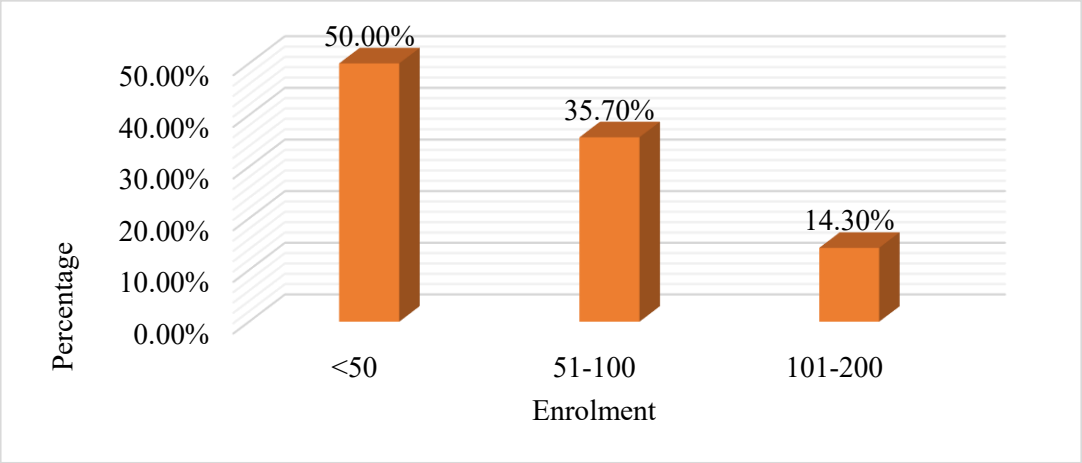


Figure 2 illustrates that the majority of schools had fewer than 50 pupils enrolled in Grade 8, accounting for 50%, while a smaller percentage, 14.3%, had enrolments between 101 and 200. Reduced class sizes may enhance individualised support for students, particularly those with Emotional and Behavioural Disorders (EBD). Limited resources and smaller school sizes may result in reduced funding and fewer opportunities for acquiring and maintaining ICT tools, which can impact the efficiency of ICT integration. The demographic characteristics of learners with emotional and behavioural difficulties in Nairobi County were analysed and discussed, concerning gender, duration of attendance at the rehabilitation school, and the enrolment size of grade 8 pupils. Table 5 presents the data.

Table 5: 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%**

The data presented in Table 5 reveal that the gender distribution among learners with EBD is skewed towards females, comprising 63% of the population, while males account for 37%. The observed gender disparity may indicate variations in the prevalence of emotional and behavioural disorders across genders, potentially affecting the outcomes of IT integration. The findings may also indicate enrolment trends in rehabilitation schools, where more girls than boys are admitted, potentially affecting the generalisability of the results. The data indicated that most learners had attended rehabilitation schools for either less than one year (37%) or two years (37%). The brief duration of stay may indicate that numerous students are unfamiliar with the rehabilitation setting, potentially affecting their adaptability to ICT tools and the overall efficacy of ICT integration. New students may need additional time to adjust, and their limited tenure at the school could restrict their exposure to and proficiency in ICT. A majority of the learners (54.3%) indicated they had undergone ICT training, whereas 45.7% reported a lack of such training. The insufficient ICT training among a considerable number of learners may hinder the effective integration of ICT into their educational processes. Insufficient training may hinder students' effective use of ICT tools, thereby reducing the anticipated advantages of ICT integration in enhancing educational outcomes. The demographic findings offered essential insights into the potential facilitators and barriers affecting the successful integration of ICT in the learning processes of students with EBD in Nairobi County. The extensive experience and gender diversity among teachers are positive factors; however, limitations in advanced education, potential resistance to change, and challenges due to insufficient ICT training among learners with EBD underscore the necessity for targeted interventions to improve the effectiveness of ICT integration in this context.

4.2 Teacher Factors that Affect Efficiency of ICT Integration in Rehabilitation Schools in Nairobi County

The study aimed to determine teacher factors that affect the efficiency of ICT integration in rehabilitation schools in Nairobi County. To accomplish this, teachers were asked to show the rating of their expertise in the utilization of certain ICT competencies. A 5-point item scale was used to analyse their responses, and the results are presented in Table 6.

