

**IMPACT OF INTEGRATION OF TECHNOLOGY ON MANAGEMENT OF
STUDENT DISCIPLINE IN SELECTED PUBLIC SECONDARY SCHOOLS
IN IMENTI NORTH SUB COUNTY, MERU COUNTY, KENYA**

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**A Thesis Submitted to the Graduate School in Partial Fulfillment of the
Requirements for the Award of Master of Education Degree in Educational
Management of Tharaka University**

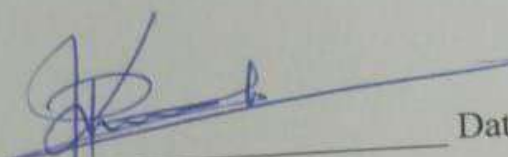
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DECLARATION AND RECOMMENDATION

Declaration

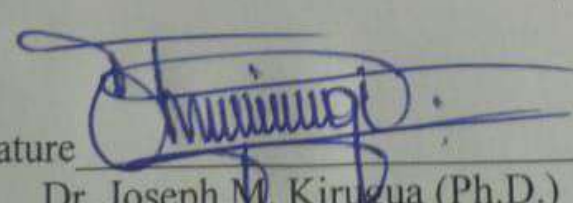
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DEDICATION

This thesis is dedicated to my dear wife, Hellen Wawira and our beloved children; Ryan Joseph Ngige, Mary Lyris Wambui, Ken Adrian Munene and Jeff Aiden Karanja.

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First, I want to express my heartfelt gratitude to the Almighty God, for His unwavering support, blessings, and guidance throughout my entire academic journey. Without His divine intervention, none of this would have been possible.

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ABSTRACT

Effective management of students discipline is paramount in ensuring a conducive learning environment. High standard of discipline amongst students guarantees success in the achievement of school activities and instils good moral standards amongst students. However, there are challenges in managing student discipline in secondary schools in Kenya such as inability to detect, monitor or document students' indiscipline cases. Different discipline management techniques like guidance and counselling have been used in schools, but yield minimal results. However, integration of technology in discipline management has been proposed as a potential solution to improve student discipline in schools. Therefore, the study investigated the impact of using technology to manage student discipline in selected public secondary schools in Imenti North Sub County in Meru County, Kenya. This study was anchored on Systems theory of management by Ludwig von Bertalanffy (1956) and scientific theory of management by Fredrick Winsor Taylor (1909). Descriptive survey research design was employed. The pilot study was done in 3 schools selected from the neighboring Meru central sub county. The target population was 448 respondents comprising of 186 class secretaries, 186 class teachers, 38 deputy principals and 38 principals. The sample size for the current study was 90 participants comprising of 8 principals, 8 deputy principals, 37 class teachers and 37 class secretaries, making 20% of the target population. Proportionate sampling method was used to get the sample size of the population. Questionnaires were used to gather data from deputy principals, teachers and class secretary while interviews were for principals. Content validity was determined by supervisors and experts. Reliability was established through piloting and a Cronbach alpha Coefficient of 0.78. Thematic analysis was used to analyse qualitative data. Quantitative data was examined through descriptive analysis, specifically using percentages and averages and analysed with the aid of Statistical Package for Social Science (SPSS) Version 29. Qualitative data was presented narratively while quantitative data was presented in tables. Results indicated that the schools that implemented the three technologies namely, Closed Circuit Television Cameras, Biometric Attendance Registers and Discipline Information System resulted in effective management of discipline in those schools. The study found that integration of technological tools in school discipline management has enhanced transparency, accountability, punctuality and monitoring thus significantly improving discipline management in secondary schools. The research concluded that use of technology in discipline management promoted early intervention, fairness in decisions, deterrent of misbehavior and consistent enforcement of school policies resulting to a positively student discipline and secure learning environment. The study recommended that the government should adequately fund the installation, maintenance of technological systems, train teachers and administrators on how to utilize education technology effectively in student behavior management and develop clear policies governing ethical and effective use of surveillance systems and biometric monitoring technologies in schools. The research findings also formed a basis for further research.

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LIST OF ABBREVIATIONS AND ACRONYMS

BAS	Biometric Attendance System
CCTV	Closed Circuit Television
DIS	Discipline Information System
GOK	Government of Kenya
ICT	Information and Communication Technology
IT	Information Technology
KCSE	Kenya Certificate of Secondary Education
KESSHA	Kenya Secondary School Heads Association
KNEC	Kenya National Examination Council
MOEST	Ministry of Education Science & Technology.
NACOSTI	National Commission for Science, Technology and Innovation
PDA	Personal Digital Assistant
TSC	Teachers Service Commission
UAE	United Arab Emirates
UNESCO	United Nations educational, Scientific and Cultural Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Technology has become integral to various aspects of education, including student discipline management. According to the Webster's Third New International Dictionary (2015), discipline means control gained by enforcing obedience or behaviour in accordance with rules, prompt and willing obedience to the orders of superiors thus resulting to a systematic, willing and orderly conduct. Nilofar (2022) study on the role of Technology in the development of education defines indiscipline as the deliberate, or lack of, action to regulate behaviour. It is the practice of frank and strict adherence to legislation and guidelines, and cultural standards and values, the ability to control oneself or other people, even in challenging circumstances. Management of discipline thus entails teaching acceptable behaviours and unlearning maladaptive behaviours, setting limits, clarifying roles, responsibilities, and mutual expectations.

A study done by Yahaya (2019) on discipline problems among secondary school students in Malaysia confirmed that students' indiscipline is a prevailing problem affecting schools not only in Malaysia but also across the many nations around the world. The study indicated that serious breaches of school discipline policy may have profound negative effects on teachers who may report experiencing fears for their safety, lack of sense of dignity at work, intense feelings of anger, humiliation or shame, isolation and depression. The study found that Students' misconduct in the classroom interferes with teaching and learning and is thought to be precursor to later school dropout and similar negative social outcomes. In view of this, school principals and their deputies, bear the greatest responsibility in achieving desirable student's discipline. According to a study by Cho and Clauton (2020) in America on managing discipline in learning institutions, the management of discipline is an essential element in educational practice, and at a time when teachers and managers are anxious about reported increases in violence and other forms of anti-social behaviour there's a need for practical guidance and a review of current thinking.

Zafar (2019) did an education review article in Ethiopia focussing on the roles of technology in education. Using descriptive research design, the study also examined the limitations and the challenges of integrating technology in education systems. The study indicated that technology influences all aspects of life including education by promoting changes in working conditions, handling and exchanging of information and teaching-learning approaches. The study recommended integration of technological tools such as closed circuit television cameras, biometric attendance system and discipline information system to help in the monitoring, recording and analysis of learners' discipline for appropriate action.

A case study done by Taylor (2021) on school CCTV in school surveillance security and discipline in London observed that CCTV represents the most common technology currently utilised in schools for crime control and focusing on a multitude of behaviours and activities such as truancy, smoking, bullying, teacher performance, and minor classroom naughtiness. Furthermore, according to Johnson (2020), CCTV has become a common technology that can be found in a wide range of applications, such as public, private, social, or work environments. The study which was done in the USA presents CCTV and its features as a tool for deterrence, monitoring, reducing crimes, providing safety and evidence, or supporting situational awareness. CCTV, as a tool for security, meets the objectives of theft reduction, asset protection, security investigations, providing evidence and deterrence. A study done by Lee and Choi (2021) in South Korea demonstrated the benefits of Discipline Information Systems in streamlining disciplinary procedures, improving data accuracy, and facilitating communication among stakeholders. The study underscored the importance of integrated information systems in promoting effective disciplinary interventions. The study found that student discipline information system which automates the disciplinary process of recording and tracking incidents of indiscipline, generating reports, and communicating with stakeholders, is an essential tool for educational institutions in managing student behaviour and maintaining a safe learning environment.

A study done by Surabhi (2019) on the Impact of Biometric Attendance System in Higher Educational Institutes (HEIs) of India, defines Biometric Attendance System (BAS) as the automated technology used for verification of employees' attendance

resulting in less attendance and payroll disputes. According to Surabhi (2019) the Biometric identifies people based upon their physical characteristics; commonly their fingerprints, hands, eyes, or facial features; in the person himself becomes the lone source of information. A study done by Valeriana et al (2021) which sought to assess the adoption of CCTV in school administration and the security of students in Imo State of Nigeria concluded that CCTV has become popular, and with its wide range of applications, it serves as a tool for security, meeting the objectives of theft reduction, asset protection, security investigations, and providing evidence. Therefore, it is evident that adoption of CCTV in schools would result in containing learners in schools escalating participation in learning activities for improved performance. However, in instances of inadequate use of CCTV, learners may exercise truancy, bullying which inflict level of academic achievement. Sharma (2018) in Nigeria defined discipline Information system as a way of measuring, collecting, analysing, and reporting data and information about students' discipline, frequency of indiscipline cases and the interventions made in order to understand and optimize the process of management of students' discipline.

Oyier, et al (2015) did a research to investigate the effects of technology Integration in Management of Private Secondary Schools in Nairobi County. The study applied mixed research design and observed that the convergence between telecommunication, broadcasting multimedia and related technologies commonly known as Information and Communication Technologies (ICT), promises a fundamental change in educational management. The study noted that technology could be the missing tool in improving efficiency of private secondary schools to cope with rapidly changing world to effectively meet management tasks and administrative activities which are essential in enhancing efficiency in educational institutions. Similarly, Oguta, Egessa and Musiega, (2014) in a study conducted to examine the effects of application of technology in the management of secondary schools in Bungoma County, established that technology helped control time use and wastage. The study found that schools which applied technology in human resource and students' discipline management tended to do well in exams due to the optimal use of time.

There is an increasing use of technology in schools both as a management tool. According to a study by Reddi (2011) on technology use in education in Kenya, schools are integrating technology in management of learners' discipline, finances, co-curricular activities, infrastructure and human resources. Oguta, Egessa and Musiega (2014) asserted that technology enhances day-to-day management of institutions and enables schools to improve in efficiency and cope with rapidly changing world in executing management tasks. To manage the learners' discipline, the school administrators therefore, applied various strategies such as guidance and counselling, integrating technology in curriculum delivery, supervision and management of learners' discipline, enforcing rules and regulations and imposing severe punishments on the errand students as well as parental involvement on matters of discipline among the students.

According to KNEC report (2021), most public secondary schools in Imenti north sub country were faced by frequent students' indiscipline issues such as stealing, truancy (chronic absenteeism), incitement, arson, alcohol and substance abuse. The report argued that the indiscipline issues may have greatly contributed to a decline in the academic standards in the sub county. This study therefore, focused on the impact of the integration of technological tools namely, the CCTV cameras, BAS and DIS on management of learners' discipline in public secondary schools in Imenti North sub count in Meru County.

1.2 Statement of the Problem

Effective management of student discipline is a critical aspect of maintaining a conducive learning environment in schools. However, many educational institutions face ongoing challenges related to student behaviour, absenteeism, tardiness, and overall compliance with school rules. The commonly used methods of discipline management, which rely heavily on manual record-keeping, verbal warnings, and inconsistent enforcement of rules, are often insufficient in addressing these challenges. Therefore, the integration of technology, such as CCTV cameras, biometric attendance registers, and discipline information systems, has been proposed as a potential solution to improve the management of student discipline by enhancing monitoring, accountability, and data-driven decision-making.

However, there is limited empirical evidence on the actual impact or the effectiveness of technology-aided discipline strategies across public and private institutions. Furthermore, there is a need to explore how these technologies interact with existing school rules, policies, and the broader school culture to create a more effective disciplinary system. Therefore, this study sought to investigate the impact of CCTV cameras, biometric attendance registers, and discipline information systems on the management of student discipline in public secondary schools in Imenti north Sub County in Meru County.

1.3 Purpose of the Study

To examine the impact of technology (CCTV cameras, biometric attendance systems, and discipline information systems) on the management of student discipline in selected public secondary schools in Imenti North Sub County in Meru County.

1.4 Objectives of the Study

The study was guided by the following objectives;

- i. To establish the impact of closed circuit television cameras on management of students' discipline within the school environment in selected public secondary schools in Imenti North sub county in Meru County, Kenya
- ii. To evaluate the impact of biometric attendance systems on the management of students' discipline in selected public secondary schools in Imenti North sub county in Meru County, Kenya
- iii. To determine the impact of discipline information systems on the management of students' discipline in selected public secondary schools in Imenti North sub county in Meru County, Kenya

1.5 Research Questions

The study was guided by the following research questions:

- i. What is the impact of closed circuit television cameras on the management of students' discipline in selected public secondary schools in Imenti North Sub County in Meru County, Kenya?

- ii. What is the impact of biometric attendance system on the management of students' discipline in selected public secondary schools in Imenti North sub county Meru County, Kenya?
- iii. What is the impact of discipline information system on the management of students' discipline in selected public secondary schools in in Imenti North sub county Meru county, Kenya?

1.6 Significance of the Study

The research findings and recommendations may enable policy makers in the MOEST to come up with strategies and policies that facilitate the school administrators to put up the necessary technological tools to manage students' discipline in schools. The recommendations also give an insight to the QASO enabling them to advise the school management on the best approaches to manage learners' discipline. The findings from this study may also provide useful information to the BOM to enable them to formulate and fund policies on technology integration that are aimed at maintaining and upholding learners' discipline in their learning institutions. The research findings also help the principals, deputy principals and teaching staff to understand the dynamics of students' behaviour in schools and come up with the most appropriate method of management of discipline for an improved academic performance. Further, the research findings significantly provided a basis for further research.

1.7 Scope of the Study

The researcher focused on public secondary schools in Imenti North Sub County in Meru County. The study was confined to establishing the impact of CCTV cameras, Biometric Attendance Registers and Discipline Information Systems on the management of students' discipline in selected public secondary schools in Imenti North Sub County in Meru County. The study was restricted to collecting information from the principals, deputy principals, class teachers and class secretaries who were the respondents during the study.

1.8 Limitations of the Study

According to Creswell (2018), limitations are the potential weaknesses of a study that are beyond the researcher's control and may affect interpretation or results of the study.

During the current study, the respondents may have concealed information especially on sensitive questions in spite of the researcher assuring them of confidentiality. It was also difficult to get data from school administrators, class teachers and students due to bureaucracy authorizing and access to information. However, the researcher therefore sought written permission from the principals and presented it to the teachers and students. Furthermore, the findings of the research hugely relied on the respondents' frame of mind and honesty. The researcher mitigated this limitation by creating a good rapport with the respondents. While the researcher expected all the respondents to turn up on time for interviews, a significant number of the respondents turned up late. To mitigate this limitation, the researcher adjusted his timeline and rescheduled the date for the interview.

1.9 Assumptions of the Study

The study was based on the following major assumptions;

- i. The respondents would give accurate, truthful and honest responses to the items in the research tools used in the study.
- ii. The Schools selected for the study would have relevant and reliable records of students' discipline issues necessary for this study.
- iii. The school selected would have installed the technology tools necessary for the study

1.10 Operational Definition of Terms

Biometric Attendance System:	Referred to the automated machine that recognizes students based on their behavioral and biological characteristics, records and relays the information to the intended stakeholders especially parents and teachers.
Class Secretaries:	Referred to members of the school students' council in charge of controlling, monitoring and reporting the behavior of students in class to the class teacher.
Counseling:	Referred to therapeutic process that usually involved a direct conduct for an individual or a group seeking assistance from a counsel
Digital Learning:	Any type of learning that is accompanied by technology or by instructional practice that makes effective use of technology. It encompasses the application of a wide spectrum of practices, including blended and virtual learning.
Discipline Information System:	Referred to a digital process of measuring, collecting, analysing, and reporting data and information about students' discipline, frequency of indiscipline cases and the interventions made in order to understand and optimize the process of management of students' discipline.
Discipline:	Expected, desirable and controlled behavior among the students in an institution emanating from enforcement of certain rules and regulations
Education:	Facts, skills and ideas that have been learned especially through formal instructions

Guidance:	Referred to the process of helping an individual to better himself / herself and to be able to make reasonable, satisfaction adjustments to the problems of living.
Indiscipline:	Referred to the undesirable behavior exhibited by learners which is against the laid down rules and regulations in an educational institution
Information and communication technology:	Referred to a diverse set of digital tools and resources used to transmit, store, create, share or exchange information
Integration of Technology:	It is the usage of technology for educational processes like transacting curricular content and students working on technology to do authentic tasks thus facilitating not only the delivery of lessons but also the learning process itself
Management of Students' Discipline:	Refers to a deliberate effort of designing, developing, and effecting organizational rules, objectives and resources directed towards making a student achieve desirable behavior
Policy:	A set of plans or actions agreed on by a government or a group of people
Students' Performance:	Referred to the sustained accomplishment of the expected academic results by a student.

CHAPTER TWO

LITERATURE REVIEW

2.1 Discipline Management in Public Secondary Schools

Learner discipline is a multifaceted and complex phenomenon in educational institutions across the world and a critical component of effective teaching and learning, as it creates a conducive environment for both students and teachers (Jinot, 2021). Indiscipline is therefore manifested in violence, bullying, stealing, drug trafficking, physical assaults, truancy acts, synthetic drug abuse, pornography on the mobile phone, lateness, use of abusive language and absenteeism. These acts of indiscipline which are often committed both within and outside the school premises can lead to decreased academic achievement and increased teacher burnout.

A study done by Ispa and Lungu (2022) in Europe on the Management of Discipline Problems in the Classroom sought to identify the discipline problems, the causes which determined their occurrence and the most effective ways of their management during the online school for the primary grades. Using a sample size of 104 respondents, the research findings indicated that the active participation of the primary grades students during the online synchronous courses led to the decrease of the incidence of indiscipline cases since the students were fully engaged in the captivating online sessions. Similarly, the involvement of the family in the supervision and support of the child during the online classes had positive consequences regarding the decrease of the frequency and seriousness of the school indiscipline acts. Nurturing an educational climate based on mutual respect, understanding and collaboration leads to the reduction of discipline problems. While the research focused on primary grade students, the current study focused on secondary school students in investigating the impact of the use of technology on management of their discipline.

According to a research done by Dupper (2010) in USA on the new model of engaging students and preventing behaviour problems, the school leadership plays a key role in the integration of technology in the management of learners' discipline. Thus, for the effectiveness of the technological tools, administrators must be competent and have a broad understanding of the technical, curricular, administrative, financial, and social dimensions of technology use in managing learners' discipline. In recent years,

technology has emerged as a powerful tool for managing learner discipline. CCTV, biometric attendance registers, and discipline information systems are examples of technologies that can be used to improve school safety and security, monitor student attendance, and track disciplinary incidents. The study findings have shown that technology can be effective in improving school safety and security. For example, CCTV cameras can deter crime and vandalism, and biometric attendance systems can reduce absenteeism. However, the research doesn't address the specific impact of these technologies on the management learner discipline which the current study addressed.

Management of learners' discipline can be conceptualized in various ways. Traditionally, it has been viewed as a punitive measure aimed at controlling student behaviour. However, contemporary approaches emphasize positive, proactive, and preventive strategies that foster a positive school climate and promote student well-being. A study by Jinot (2021) on a conceptual learner discipline management model for secondary schools in Mauritius asserted that learner discipline management is a major but challenging function of school leadership. Eighty respondents were interviewed and the findings indicated that adolescents of the 21st century are complex in nature, and school stakeholders are having much difficulty to handle the problem of indiscipline in secondary schools. The study, therefore, recommended a variety of strategies to improve learner discipline, including rewarding positive behaviour, removing privileges or imposing consequences for negative behaviour and effective classroom management. However, the study didn't focus on adoption of technology tools such as CCTV and biometric attendance system as one of the strategies to managing learners' discipline which this study focused on.

Temitayo and Lukman (2018) conducted a research study on management of disciplinary problems in secondary schools with reference to Jalingo metropolis in Nigeria. The study aimed at investigating the types of disciplinary problems, their possible causes and means of managing them. The results showed truancy, absenteeism, fighting, stealing and drug addiction among others as typical examples of disciplinary problems experienced in the study area. The study also revealed parental/home, political, social and economic, school environment, school curriculum and peer group influence among others as the causes of disciplinary problems. Finally,

the study concluded that disciplinary problems can be dealt with if school staffers develop a spirit of teamwork and there must be a well spelt out code of conduct for all staff and students to follow. However, the study emphasized more on the causes of disciplinary problems and scantily addressed the strategies to manage the students' discipline. Moreover, use of technology as one of the strategies in managing students discipline was not a concern of the study. The current study focused on the impact of technology in managing students' discipline.

A study conducted by Ofoyuru (2011) on strategies of managing student discipline in secondary schools in Uganda, confirmed the fact that learner misconduct has a negative impact on the quality of teaching and learning taking place at educational institution hence the need to apply a proactive approach to school discipline that focuses on preventing deviant behaviour and promoting positive behaviour. The study findings recommended technology as one of the strategies to manage students discipline in schools in Uganda. A study conducted by Kennedy (2023) in Kenya on managing student discipline through student leadership in secondary schools asserted that technology would effectively meet management tasks and enhance efficiency in learning and administrative activities in educational institutions. The study investigated effects of technology in management among private secondary schools in Nairobi. A survey design was adopted with target population of 140 private schools and information was sourced from 40 principals, who were randomly sampled. The findings revealed that use of technology enabled institutions achieve improvements in financial, administrative and instruction management. While the study by Kennedy (2023) focused on the adoption of technology in private schools, the current study focused on the impact of technology on management of learners' discipline in selected public secondary schools.

2.2 CCTV and Students' Discipline in Public Secondary Schools

CCTV encompasses a system of surveillance cameras designed to collect visual images. The images are normally recorded and stored in a central location. According to Gill and Spriggs (2015), over the past four decades CCTV surveillance systems have widely been adopted in public institutions. A study done in the United Kingdom by Taylor (2018) on surveillance, security technologies and their impact on society, including

educational settings, examined the impact of CCTV in secondary schools across the UK. The study found that CCTV contributed to a reduction in bullying incidents and improved overall safety perceptions among students and staff. However, the study did not address the impact of CCTV on the management of students' absenteeism and sneaking. A research done by Ralf (2021) in Germany on the ethical considerations of CCTV use in German secondary schools which used descriptive research design and a sample size of 246 respondents, also found that CCTV cameras were very effective in deterring misconduct among students in secondary schools in Germany. The current study however, focused on secondary schools in Kenya.