Table 6: Teachers' rating of their ICT Competencies

Items' Rating		**Frequency**	**Percentage (%)**
Basic parts and functions of a computer (opening, file saving and closing, files opening and renaming, among others.)	Good	1	11.1%
	Average	3	33.3%
	Weak	5	55.6%
Operating systems (Windows Operating System, as well as others)	Good	0	0.0%
	Average	7	77.8%
	Weak	2	22.2%
Software apps-Microsoft Office, Microsoft Word, Excel, PowerPoint, Internet and E-Mail, Graphics and drawing, Databases and data entry, Desktop publishing, Video production and editing	Good	1	11.1%
	Average	2	22.2%
	Weak	6	66.7%

Creation of reports for students utilizing software apps like Microsoft Word	Good	1	11.1%
	Average	6	66.7%
	Weak	2	22.2%
Utilizing PowerPoint for classroom presentations for various areas of the curriculum	Good	1	11.1%
	Average	3	33.3%
	Weak	5	55.6%
Utilization as well as production of videos for presentation in the classroom	Good	1	11.1%
	Average	3	33.3%
	Weak	5	55.6%
Management of files for teachers for folder creation, file' moving, file renaming for assignments, as well as documents for classes	Good	1	11.1%
	Average	3	33.3%
	Weak	4	44.4%
Utilization of Publisher software for the creation of a newsletter for students and teachers, as well as publications for students	Good	1	11.1%
	Average	2	22.2%
	Weak	6	66.7%
Internet use for learning as well as teaching	Good	0	0.0%
	Average	7	77.8%
	Weak	2	22.2%
Utilization of electronic mail for linking teachers and learners on issues associated with learning as well as teaching	Good	3	33.3%
	Average	4	44.4%
	Weak	2	22.2%
Development of tools of production, like tests and mark sheets	Good	1	11.1%
	Average	5	55.6%
	Weak	3	33.3%
Utilization as well as production of video for teaching in classes	Good	1	11.1%
	Average	3	33.3%
	Weak	5	55.6%
Conducting Internet searches for effective multimedia lessons, activities, and facilities, as well as for information on the assessment of learning	Good	1	11.1%
	Average	6	66.7%
	Weak	2	22.2%
Management of technology, like troubleshooting	Good	0	0.0%
	Average	2	22.2%
	Weak	7	77.8%

Table 6 reveals that a majority of teachers self-assessed their ICT competencies as "weak". For example, 55.6% of teachers assessed their proficiency in basic computer functions, including file management, as inadequate. Additionally, no teachers classified their proficiency in operating systems as "good", with 77.8% rating themselves as average and 22.2% as weak. In software applications such as Microsoft Office and video production tools, 66.7% of teachers assessed their skills as inadequate. Furthermore, over half of the teachers (55.6%) assessed their proficiency in utilising PowerPoint for classroom presentations and file management as inadequate. A significant 66.7% self-assessed their proficiency in using Publisher software for the creation of newsletters and other publications as inadequate. A notable percentage of teachers (77.8%) assessed their skills in technology management, including troubleshooting, as inadequate. This study's findings support those of Johnson and Peterson (2020), indicating that teachers' technological competence and attitudes are essential for effective ICT integration. The

study by Johnson and Peterson demonstrated that extensive ICT training markedly improved teachers' interaction with technology. The current study identifies a deficiency in teachers' ICT competencies, indicating that inadequate training and expertise reflect similar issues observed in the US context. This study's findings align with those of Svensson et al. (2019), who indicated that teacher preparedness and attitudes towards ICT are essential for effective integration. Svensson et al. also highlighted the inadequacy of singular training sessions. The findings of the current study indicate that teachers perceive themselves as lacking in various ICT competencies, highlighting the necessity for ongoing professional development. This gap was also noted by Svensson et al., although it was not thoroughly addressed in their research.