Gill and Spriggs (2015) did a study in USA on the prevalence and impact of CCTV cameras in American secondary schools. The study found that over the past four decades CCTV surveillance systems have widely been adopted in public institutions. Using a descriptive research design and interviewing 120 school administrators and students, the study confirmed that the adoption of CCTV systems is extending into educational settings mostly in developed countries. The study's findings were backed by a report published by the National Centre for Education Statistics (2019), which indicated 28% of American schools were using CCTV surveillance system. The report further indicated that 93% of the schools were utilizing CCTV within the classrooms. However, it was noted that while CCTV systems enhanced security measures, the study did not focus on how the CCTV systems enhanced discipline deterrent measures which was a concern in the current study.

A research done by Brooks and Corkill (2019) in China explored the integration of CCTV with facial recognition technology in Chinese secondary schools. The study examined both the implementation process and its implications. Employing a mixed-methods approach, the research combined qualitative interviews with 17 school administrators, 28 teachers, and 33 parents, alongside quantitative surveys to gather comprehensive insights. The study found that CCTV cameras have played a great role in enhancing school security, managing student behaviour, and ensuring campus safety. Although the study highlighted varying attitudes towards CCTV among stakeholders, addressing concerns regarding privacy and surveillance ethics it acknowledged the great impact CCTV cameras have on managing learners' discipline and enhancing a

conducive school climate. The study concluded with recommendations for policymakers, emphasizing the need for balanced approaches that prioritize safety while respecting individual rights within educational settings. However, the study focused on stakeholders' perception with regard to privacy and ethics and therefore didn't link the use of CCTV cameras and management of learners' discipline which my study explored.

A study done by Birnhack and Perry (2020) in Israel on high school students' perspectives on CCTV, privacy, and security school surveillance, examined high school students' perceptions of school CCTV cameras. 83 adolescents recruited from 10th- to 12th-grade classes at 39 Israeli schools were interviewed. The findings indicated that students' perceptions of CCTV cameras are embedded in their overall opinions about their school, particularly concerning relationships and trust between students and educators. The study demonstrated a notable perception that CCTV's presence in education institutions potentially contributes to great furtherance in discipline among learners. However, while Birnhack and Perry (2020) emphasized on students' perception on CCTV cameras, the current study focused on the impact of the CCTV cameras on management of learners' discipline in Imenti north sub county, Kenya.

Taylor (2018) did a study in Australia on surveillance technology in schools and found that most CCTV cameras represent the most common surveillance technology currently utilized in schools. Using a mixed research design and a sample size of 65 respondents, the study found that CCTV introduced for crime control purposes has undergone immense function creep and is now focused on a multitude of behaviour and activities such as truancy, smoking, bullying and minor classroom naughtiness. The study aimed at providing an in- depth micro sociological account of how CCTV shapes everyday interactions and alters the environment of the school. This however, was not descriptive on how the CCTV impact on the school administrators' management of learners' discipline which was the key focus in the current study.

A case study was conducted by Moyo (2019) in South Africa on the use of CCTV surveillance systems for crime control and prevention. The study evaluated the effects of open-street closed circuit television (CCTV) surveillance systems in the cities of

Johannesburg and Tshwane in the Gauteng Province of South Africa on crimes occurring in these surveyed areas. The study used a purposive non-probability sampling approach. Participants were selected for interviews based on their knowledge and experience of CCTV systems. The study found that CCTV appeared to be a viable option for crime prevention and control when integrated with evidence-based strategies in order to achieve crime control benefits. However, the study focused on crime prevention in the streets of cities in South Africa but the current study focused on the impact of CCTV within selected secondary schools in Meru Sub County in Kenya on the management of student discipline.

Gitonga (2016) also carried out a research on CCTV and discipline in schools in Kenya, demonstrating how different types of CCTV technologies used in school affect discipline in public schools. The study applied both experimental and descriptive research designs and a sample size of 125 respondents where the frequency of indiscipline cases were captured on CCTV and how students' behaviour patterns change before and after installation of CCTV was checked and addressed. The study confirmed that CCTV had a positive impact on learners' behaviour which resulted to desirable discipline. However, the study concentrated on one of the technology tools which is the CCTV cameras and their effects on students' discipline. The current study therefore investigated the impact of integrating three technologies namely, Biometric attendance system, discipline Information System and CCTV cameras on the management of learners' discipline.

A case study done by Omollo (2019) in Kenya on the impact of CCTV surveillance in secondary schools concluded that the use of CCTV in schools is increasing and asserted that if the current trajectory is maintained, the number of Kenyan schools adopting CCTV surveillance is bound to continue increasing. The study also found that the CCTV cameras helped in improving teaching, monitoring and controlling social interactions in the institutions. However, the study did not address the effects of the CCTV cameras on the management of students' discipline which the current study focused on. The studies reviewed indicate a growing global trend towards using CCTV to manage student discipline in secondary schools, with varying effects and concerns across different continents. Further research is needed to explore long-term effects,

societal perceptions, and the influence or effectiveness of using other technology tools among surveillance technologies in managing students' discipline in educational settings.

2.3 Biometric Attendance System and Students' Discipline in Public Secondary Schools

According to Taborecka and Sipulova (2022) in a study conducted in Europe on implementation of facial biometric technologies, biometric attendance systems entail the use of a fingerprint scanner that takes a picture of the individual's fingerprint. Traditional methods of attendance tracking, such as manual sign-in sheets or passwords, can be replaced by biometric attendance systems that are based on fingerprint recognition, which offers a more secure and efficient alternative. The study affirms that the system is able to send automatic text messages to the guardian's phone to confirm their child's attendance. In this way, consistent attendance can be encouraged, the institution will be able to compile attendance records in order to address any issues or concerns raised by guardians. The study found that the system can record the clock in and clock-out times of students and workers in a very convenient manner using their fingerprint to prevent impersonation and reduce levels of absence.

A study conducted by Charlotte (2014) in Europe examined the implementation of Biometric Attendance Registers in London secondary schools. The study used social survey method questionnaire and found that Biometric systems to streamlined attendance management, reduced truancy rates, and improved overall discipline by providing accurate data for monitoring student attendance patterns in all the 67 sampled elementary schools. A similar study was done by Smith and Miller (2021) in Norway to investigate the impact of Biometric and Non-Biometric Integration on student behaviour in Norwegian secondary schools. The study used descriptive research design administered questionnaires and interviewed 86 respondents. The study confirmed that biometric attendance systems had positive effects on punctuality and accountability among students, although concerns about privacy were noted.

Inayatullah et al (2022) did a study in Pakistan on Biometric Attendance Management System; a university perspective, focusing on the advantages and disadvantages of biometric attendance management systems in university. The study used an exploratory case study method and monitored attendance and recording system for two months and found that Biometric Systems significantly improved attendance accuracy and accountability, although issues related to infrastructure and data security were identified as challenges. However, the study focused on an institution of higher learning but the current study focused on the impact of the Biometric Attendance Registers on the management of students' discipline in selected public secondary schools.

A research done by study by Ahmed et al (2020) in Malaysia on an intelligent automated attendance data management system based on case-based authentication, explored the implementation of biometric attendance registers in Malaysian secondary schools. The research used a qualitative approach to investigate the attendance data processing and management in relation to case-based experiences and the Content Analysis Study method to examine the patterns and different cases that were presented from the usage of the attendance management system. The study findings indicated improved attendance monitoring and disciplinary outcomes, but raised concerns about the reliability of biometric technology in diverse environmental conditions. However, the study did not link the attendance data management and processing to the management of students' discipline. Therefore, the current study explored the impact of data obtained from biometric attendance registers on management of students' discipline.

Trabelsi and Shuaib (2011) in a study conducted in United Arab Emirates (UAE)-Asia on implementation of an effective and secure biometrics-based student attendance system explored the design, implementation and evaluation of a biometric system for recording students' attendance using both fingerprint and iris readers (e-attendance system). The study enrolled 200 students for experiment where the system allowed students to record their attendance when entering a classroom. This information was then made available to the instructors through a web-based interface application. The findings of the experiments and students' surveys revealed that biometric attendance system offers several benefits such as instructors are free from manually recording of

students' attendance, lowering students' absenteeism rate, preventing any students' impersonations and provide additional information about the attendees, such as the time of their arrivals in the lecture rooms. While the study used experimental research design, the current study employed descriptive research design which involved the principals, deputy principles, class teachers and class secretaries as the respondents.

According to research by Kirmani (2017) in India on the Impact of Biometric Attendance System on higher secondary educational institutions across India. The study found that in order to avoid human bias and direct human intervention different government institutions have implemented Biometric attendance system in educational institutions to record employee attendance on daily basis. The findings of the study indicate that Biometric Attendance system on educational system impacts positively on punctuality of employees and significantly reducing students' absenteeism thus helping the administrative authorities to monitor both the employees' and students' attendance effectively and efficiently. While the study focused on higher secondary educational institutions across India, the current study focused on public schools in Meru Sub County in Kenya.

Rashmi et al (2022) did a study on Smart Attendance system in Indonesia. The study investigated Smart Checker and Biometric attendance system in tracking of students' class attendance by applying wireless PDA. To achieve this, the researchers collected data from selected 47 junior secondary schools. Besides, the results suggested a close relationship between the use of biometric scanners and Smart Checker and better students' behaviour in junior secondary schools. The findings reinforce the need for stakeholders in education sector to come up with innovative approaches of discipline management. However, the study variables were not specific to the context of secondary school. The current study therefore intends to investigate the impact of biometric attendance registers in senior secondary schools. Another study was conducted in Nigeria by Ojokuku and Ajala (2024) on the use of mobile technologies on reference services delivery in Nigerian secondary schools. The research was a case study where principals, deputy principals, classroom teachers and students were observed and interviewed. The study affirmed that Biometric systems facilitated more accurate attendance records and contribute to improved school discipline. The study

however focused on one technology tools while the current study addressed the impact of three technology tools namely the CCTV camera, BAS and DIS.

A study done by Atieno and Kinyanjui (2023) on Effects of Application of Technology on Student Discipline in Public Secondary Schools in Nakuru County, Kenya, defined the use of biometric attendance system on discipline management in schools as the techniques for analysing physical and behavioural specifications to draw out distinctive characteristics essential for recognition and monitoring. The study used cross-sectional survey design on a target population of 225 public secondary schools comprising 225 principals, 225 discipline masters and 225 student council leaders. The study found that Biometric attendance registers generally improve attendance accuracy and accountability among students, thereby supporting better discipline management. The study further recommended that school administrators should embrace e-registers where students are required to log in when entering the school and log out whenever leaving the school which enhance punctuality in reporting to school and discourage absenteeism. However, the study focused on schools in Nakuru County while the current study focused on secondary schools in Meru County.

2.4 Discipline Information System and Students' Discipline in Secondary Schools

Sharma (2018) defined Discipline Information system as a way of measuring, collecting, analysing, and reporting data and information about nature, frequency of indiscipline cases and the interventions made in order to understand and optimize the process of managing students' discipline. According to World Bank report (2020), computers have also made it possible for teachers to maintain accurate student records, track and analyse performance and use the resulting information to make informed decisions about how to manage learners' discipline. Burdensome and tedious record keeping takes time away from more important tasks and inhibits teachers from maintaining records. Simplifying the process by the use of computers has encouraged teachers to keep better records and, more important, making use of the resulting information. The report adds that before changing the way teachers and schools manage classroom and school records, it is important to evaluate the school's discipline information system and the staff's perceptions of its current information management system.

A study by Lamond and Cunningham (2020) on Understanding teacher perceptions of assistive technology in Turkey indicated that use of technology was valued by senior management in developing school systems for administration and easing management tasks. The study employed cross-sectional survey design and surveyed 98 elementary school principals in Turkey to explore their perceptions about DIS and their use in primary schools' management. The study found that the respondents of the selected schools believed that use of technologies had made administrative work easier with regard to accounts, attendance data, and the sharing of confidential information and concluded that school discipline information systems increase effectiveness and efficiency by saving time and facilitating development of alternative solutions for sophisticated problems such as indiscipline among students. The study indicated that although technologic infrastructures of elementary schools were insufficient, DIS had an important contribution to school management suggested that school managers should be encouraged to use information systems and they must believe that data are valuable sources for decision making and that the DIS back up the implementation of educational reforms.

Ejimofofor and Okonkwo (2022) conducted a study on the use of discipline information system on management of student's discipline in secondary schools across the United Kingdom, focusing on their adoption, impacts, and implications for educational practices. Employing a mixed-methods approach, the research combined qualitative interviews with school administrators, teachers, and IT personnel, alongside quantitative surveys to gather comprehensive insights. The study provided statistical evidence on the prevalence and functionality of DIS in enhancing administrative efficiency, student learning outcomes, and overall school management. The findings revealed varying levels of readiness and adaptation among schools, reflecting disparities in technological infrastructure, training opportunities, and policy frameworks. DIS were found to centralize disciplinary data, streamline reporting processes, and facilitate timely interventions, leading to improved overall discipline management (Ejimofofor & Okonkwo, 2019)

A comparative analysis by UNESCO (2021) examined the adoption and impact of DIS in schools across different continents. The study highlighted variations in implementation strategies, effectiveness in managing discipline, and the importance of stakeholder involvement in the successful deployment of DIS. The study concluded that DIS centralize disciplinary data allowing for better tracking of incidents and patterns and enhanced communication between stakeholders which facilitates timely interventions and supports a collaborative approach to discipline management.

Research done in the United States by Denise Pope (2018) on the Digital Information Management Systems and disciplinary outcomes in American secondary schools, investigated the impact of DIS on disciplinary outcomes in American secondary schools. Employing a mixed-methods approach, the research combined quantitative analysis of disciplinary data with qualitative insights from interviews and focus groups from sampled secondary schools. The findings highlight stakeholders' perceptions and experiences, including administrators, teachers, students, and parents, regarding the influence of DIS on school climate, behaviour management, and student outcomes. The study identified factors influencing the effectiveness of DIS in promoting positive disciplinary practices, such as system usability, integration with existing practices, and support for staff training. DIS were found to improve data accuracy, support evidence-based decision-making, and facilitate targeted interventions to address student behavioural issues effectively.

Lim (2017) conducted a study on Effective integration of technology in Singapore schools: Pedagogical and policy implications. This study used cross-sectional survey design on a sample size of 270 respondents from a target population of 225 public secondary schools comprising 225 principals, 225 discipline masters and 225 student council leaders. The study found that DIS one of the technology tools, was effective in documenting disciplinary incidents, tracking trends, and implementing consistent disciplinary policies across schools, leading to improved school climate. Sharma (2018) did a study in India focusing on the adoption of DIS in managing student discipline in Indian secondary schools. The study affirmed that DIS helped in reducing disciplinary incidents through proactive monitoring and early intervention strategies, although challenges related to data integration and system usability were noted.

Research was done by Ardialis (2018) in South Africa on Application of Information and Communication Technology in Improving Teacher Performance and student discipline. The study employed a descriptive survey research design and a sample size of 22 head teachers and 66 class teachers. The study revealed that DIS enhance transparency, accountability, and consistency in disciplinary procedures, although issues related to resource constraints and infrastructure were identified. The findings are supported by a study by Yusuf and Ayoku (2022) on challenges of management information system in Nigerian secondary schools. The study observed that management of discipline information system plays indispensable roles in the smooth running of secondary schools. The study examined management, features, components and development of discipline information management system in Nigeria and concluded that Students' behaviour can largely be tracked through the educational discipline information management system thus boosting students' discipline and academic success. The study recommended that secondary school administrators must maximally integrate educational management information system towards making appropriate decision. While the study focused on schools in Nigeria, the current study concentrated on schools in Kenya.

Jaya and Bajpai (2017) did a study in Rwanda to investigate into challenges and benefits of ICT-management and integration affirmed that Management and technology have become compliment to each other. The study focused on technologies such as the internet, discipline information system and online learning and concluded that the technologies helped in providing speed and accuracy in delivery of making decisions in management of schools in Rwanda. The study, however, did not cover the impact of other technologies such as biometric attendance system and CCTV Cameras in managing learners' discipline which the current study emphasized on alongside the impact of discipline information system.

A study conducted by Zafar (2019) in Ethiopia on the roles of information communication technologies in education, emphasized on the data management system and internet. Using descriptive survey design, the study attempts to answer questions on the roles of ICTs in education, existing promises, limitations and the challenges of its integration in education systems and confirmed that the benefits of integrating

technology in managing institution information outweighs its challenges. The study however, does not show whether the technology impacts on management of learners' discipline which formed the basis of this study.

Stephen (2023) did a study on the role of ICT in the management of secondary schools in selected schools in Central Uganda. The study particularly focused on the role of technology in enhancing effective financial management, the effect of technology on examination management; setting, testing, record keeping and grading system and the role of technology in enhancing effective communication in selected secondary schools in central Uganda. The study used a cross-sectional survey design. During the study, data was collected using semi-structured survey questionnaires, interviews and observation. The study examined and found that the mostly used technology facilities included electronic databases, internet, and computer applications such as Excel, Word and Access for managing teacher's pay rolls, allowances, salaries, school fees payment verification and procurement, enhanced, communication, record keeping, monitoring of school fees payment, time saving and decision making. However, Stephen (2023) did not have an in-depth focus on the impact of such computer application tools on managing the learners' discipline which the current study investigated on.

According to a study by Peter Ngugi (2012) in Kenya on the use of technology which include the internet in the management of schools, focused on the impact of integrating technology in financial, personnel, curriculum and resource management. The findings concluded that data management system impacts positively on learners' academic performance. Explanatory sequential design, specifically mixed method research design, was employed. The sample size was 270 participants. However, the study did not directly link data management system and discipline management. Furthermore, the study overlooked the influence of other technologies such as CCTV cameras, and biometric attendance system on management of learners' discipline and academic performance. This study therefore, explored the impact of the three technologies on the management of learners' discipline.

The studies reviewed indicate that discipline information system plays a crucial role in enhancing discipline management in secondary schools by improving data accuracy, facilitating proactive interventions, and promoting a collaborative approach among stakeholders. However, none of the above quoted researchers has investigated on the impact of CCTV cameras, biometric attendance system and discipline information system on the management of learners' discipline. Although their research findings formed the basis for my study based on the integral role of integrating technology in the education sector, the research gaps identified incited and motivated the current study to specifically investigate the impact of the CCTV cameras, biometric attendance system and digital discipline information system on management of learners' discipline. In addition, there was scanty conclusive evidence on the effect of technology in managing student's discipline in Kenya. Besides, there was need to focus in Meru County because schools are turning to technology hoping that it will help manage rising indiscipline cases.

2.5 Theoretical Framework

The study was anchored on two theories, namely, systems theory of management and scientific theory of management.

2.5.1 Systems Theory of Management

The System Theory of Management was pioneered by Ludwig von Bertalanffy (1956) He introduced the concept of organizations as complex systems with interconnected parts working together towards a common goal. His seminal work, "General System Theory," laid the foundation for this approach, moving away from the traditional view of organizations as simple machines. Over time, other scholars like Boulding and Rosenzweig (1968) further developed and applied systems thinking to the study of organizations. This holistic perspective gained popularity, emphasizing interdependence, and interrelationships within an organization.

Systems Theory focuses on understanding organizations as a collection of interconnected components that work together to achieve common goals. In the context of my study, the school environment can be seen as a system made up of various interconnected components such as students, teachers, administrators, technology

(CCTV, biometric systems, and discipline information systems), policies, and rules. The Systems Theory emphasizes viewing the school as an integrated whole, where the independent variables (CCTV, biometric attendance registers, and discipline information systems) interact with each other and with the intervening variables (school rules and government policies). These technologies are not isolated but work as part of a larger system to manage and maintain student discipline. For example, the biometric attendance system (which tracks student attendance) works together with the discipline information system (which records behavioural actions) to form a cohesive strategy for managing discipline.

Systems Theory stresses that all components of the system such as technology, policies, and school rules must work together effectively to achieve the desired outcome, in this case, effective student discipline management. The success of one technology, such as CCTV, may depend on how well the discipline information system works to record and address behaviour, or how school rules are aligned with the technologies. In Systems Theory, feedback is essential for improvement. This can be applied to the study of how CCTV cameras, biometric systems, and the discipline information system provide real-time feedback on student behaviour and attendance, allowing school administrators to assess and refine their disciplinary practices continuously. Feedback from these technologies can inform changes in school rules and government policies, ensuring that the overall system remains dynamic and responsive.

A key principle of Systems Theory is that systems must adapt to changing conditions. In the case of this research, the use of technology in managing student discipline required adaptation to new government policies or updates in school rules. The theory helped explain how schools can adapt their technological systems in response to such changes, ensuring the continuous improvement of student discipline management.

2.5.2 Scientific Theory of Management

Scientific management theory, also known as Taylorism, was developed by Frederick Winslow Taylor (1909). The theory focuses on applying systematic methods and scientific principles to optimize work processes and improve productivity. It

emphasizes the importance of efficiency, data-driven decision-making, and systematic measurement.

Principles of scientific theory of management include, scientific study of discipline problems, development of standard procedures, selection and training of staff, cooperation between management and workers. The Scientific Management Theory was relevant to the current study as it advocated the use of scientific methods to optimize the management of student discipline. The use of CCTV cameras, biometric attendance systems, and the discipline information system reflects the application of systematic, data-driven processes to improve student discipline. For example, biometric systems track attendance in a precise, accurate, and objective manner, reducing human error and inefficiencies in managing student attendance. One of the core principles of Scientific Management is the use of data to improve performance. In this study, the discipline information system gathered data on student behaviour, providing a basis for evaluating the effectiveness of discipline strategies. This data was analysed to identify patterns, such as recurring disciplinary issues or trends in attendance, allowing administrators to make informed decisions on interventions, rule adjustments, or changes in policy.

Scientific Management theory seeks to increase efficiency and reduce waste. By integrating technologies like CCTV cameras for monitoring and biometric attendance systems for precise attendance tracking, schools can create more efficient systems for managing student behaviour. These systems help reduce inefficiencies associated with manual attendance tracking or inconsistent enforcement of school rules, contributing to a more effective discipline management process. The theory also emphasizes standardization of processes to ensure consistency and control. By using technologies like CCTV and biometric systems, schools can standardize the process of monitoring student behaviour and attendance, which helps ensure that all students are treated fairly and equitably. This standardization also supports the consistent application of school rules and discipline policies, ensuring that all disciplinary actions are based on objective data rather than subjective judgment.