The results of this study are inconsistent with those of Brown and Taylor (2021), who emphasised that greater ICT competence and favourable attitudes resulted in improved integration outcomes. Brown and Taylor's study indicated that continuous professional development enhances ICT utilisation, while the Nairobi study reveals that a significant number of teachers face challenges with fundamental ICT skills. This suggests a more intricate relationship between teacher competence and ICT effectiveness within the Nairobi context. This study's findings corroborate those of Patel and Chandra (2020), who identified substantial barriers to effective ICT utilisation, such as limited technological knowledge and motivation. Patel and Chandra identified cultural and administrative barriers. The Nairobi study indicates comparable issues, as numerous teachers assess their competencies as inadequate in critical skills such as file management and technology troubleshooting. This finding corresponds with Patel and Chandra's observations regarding challenges in teacher preparedness and support. The results of this study support the observations made by Okeke and Anya (2021) regarding inadequate training and administrative support, even in the presence of ICT infrastructure. The data from the Nairobi study indicates low competence levels among teachers and insufficient administrative support, reflecting comparable issues.

The results of this study are consistent with those of Kyambadde et al. (2020), who identified barriers including insufficient ICT tools and a lack of administrative support. While Kyambadde et al. did not quantify these challenges, the Nairobi study offers a quantitative analysis that identifies specific areas of difficulty for teachers and deficiencies in administrative support. The results of Wambua et al. (2022) corroborate the current study's findings concerning inconsistent administrative support and insufficient teacher training. Both studies demonstrate that, despite the availability of ICT tools, their effective integration is obstructed by deficiencies in teacher competencies and administrative support. The results of Kimani and Omollo (2020) are consistent with the present study. The research identified inadequate training and insufficient ICT resources as obstacles to effective integration. The Nairobi study's thorough evaluation of teacher competencies enhances these findings by elucidating the effects of these barriers on ICT integration in rehabilitation schools.

5. Conclusion and Recommendations

5.1 Conclusion

The study concluded that teacher factors, particularly ICT competencies, significantly influence the efficiency of ICT integration in rehabilitation schools in Nairobi County. The findings highlight a critical gap in teachers' preparedness to effectively integrate ICT into their teaching practices, which is largely attributed to insufficient training and inadequate administrative support. The study underscores the need for targeted interventions to enhance teachers' ICT skills and emphasizes the importance of strong leadership in driving the ICT agenda in schools. Without addressing these teacher-related factors, the potential benefits of ICT in improving educational outcomes for learners with emotional and behavioural disorders remain largely untapped.

5.2 Recommendations

1. The study recommends 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. Such training would empower teachers to integrate ICT more effectively into their teaching practices, thereby improving the learning outcomes for students with emotional and behavioural disorders.
2. It is recommended that future research explore the specific impact of school administrative support on the efficiency of ICT integration in special education settings, including rehabilitation schools. This study should examine the relationship between school leadership practices and the successful implementation of ICT, focusing on how administrators' attitudes, skills, and commitment influence ICT adoption and utilization by teachers.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author(s)

Psirmoi Grenzer is a highly experienced Special Needs educator with a strong commitment to inclusive learning. She has worked at Wagener-Salley High School and as an Instructional Coach for the Education Development Trust Project, a UK-funded initiative. Grenzer has also contributed to alternative learning environments, such as G.K. Prison and Kapese Schools in Kenya. She holds a Master's degree in Special Needs Education, specializing in Emotional and Behavioral Disorders, from Kenyatta University, Kenya, and a Bachelor's degree in Special Needs Education and Counseling from Kenya Methodist University. She has also obtained graduate certifications in Gifted and Talented Education and English for Speakers of Other Languages from the University of South Carolina. She has been recognized for her leadership and advocacy in implementing inclusive classroom practices, particularly for learners with emotional and behavioral disorders and multilingual backgrounds. In recognition of her expertise, the Aiken County Public School District has appointed her as a Partner Teacher for the 2025-2026 academic year. Her research in Emotional and Behavioral Disorders continues to inform evidence-based practices and policy recommendations in the field.

Dr. Jessina Muthee is a senior lecturer in the School of Education at the Department of Early Childhood and Special Needs at Kenyatta University, Kenya.

Dr. Margaret Murugami is a Lecturer in the Department of Early Childhood & Special Needs Education at Kenyatta University, Nairobi, Kenya.

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