2.6 Conceptual Framework on Relationship between Variables

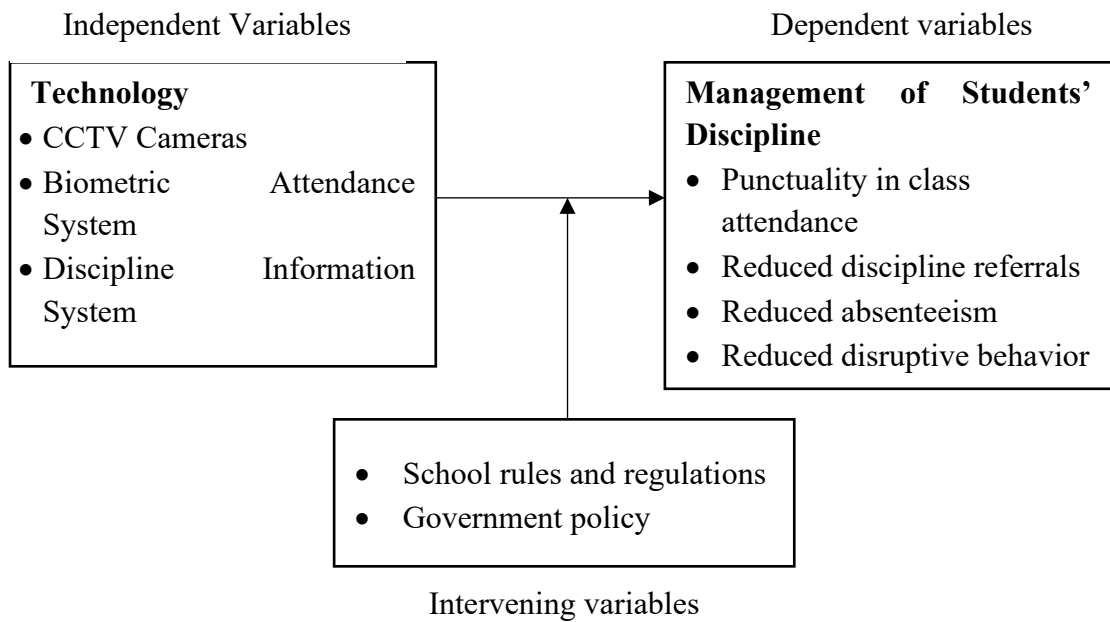


Figure 1: Conceptual Framework on Relationship between Variables

The conceptual framework shows the relationship of the variables of the study. The variables of the study were the dependent and independent variables. The dependent variable was the student's discipline with various elements such as reduced disruptive behaviour, reduced absenteeism, punctuality in class attendance and improved academic performance. The independent variable included technology which has CCTV cameras, BAR and DIS tools. The intervening variables included school Rules enforcement, Guidance and Counselling, and Government Policy. CCTV provided visual surveillance, which potentially deterred misconduct, provided evidence in disciplinary cases and enhanced the level of student engagement resulting in improved students' academic achievement. Discipline information management system helped in organising, tracking, and analysing disciplinary data, enabling efficient record-keeping and trend identification reduced incidence and the frequency of disciplinary referrals while biometric attendance register ensured accurate attendance records, which indirectly impacted on discipline by addressing absenteeism.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

In this study, descriptive survey research design was applied since the descriptive survey research design was the most appropriate when describing the characteristics of the population being investigated (Sharma, 2019). The study examined the impact of integration of technology on management of students' discipline in public secondary schools in Imenti north Sub County. Descriptive survey research method ensured that data was objectively collected, interpreted and analysed without interfering with the normal operations of the respondents. The research design used to conduct the study ensured a reasonable plot was undertaken to handle the discussion of the findings (Sileyew, 2019).

3.2 Location of the Study

A locale of a study refers to the specific area from where data is collected for analysis and interpretation so as to realize the objectives of the study (Shorten & Smith, 2017). The study was carried out in Imenti North Sub County in Meru County, Kenya. The sub county is situated approximately 260 km from Nairobi and well served by tarmac roads therefore most areas can easily be accessed by road. Imenti North Sub County is one of the nine sub counties in Meru County that has all categories of schools including a national school and a number of extra county, county and sub county public secondary schools. The research focused on public secondary schools because majority of the worrying indiscipline cases have been reported in public secondary schools. It is imperative to note that public schools have similar policies of managing discipline while private schools have their own in-house methods.

3.3 Population

Imenti North Sub-County has thirty-eight (38) public secondary schools. The target population of this study therefore consisted of thirty-eight public secondary schools in Imenti North Sub County. The study targeted a total population of 448 participants who included 38 school principals, 38 deputy principals 186 class teachers and 186 class secretaries. The principals and deputy principals participated in the study since they are the school administrators charged with the responsibility of creating a positive climate

within the school setup, coordinating and supervising curriculum and maintaining discipline in the school. The other group of educators who were targeted in the study were the form 2, 3 & 4 class teachers since they are crucial personnel in discipline management of learners at classroom level. The study targeted the class secretaries who were both students' leaders and representatives of the students' council in selected public secondary schools who play a big role in monitoring and maintaining learners' discipline.

3.4 Sampling Procedure

Sampling procedure involves making of conclusions about an entire population using a subset of the population (Mohajan, 2018).

3.4.1 Sampling Technique

The study used Proportionate sampling to select 1 National school and 2 extra county schools, 2 county schools and 3 sub county schools which had integrated technology in the management of learners' discipline. All principals, deputy principals, class teachers and class secretaries for the selected schools participated in the study. Class teachers and class secretaries from each selected school were selected through Proportionate sampling process to achieve the 37 class teachers and 37 class secretaries required to make it 20% representation. Eventually the total selection of respondents was 90 representing 20% of the target population

3.4.2 Sample Size

A sample size is a small group obtained from the assembled population. Imenti North has 38 public secondary schools comprising of 1 national school, 3 extra county schools, 8 county schools and 26 sub county schools According to Kothari (2019), a sample of 10 – 30 percent of the respondents is appropriate to represent the target population. The researcher used 20 % of the target population which gave a sample size of 90 respondents from 8 schools, comprising of 37 class secretaries, 37 class teachers, 8 deputy principals and 8 principals.

Table 1
Sampling Frame

Respondents	Target Population	SAMPLE SIZE		County	Sub County	Total sample Size	Sampling Technique
		National	Extra county				
Principal	38	1	1	2	4	8	Proportionate
Deputy Principal	38	1	1	2	4	8	Proportionate
Class Teacher	186	24	36	48	78	37	Proportionate
Class Secretary	186	24	36	48	78	37	Proportionate
Total	448					90	

Source: Researcher

3.5 Research Instruments

In the study, questionnaires and interview guides were used to collect data from the respondents.

3.5.1 Questionnaire for Deputy Principals

The questionnaire comprised of both structured and semi- structured questions. The questionnaire was divided into 5 sections where section A collected demographic data of the deputy principals and the rest of the sections were arranged as per the study objectives. Section B had questions on management of students' discipline as section C dealt with questions on the impact of CCTV on management of students' discipline. Section D collected information on the impact of biometric attendance system on management of students' discipline, while section E obtained information on the impact of discipline information system on management of students' discipline.

3.5.2 Questionnaire for Class Teachers

The questionnaire comprised of both structured and semi- structured questions. The questionnaire was divided into 5 sections where section A collected demographic data of the class teachers and the rest of the sections arranged as per the study objectives. Section B had questions on management of students' discipline as section C dealt with questions on the impact of CCTV on management of students' discipline. Section D collected information on the impact of biometric attendance system on management of

students' discipline, while section E obtain information on the impact of discipline information management system on management of students' discipline. The class teachers were also very instrumental in arranging visits to their classes.

3.5.3 Questionnaire for Class Secretaries.

The questionnaire comprised of both structured and semi- structured questions. The questionnaire was divided into 5 sections where section A collected demographic data of the class secretaries and the rest of the sections arranged as per the study objectives. Section B had questions on management of students' discipline as section C dealt with questions on the impact of CCTV on management of students' discipline. Section D collected information on the impact of biometric attendance system on management of students' discipline, while section E obtained information on the impact of discipline information management system on management of students' discipline.

3.5.4 Interview Guides

The researcher also used the interview guides to collect data from the school principals. This helped to gather certain information on effects of the ICT tools in the management of students' discipline in the school.

3.6 Piloting

Piloting was conducted in the neighbouring Meru Central sub county. Before the actual study, four schools were randomly selected from Meru Sub County to participate in the pilot study representing 10% of the selected schools for the study. Mugenda and Mugenda (2013) pointed out that at least 10% of the sample size is acceptable for piloting research testing. Therefore, from the selected schools in Meru Central sub county, 1 principal, 1 deputy principal, 3 class teachers and 3 class secretaries were involved in pilot test which helped in designing the study and to test the reliability and validity of the research instruments.

3.7 Reliability of Research Instruments

Reliability refers to the consistency of a measure of a concept. It is the consistency of a measure which gives the same results when done on several occasions (Bryman & Cramer, 2012). In this study, the reliability of the research instruments was measured

using Cronbach's alpha which yielded a correlation coefficient of 0.78. A correlation coefficient of between 0.7 and 1 is deemed reliable.

3.8 Validity of Research Instruments.

Bryman and Cramer (2012) defined validity as the ability of a research instrument to be a true measure of what it claims to measure. In this study, the researcher discussed the final copy of the questionnaire with experts and supervisors which cleared ambiguity and ensured clarity of the questions. The content related validity of the questionnaire was determined by assessing the relevance of the questions with the objectives of the study. The validity Index value was 0.82 which validated the research instruments as supported by Amin (2005), who stated that for any instrument to be accepted as valid, the average index should be 0.7 and above

3.9 Data Collection Procedures

Data collection procedure refers to the process through which data is collected in a systematic and reliable way such that if the same procedure is repeated in future, it would lead towards obtaining the same results (Grace Atieno, 2023). The researcher sought assistance of three research assistants to collect data through online questionnaires and the interviews. These research assistants were first trained on confidence, presentation and high-level articulation of the questions. Approval to undertake the research was sought by applying for a research permit from National Commission for Science, Technology and Innovation (NACOSTI) through Tharaka University.

After acquiring the permit from NACOSTI, permission was sought from the principals in all the schools identified for the study. The observation schedule and questionnaires were designed to address the specific objectives of the study which included the use of CCTV, biometric attendance system and discipline information management system. Validated questionnaires were administered to the deputy principals, class teachers and class secretaries after the necessary informed consent was given, while principals were interviewed using interview guides

3.10 Data Analysis

In this study, data was analysed based on quantitative approach using descriptive statistics. The collected data was examined for completeness and comprehensibility before being summarized, classified, coded and entered for efficient analysis. Descriptive statistics was used to analyse demographic information of the respondents. Quantitative data was examined through descriptive analysis, specifically using percentages and frequencies and analysed with the aid of statistical Package for Social Science (SPSS) Version 29. Qualitative data was presented narratively while quantitative data was presented in tables, charts and graphical illustrations.

Table 2

Data Analysis Matrix

Objective	Independent Variable	Dependent Variable	Analysis technique
To establish the impact of CCTV on the management of Students' discipline	CCTV	Management of Students' discipline	Descriptive statistics(percentages, frequency)
To evaluate the impact of BAS on the management of Students' discipline	BAR	Management of Students' discipline	Descriptive statistics(percentages, frequency)
To determine the impact of DIS on the management of Students' discipline	DIS	Management of Students' discipline	Descriptive statistics(percentages, frequency)

Source: Researcher

3.11 Ethical Considerations

The researcher first got an approval from Tharaka University. This enabled the researcher to apply for NACOSTI research permit. This research permit enabled the researcher to collect data from the various public secondary school in Imenti North Sub County in Meru County. Various respondents were also issued with an introduction letter explaining the purpose of the required data. The filling in of the questionnaire and participation in the interview was voluntary. Therefore, the respondent was expected to consent to participate in the study by signing a consent form having read, understood and agreed to the study's purpose, procedures and rights of the participants indicated in the form. In case the respondent was not willing to participate in the study, the research

assistants did not force them. The research assistant explained to the respondents that the data to be collected was for academic purposes only. The individual respondents were assured of their anonymity and confidentiality of any information they gave. The research assistants emphasized on not to write their personal details in the questionnaires such as names, telephone numbers and addresses. In addition, high code of ethics was maintained when analysing data. There was no fabrication of data or use of unreal data when analysing it. In the course of preparing this document, all sources consulted were acknowledged through proper index citation and referenced according to APA 7th edition format. Once data was analysed, the questionnaires and interview responses were stored in a safe place.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis, interpretation, and discussion of the data collected from Deputy Principals, class teachers and class secretaries concerning the impact of CCTV cameras, biometric attendance systems, and the Discipline Information System on the management of student discipline in schools. The data was also collected from principals who were interviewed. The findings are divided into parts based on the demographic data of the respondents, impact of CCTV cameras, biometric attendance systems and the Discipline Information System in promoting discipline, and administrative efficiency in schools. The data was analysed using the SPSS and presented in frequency tables and discussed with reference to relevant scholarly literature.

4.2 Demographic Information of the Respondents

To identify sample characteristics and assess whether the samples accurately reflect the community of interest, the study asked respondents for demographic information. In the current study, the researcher deep- dived into the characteristics of the respondents by determining their gender, age, level of education, and year of employment.

4.2.1 Gender Distribution of the Respondents

The study sought to determine the target population's gender distribution and whether there was bias in the gender distribution of the respondents or whether there was gender parity. Gender of the respondents is indicated in Table 3.

Table 3

Distribution of Respondents by Gender

Gender	Principal		Deputy principal		Class teacher		Class secretary		TOTAL	
	F	%	F	%	F	%	F	%	F	%
Male	6	75	6	75	22	59.5	21	56.8	55	61
Female	2	25	2	25	15	40.5	16	43.2	35	39
Total	8	100	8	100	37	100	37	100	90	100

According to the findings in table 3, 61% of the total respondents were males while were 39% of the respondents were females. Out of the 37 class teachers who responded,

59.5% were males compared 40.5% females. Similarly, majority of the principals and deputy principals who responded were 75% males while 25% were females. Further, majority (56.8%) of the class secretaries were males while 43.2% were females. The data indicates that males constitute a majority across all roles, with particularly high representation in leadership positions such as Principal and Deputy Principal. Roles of Class Teacher and Class Secretary also show male dominance, although with a smaller margin. The substantial male representation (75%) in both Principal and deputy principal role suggests a concentration of decision-making authority in the hands of men. This finding reflects broader patterns of gender disparity in educational leadership in Imenti North Sub County, in Meru County, which, according to Bush (2008), can influence the adoption and implementation of technology in school management. However, the study has shown that gender can influence confidence and engagement with technology. This is supported by Volman and van Eck (2001) who observed that male-dominated leadership often demonstrate greater confidence in using ICT tools, particularly in administrative and disciplinary contexts leading to greater integration of technology.

4.2.2 Age of the Respondents

The researcher sought to determine the age distribution of the respondents. The findings of their ages are shown in Table 4.

Table 4

Age of the Respondents

Age Bracket	Below 18 years		18-24 years		25-34 years		35-44 years		45 years and above		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
Principal	0	0	0	0	0	0	0	0	8	100	8	100
Deputy principal	0	0	0	0	1	13	3	38	4	50	8	100
Class teacher	0	0	0	0	12	32	13	35	9	24.3	37	100
Class secretary	25	67.6	12	32.4	0	0	0	0	0	0	37	100
Total	25	27.8	12	13.3	13	14.4	16	17.8	21	23.3	90	100

Regarding the study findings shown in table 4, all principals were aged 45years and above, a majority (50%) of deputy principals were aged 45 years and above, while 38% were aged between 35 and 44 years indicating that this leadership role is generally held

by older and more experienced staff members. The data also reveals that majority (38%) of class teachers who responded were aged between 35 and 44 years, followed by those who were between the ages of 25 and 34 at 32%. The results suggest a productive middle aged group likely to be typically more comfortable with integrating digital tools into their work. According to the survey, 100% of class secretaries fall within the "Below 18" and "18–24" age brackets, with no representation in the older age groups. This aligns with the expectation that class secretaries are often student leaders

4.2.3 Respondents' Level of Education

The survey also aimed to determine the educational backgrounds of the teachers and deputy principals. The results are shown in Table 5.

Table 5

Respondents' Academic Qualification

Highest Education	Doctorate Degree		Masters Degree		Bachelors Degree		Diploma in Education		TOTAL	
	F	%	F	%	F	%	F	%	F	%
Principal	1	12.5	4	50	3	37.5	0	0	8	100
Deputy principal	0	0	3	37.5	4	50	1	12.5	8	100
Class teacher	0	0	6	16.2	20	54.1	11	29.7	37	100
Total	1	1.9	13	53.7	27	50.9	12	22.6	53	100

Table 5 shows that a small percentage (16.2%) of class teachers, 37.5 % of deputy principals and 50% of principals who responded had masters while only and 29.7% of the class teachers and 12.5% of the deputy principals had diploma certificates. However, none of the respondents apart from one principal who had PhD, which may indicate limited exposure to research-intensive or innovation-driven training. The study also established that 37.5 % of principals, 50% of deputy principals and 54.1% of the class teachers had bachelor's degrees, respectively. In addition, 37.5% of deputy principals hold a master's degree, compared to only 16.2% of class teachers, suggesting that higher educational attainment may be a prerequisite or advantage for leadership roles. According to Tondeur et al. (2012), educators with higher academic qualifications are more likely to adopt technology in teaching and administration, as they are often exposed to research, innovation, and ICT training in postgraduate programs. This suggests that principals and deputy principals with master's degrees and

PhD may be better positioned to lead or support the implementation of digital discipline systems.

4.2.4 Respondents' Length of Experience

The study also sought to explore the respondents' professional experience and its implications on the integration of technology in the management of learner discipline. The findings are displayed in Table 6.

Table 6

Respondents' Length of Experience.

Length of experience	Less than 1 year		1–3 years		4–6 years		Over 6 years		Total	
	F	%	F	%	F	%	F	%	F	%
Principal	2	25	1	12.5	3	37.5	2	25	8	100
Deputy principal	1	12.5	2	25	3	37.5	2	25	8	100
Class teacher	4	10.8	10	27	11	29.7	12	32.4	37	100
Class secretary	9	24.3	22	59.5	6	16.2	0	0	37	100
Total	16	17.8	35	38.9	23	25.6	16	17.8	90	100

Table 6 shows respondents' years of experience in their respective roles. A striking 83.8% of class secretaries reported to have less than 3 years of experience. Majority (62.5%) of the deputy principals and 37.5% of the principals had 4 years or more of experience while 37.5% reported to have less than 3 years of experience indicating a seasoned group of administrators who may rely more on traditional discipline methods and require support for digital transition. Class teachers were fairly evenly distributed across all experience levels, with a slight concentration (32.4%) in the "over 6 years" bracket, making them a key demographic in implementing tech-based discipline strategies. This finding aligns with Ertmer & Ottenbreit-Leftwich (2010) who observed that teaching and administrative experience can significantly influence confidence, adaptability, and openness to technological innovations in education.

4.2.5 Respondents' Form/Class Involvement

The study sought information from the respondents on their involvement with specific student forms either as a class teacher or class secretary in managing learners' discipline. The findings are presented in Table 7.

Table 7

Respondents' Form Engaged in.

Form Involved With	Form 2		Form 3		Form 4		Total	
	F	%	F	%	F	%	F	%
Class teacher	12	32.4	13	35.1	12	32.4	37	100
Class secretary	13	35.1	14	38.0	10	27	37	100
Total	25	33.7	27	36.5	22	29.7	74	100

The highest engagement of educators with disciplinary management is with Form 3 students, with 38.0% of class secretaries followed by 35.1% of class teachers on consistent participation, the report indicates that Class teachers and secretaries were fairly evenly distributed ranging between 27 and 38% of the respondents in involved across Forms 2, 3, and 4 classes. However, according to the study findings, there was a lower involvement (27%) with Form 4 particularly among class secretaries. The data indicates that disciplinary management is focused heavily on intermediate forms, especially Form 3. Such findings align with research finding by Eccles & Roeser (2011) who observed that mid-adolescent students often require more structured guidance and monitoring.

4.2.6 Respondents' Opinion on Frequency of Technology Use for Discipline.

The study also sought to determine how often deputy principals, class teachers, and class secretaries employ technology in managing discipline. Table 8 presents the findings.

Table 8

Respondents' Opinion on Frequency of Technology Use for Discipline.

Frequency of technology use	Daily		Weekly		Occasionally		Never		Total	
	F	%	F	%	F	%	F	%	F	%
Deputy principal	2	25	2	25	3	37.5	1	12.5	8	100
Class teacher	6	16.2	12	32.4	13	35.1	6	16.2	37	100
Class secretary	6	16.2	9	24.3	16	43.2	6	16.2	37	100
Total	14	17.1	23	28.0	32	39.0	13	15.9	82	100

The findings in Table 8 indicate that minority (17.1%) of all respondents use technology daily for managing discipline. This indicates a limited regular reliance on technological tools. Further, a combined 67% of respondents use technology either weekly or

occasionally, suggesting intermittent or situational engagement rather than routine integration. Notably, 16% of class teachers reported never using technology for discipline management, highlighting persistent barriers or resistance. In addition, deputy principals reported relatively higher daily use (25%) compared to class teachers and secretaries both at 16.2%, reflecting their possible greater access to or responsibility for digital tools. The findings point to sporadic rather than consistent use of technology in discipline management. This pattern aligns with Inan & Lowther (2010) who noted the challenge of embedding technology into regular practice despite availability.

4.2.7 Respondents Views on Training on the Use of Technology

The study also aimed to determine if respondents had received training on the use of technology for discipline management. Table 9 present the findings.

Table 9

Respondents' in Service Training on the use of Technology

Statement	Deputy Principal		Class Teacher		Class Secretary		Total	
	F	%	F	%	F	%	F	%
Yes	5	62	21	56.8	17	45.9	43	52.4
No	3	37.5	16	43.2	20	54.1	39	47.6
Total	8	100	37	100	37	100	82	100

From the results in table 9, majority (52.4%) of the respondents had received training on the use of technology for discipline management, while 47.6% of the respondents reported not having been trained. Moreover, 62.5% of deputy principals were the highest proportion of the respondents trained. However, Class secretaries reported the lowest training rate of 45.9%, despite their key role in documentation and communication processes. On class teachers' responses, 56.8% of the respondents indicated that they had received training. The results show a moderate but insufficient training level.

4.2.8 Responses on Availability of Technology Infrastructure

The study further sought information from deputy principals, class teachers, and class secretaries on differing levels of technology available for use technology for managing learner discipline. Table 10 displays the results.

Table 10

Respondents' Responses on Availability of Technology

Availability of Technology	Deputy Principal		Class Teacher		Class Secretary		Total	
	F	%	F	%	F	%	F	%
Very High	2	25	0	0	5	13.5	7	8.5
Moderate	3	37.5	6	16.2	15	40.5	24	29.3
Low	2	25	20	54.1	13	35.1	35	42.7
None	1	12.5	11	29.7	4	10.8	16	19.5
Total	8	100	37	100	37	99.9	82	100

Regarding availability of technology, responses on low technology resources dominates. The data indicates that 42.7% of respondents reported low availability of technology where more than half (54.1%) of class teachers report low access. Only 8.5% of respondents reported very high technology availability. Significantly, 20% of respondents reported no technology available at all for managing discipline, which includes 29.7% of class teachers, while 37.5% of deputy principals experience moderate availability, this proportion drops to 16.2% among class teachers but rises to 40.5% among class secretaries.

4.2.9 Respondents' Category of Schools

The study also aimed to identify the respondents' category of schools reflecting differences in infrastructure, funding, teacher distribution, and access to digital resources. Table 11 presents the results.

Table 11

Respondents' Responses on their Category of Schools.

School Category	Deputy Principal		Class Teacher		Class Secretary		TOTAL	
	F	%	F	%	F	%	F	%
National	1	12.5	4	10.8	5	13.5	10	12.2
Extra county	2	25	10	27	8	21.6	20	24.4
County	2	25	13	35.1	14	37.8	29	35.4
sub county	3	37.5	10	27	10	27	23	28
Total	8	100	37	100	37	100	82	100

The data in table 11 indicates that County schools represent the highest proportion (35.4%) of respondents, followed by sub-county schools at 28%. This implies that most data were collected from lower-resourced institutions. Only 12.2% of respondents are

from national schools. Given that these schools typically have better digital infrastructure, the study leans more towards schools that may face challenges in technology adoption. Moreover, deputy principals were represented across all school types, with the highest proportion (35.4%) from sub-county schools, indicating a distribution of school leadership even in lower-tier institutions. The study results align with Wanjala et al. (2011) assertion that schools with better resources especially national and extra-county schools, are more likely to adopt technology in teaching and administrative functions, including student behaviour monitoring.

4.3 Student Discipline Management

The first part of the questionnaires was done to find the effect of technology on discipline management in the schools. The researcher addressed the student discipline management with respect to use of technology by involving the deputy principals, class teachers, class secretaries and the principals. The study sought respondents' views on the impact of technology on decision-making processes and the general impact of technology (CCTV, Biometric, and Discipline Systems) in maintaining discipline and security at the institutions. The study also sought respondents' opinion on the effectiveness of integration of technology in preventing misconduct such as cheating, fighting, or bullying in schools.

4.3.1 Impact of Technology Student Discipline Management

The researcher sought information regarding the effectiveness of the application of technology on students' discipline management. Respondents were required to indicate their agreement with given statements on the impact of technology student discipline management in their schools measured by a Likert scale as follows: Strongly agree (5); Agree (4); Neutral (3); Disagree (2) and strongly disagree (1). Table 12 shows the frequencies and percentages of deputy principals' responses.

Table 12

Deputy Principal's Response on Student Discipline Management

Statement	SD		D		N		A		SA		Total %
	F	%	F	%	F	%	F	%	F	%	
Students discipline management											
DIS has been effective in tracking disciplinary issues	2	25	1	12.5	1	12.5	3	37.5	1	12.5	100
DIS has helped in identifying students who may need further behavioral interventions.	0	0	1	12.5	3	37.5	2	25	2	25	100
DIS has contributed to fairness and transparency in handling disciplinary issues.	0	0	1	12.5	3	37.5	1	12.5	3	37.5	100
You often refer to the DIS for updates or incidents of indiscipline.	0	0	0	0	1	12.5	6	75	1	12.5	100
The overall use of technology (CCTV, BAS, and DIS has helped in maintaining discipline and security at your institution	2	25	0	0	0	0	6	75	0	0	100
The combination of CCTV cameras, BAS and DIS has contributed to a more disciplined and secure environment	0	0	0	0	2	25	6	75	0	0	100
The use of these technologies fosters a sense of responsibility among the students.	0	0	0	0	2	25	5	62.5	1	12.5	100
There has been a notable improvement in behaviour and discipline in the institution due to the use of the DIS	0	0	1	12.5	1	12.5	6	75	0	0	100
Timely interventions of indiscipline cases has significantly reduced disruptive behaviour among students in the school	0	0	2	25	1	12.5	5	62.5	0	0	100
Enforcement of the school rules and regulations has impacted positively on the students discipline within the school.	0		1	12.5	1	12.5	6	75	0	0	100
The use of technology has influenced decision-making processes in handling discipline matters within the school	0	0	1	12.5	0	0	5	62.5	2	25	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=strongly disagree; F=Frequency and %=Percentage

The findings in table 12 show that the DIS is perceived as effective in various areas of school discipline management. Regarding tracking disciplinary issues, 37.5% of respondents agreed and 12.5% strongly agreed that DIS has been effective in tracking disciplinary issues, totalling 50% in favour. Only 37.5% disagreed or strongly disagreed, while 12.5% remained neutral. The findings show a moderately positive perception of the DIS in tracking disciplinary issues. The results support Ogola & Mwanja (2021) assertion that effective tracking enables timely action and reduces recurrence of offenses.

The data revealed that 25% agreed and 25% strongly agreed that the system helped in identifying students requiring further behavioural intervention, while 37.5% were neutral. Half of the respondents believe that DIS assists in early identification, aligning with Mwaura (2020) observation which emphasized that data-driven systems can aid in early behavioural interventions. Additionally, 37.5% strongly agreed and 12.5% agreed that the system promotes fairness and transparency. However, only 12.5% disagreed, while 37.5% were neutral. The result indicates that a majority view the DIS as a tool that enhances transparency and fairness. This aligns with the research findings by Wambugu et al. (2019) which supports that automated records reduce bias and enhance transparency in disciplinary procedures.

A majority (75%) of the respondents agreed they often refer to the DIS for updates or incident tracking, with another 12.5% strongly agreeing. This finding indicates that the system is integrated into the daily operations of discipline management. The results align with research findings done by Ndung'u and Wekesa (2022) that Constant reference to the DIS shows trust in the system's data accuracy. Concerning maintaining discipline, 75% agreed while 25% strongly disagreed that technology, in this case, DIS, CCTV and BAS has helped in maintaining discipline in schools. Therefore, the vast majority credit the combination of systems with improved school discipline. The findings on this aspect are supported by Njoroge and Gikandi (2020) argument that integrated technology increases school accountability and deterrence against misconduct. Regarding contribution to a disciplined and secure environment, 75% agreed that the combination of CCTV, biometrics, and DIS contributed to a disciplined

environment, while 25% were neutral. This supports the idea that a combination of technological tools reinforces discipline through both surveillance and digital records.

Concerning behavioural and attitudinal change among student, 62.5% agreed and 12.5% strongly agreed that the technologies foster a sense of responsibility, while 25% remained neutral. The study findings concur with Karanja and Wanyama (2021) findings that technology indirectly inculcates self-discipline, by making students aware that their behaviour is being monitored. In addition, 75% agreed that there has been notable behavioural improvement due to DIS, while 12.5% remained neutral or disagreed. The findings are affirmed by Chesire (2018) findings that indicates that there is a correlation between consistent disciplinary tracking and student behavioural improvement.

Additionally, 62.5% agreed and 12.5% remained neutral or disagreed on the role of timely intervention through DIS in reducing disruptive behaviour. Timely intervention is vital in behavioural correction. These findings are consistent with the assertions of Kiilu (2020), who noted that delayed action often escalates discipline issues. It was also noted that a majority of the respondents (75%) agreed that enforcement of rules, supported by DIS, has positively influenced discipline thus serving not only as a monitoring tool but also a reinforcement mechanism for school policy implementation. on decision-making, 62.5% agreed and 25% strongly agreed that technology influences decision-making in disciplinary matters. The findings of the current study are in line with findings by Mugo and Karanja (2020) observation that data-informed decisions result in more objective and traceable outcomes.

Table 13

Class Teacher's Views on Students Discipline Management

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	
Students discipline											
Technology tools in discipline management enhances accuracy and accountability in handling discipline cases at the institution.	0	0	6	16.2	5	13.5	17	45.9	9	24.3	100
The combined technologies of CCTV cameras, biometric attendance registers, and the Discipline Information System contribute to improved overall student discipline at the institution	0	0	6	16.2	6	16.2	15	40.5	10	27.0	100
Enforcement of the school rules and regulations has impacted on the students discipline within the school.	1	2.7	5	13.5	6	16.2	17	45.9	8	21.6	100
The school has clear structures and systems to handle disciplinary referrals	2	5.4	4	10.8	6	16.2	15	40.5	10	27.0	100
Further integration of these technologies should be done in other areas of student management or behaviour monitoring	1	2.7	5	13.5	6	16.2	18	48.6	7	18.9	100
Records of students discipline cases have influenced the frequency of occurrence of students' indiscipline.	2	5.4	5	13.5	7	18.9	15	40.5	8	21.6	100
Timely interventions of indiscipline cases has significantly reduced disruptive behaviour among students in the school	2	5.4	5	13.5	6	16.2	16	43.2	8	21.6	100
Incidences of students' indiscipline have negatively impacted on the school general academic performance.	2	5.4	4	10.8	7	18.9	17	45.9	7	18.9	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

The study sought respondents' suggestion whether the presence of technologies increased confidence in managing student discipline effectively, 48.6% of respondents agreed, and 16.2% strongly agreed. Only 2.7% strongly disagreed. These findings presented in table 7 suggest that a majority of staff feel more empowered in their disciplinary roles due to the availability of technological tools. This aligns with findings by Ajayi et al. (2021), who noted that technological monitoring systems foster accountability and empower educators by providing real-time data on student behaviour. Further, the data shows that 45.9% agreed and 24.3% strongly agreed that these technologies enhance the overall learning environment and student discipline. No respondent strongly disagreed, and only 16.2% disagreed. This suggests widespread recognition of the positive role of technology in creating a conducive educational setting. According to Odongo and Chumba (2018), the integration of digital monitoring in schools fosters discipline, thereby improving the school climate and learning outcomes.

Regarding the impact of Combined Technology on discipline management, 40.5% agreed and 27.0% strongly agreed that the integration of CCTV, biometric systems, and the Discipline Information System has led to improved student discipline. A combined 32.4% either disagreed or were neutral. The perception of improved discipline is consistent with research by Mugo et al. (2020), which reported that a multi-faceted approach using integrated technologies yields better disciplinary outcomes than using isolated systems. In addition, respondents showed strong agreement where 45.9% agreed and 21.6% strongly agreed with the statement that enforcement of school rules has positively influenced student discipline. This supports the notion that consistent rule enforcement, aided by technology, creates a more disciplined environment. The findings are in line with research by Ndichu (2014) who highlighted that effective enforcement of policies, especially with the aid of technological monitoring, significantly reduces incidents of indiscipline in learning institutions.

A significant number of respondents (40.5% agree, 27.0% strongly agree) indicated that the school has clear structures and systems to handle disciplinary referrals. This implies that institutional support for technology-backed discipline management is evident and effective. These findings are echoed by Koech et al. (2019), who observed that

organizational systems and policy structures are crucial in supporting effective discipline management. Regarding whether further integration of technologies should be applied in other student management areas, 48.6% agreed and 18.9% strongly agreed. Only 2.7% strongly disagreed. This suggests a general consensus on the potential of extending digital monitoring and tracking systems to broader behavioural and administrative functions, a view supported by research from Mbogo and Mutua (2022). Respondents acknowledged that maintaining records of disciplinary cases has influenced the frequency of indiscipline, with 40.5% agreeing and 21.6% strongly agreeing. Only 5.4% strongly disagreed. This supports findings by Wango (2015), who emphasized that digital record-keeping promotes accountability and provides reference points that can deter future misconduct. Further, a majority (43.2% agree, 21.6% strongly agree) affirmed that timely intervention in disciplinary cases has reduced disruptive student behaviour. This emphasizes the importance of responsive systems supported by technology. This research finding is supported by Omondi and Musau (2020) who affirms that early detection and swift response to behavioural issues are crucial in curbing escalation which is enhanced through use of technological tools.

The responses also revealed that 45.9% of respondents agreed and 18.9% strongly agreed that student indiscipline negatively affects the general academic performance of the school. This indicates that disciplinary issues are closely linked to academic outcomes. This relationship is supported by Simatwa (2017), who argued that persistent indiscipline leads to classroom disruptions, low morale, and diminished academic achievement.

Table 14

Class Secretary's Responses on Students Discipline Management

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	
Students Discipline											
The combined use of CCTV cameras, BAS and DIS has helped improve overall student discipline at the institution	3	8.1	5	13.5	4	10.8	18	48.6	7	18.9	100
The implementation of CCTV, BAS and DIS changed the way peers behave in our school.	0	0	4	10.8	5	13.5	18	48.6	10	27.0	100
CCTV cameras, biometric attendance, and DIS promote a sense of responsibility among students.	1	2.7	5	13.5	5	13.5	14	37.8	12	32.4	100
The integration of technology been effective in preventing misconduct such as cheating, fighting, or bullying in our school.	1	2.7	4	10.8	4	10.8	22	59.5	6	16.2	100
Integration of technology has aided greatly in enforcing the school rules and regulations within the school.	3	8.1	2	5.4	2	5.4	21	56.8	9	24.3	100
Timely interventions of indiscipline cases has significantly reduced disruptive behaviour among us in the school	0	0	3	8.1	6	16.2	21	56.8	7	18.9	100
Incidences of students' indiscipline have negatively impacted on the school general academic performance.	1	2.7	2	5.4	6	16.2	19	51.4	9	24.3	100
The use of technology has positively influenced decision-making processes in handling discipline within the school	2	5.4	5	13.5	3	8.1	18	48.6	9	24.3	100
The integration of technology has impacted positively on overall school management.	3	8.1	2	5.4	3	8.1	17	45.9	12	32.4	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

The study sought to establish whether the integration of CCTV, BAS, and DIS had an observable impact on student discipline. As shown in Table 8, 48.6% of the respondents agreed and 18.9% strongly agreed that these technologies had helped improve overall discipline, while only 8.1% strongly disagreed. The high level of agreement (67.5%) in total, suggests that most students believe technological tools positively influence behaviour. This finding aligns with the study by Ogola (2020), which found that the use of surveillance technologies significantly reduced instances of misconduct in schools by promoting self-awareness and accountability among students. When asked whether the implementation of CCTV, BAS, and DIS changed students' behaviour, 48.6% agreed, while 27.0% strongly agreed. Only a small fraction (10.8%) were neutral, and no respondents strongly disagreed. This implies a notable behavioural shift among students due to the presence of monitoring technologies. These results reinforce findings by Nansubuga (2021), who concluded that behaviour modification often stems from awareness of constant monitoring, which can encourage compliance with institutional norms.

Regarding the sense of responsibility fostered by these technologies, 37.8% of students agreed, and 32.4% strongly agreed, totalling 70.2% in favour. This supports the argument that surveillance and digital tracking can create a culture of personal responsibility among students, as suggested by Marwa and Muthomi (2019). Only a combined 16.2% of respondents expressed disagreement or strong disagreement, indicating limited resistance to the idea. A significant number (59.5%) of students agreed, and 16.2% strongly agreed that the integration of these technologies had been effective in preventing negative behaviours such as cheating, fighting, and bullying. This indicated that technological oversight has likely deterred misconduct. The findings are consistent with Ssekamanya and Kibirige (2018), who highlighted the effectiveness of surveillance in curbing antisocial behaviour in secondary schools. In addition, regarding rule enforcement, 56.8% agreed and 24.3% strongly agreed that technology-supported enforcement improved discipline. This supports the idea that structured, technology-aided enforcement mechanisms are more effective and timely, reducing arbitrariness in discipline management. These findings align with research by Wambua (2020), who argued that rule enforcement is more consistent and impactful when aided by technology.

The survey also explored whether timely intervention in indiscipline cases reduced disruptive behaviours. A majority of respondents (56.8%) agreed, while 18.9% strongly agreed thus affirming this, while no respondents disagreed, suggesting broad consensus on the positive effect of quick response facilitated by technological tools, a majority of students (51.4% agreed, 24.3% strongly agreed) recognized that student indiscipline had negatively impacted academic performance. This shows that there is student awareness of the correlation between discipline and academic outcomes. These insights support literature by Kiilu (2017), who established that high discipline levels positively correlate with improved academic performance. Additionally, most students (48.6% agreed, 24.3% strongly agreed) believed that the use of technology positively influences decision-making processes regarding discipline. This suggests that data from CCTV, BAS, and DIS systems helps administrators make more informed and objective decisions, in line with the findings of Kariuki and Mugo (2021). On the broader impact of technology integration on school management, 45.9% agreed and 32.4% strongly agreed, indicating a strong consensus (78.3%) that technology has enhanced the school's administrative efficiency and discipline oversight. Only a small proportion (8.1%) strongly disagreed with this sentiment.

4.4 Closed-Circuit Television and the Management of Students' Discipline

The first objective of the study was to establish the impact of CCTV on the management of students' discipline in selected schools in Meru County. The research instrument addressed the use of CCTV cameras and the impact they have on students' attitudes towards classroom rules and regulations, incidences of stealing safeguarding school infrastructure and their influence on discipline deterrent measures taken by the schools.

4.4.1 Impact of Closed-Circuit Television Cameras

The researcher's intention was to investigate whether CCTV cameras had an impact on management of learners' discipline in Imenti North Sub County in Meru County, Kenya. The research instrument focused on several aspects that could measure the effectiveness of CCTV cameras on the management of learners' discipline. To achieve this objective, Likert scale was used to measure the research variables. The scale variables were: Strongly agree (5); Agree (4); Neutral (3); Disagree (2) and strongly disagree (1). The responses from the deputy principals are presented in Table 15.

Table 15

Deputy Principal Closed Circuit Television Camera

Statement CCTV	SD		D		N		A		SA		Total %
	F	%	F	%	F	%	F	%	F	%	
The installation of CCTV cameras in the institution has positively affected security	0	0	1	12.5	0	0	1	12.5	6	75.0	100
Knowing that CCTV cameras are present in the school makes you as a school administrator feel safer.	0	0	0	0	1	12.5	4	50.0	3	37.5	100
CCTV cameras have prevented misconduct or disciplinary violations.	0	0	0	0	0	0	4	50.0	4	50.0	100
CCTV cameras have been effective in helping the administration in managing student discipline	0	0	0	0	0	0	4	50.0	4	50.0	100
CCTV cameras have reduced stealing among students.	0	0	0	0	2	25.0	5	62.5	1	12.5	100
CCTV cameras have effectively eliminated sneaking	0	0	1	12.5	1	12.5	6	75.0	0	0	100
CCTV cameras have contributed to a positive learning or working environment.	0	0	0	0	0	0	5	62.5	3	37.5	100
CCTV cameras have helped in protecting school infrastructure from being damaged by the learners	0	0	0	0	0	0	7	87.5	1	12.5	100
Monitoring of teachers attendance through CCTV cameras has promoted class discipline management.	0	0	0	0	1	12.5	6	75.0	1	12.5	100
Immediate feedback of behaviour pattern provided by CCTV cameras enhanced discipline deterrent measures.	0	0	0	0	0	0	6	75.0	2	25.0	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

Table 15 summarizes deputies' responses on the impact of CCTV on management of students' discipline. According to perceived security impact, a significant majority 75% of respondents strongly agreed that the installation of CCTV cameras has positively affected school security, 12.5% agreed while another 12.5% disagreed. This finding strongly indicates that CCTV enhances institutional security, which concurs with Osunyikanmi and Oladele (2020) observation that the presence of surveillance systems in schools is linked to improved physical safety and reduced unauthorized access. Additionally, 50% of the respondents agreed and 37.5% strongly agreed that the presence of CCTV cameras made them feel safer as administrators, while only 12.5% remained neutral. This observation that CCTV psychological benefit goes beyond physical security is in line with Mutembei (2021) with findings that Feeling safe enables staff to focus on academic and managerial responsibilities

Regarding CCTV as a Deterrent to Misconduct all the respondents either agreed (50%) or strongly agreed (50%) that CCTV cameras have helped prevent student misconduct. This aligns with findings by Wanyonyi & Wekesa (2022) who note that visible surveillance acts as a behavioural deterrent, reducing the chance of breaking school rules. Similarly, 100% of participants agreed or strongly agreed that CCTV has been effective in assisting school administration in managing discipline. The same is supported by Kiprono & Cheruiyot (2020) who observed that CCTV systems allow for accurate, real-time monitoring and evidence gathering, supporting objective disciplinary decisions. The findings also agree with the principals' views that cases of vandalism, theft, and bullying have reduced significantly because students know they are being monitored.

62.5% of the respondents agreed and 12.5% strongly agreed that CCTV has helped reduce theft, while 25% were neutral. This suggests that CCTV surveillance reduces opportunity and motivation for theft among students, consistent with the routine activity theory by Felson & Cohen (1980), which states that the presence of a capable guardian reduces crime. Further, on elimination of Sneaking, 75% agreed, 12.5% were neutral while 12.5% disagreed that CCTV has eliminated sneaking behaviour. The majority perception supports the idea that monitored spaces discourage unauthorized movement.

The finding is in harmony with studies by Mboya & Nyongesa (2019) who found similar outcomes in urban secondary schools where CCTV was implemented.

Regarding responses on influence on learning and institutional culture, Majority of the respondents (62.5%) agreed and 37.5% strongly agreed that CCTV has contributed to a positive learning or working environment. This indicates that a secure environment boosts student focus and teacher confidence. This finding is consistent with Odongo and Njeri (2018), who noted improved classroom engagement following CCTV installations. Additionally, a large proportion (87.5%) of the respondents agreed and 12.5% strongly agreed that CCTV has helped protect school property. This result highlights the secondary benefit of surveillance in reducing vandalism and property misuse which is consistent with Onyango and Rono (2021).

Concerning monitoring teacher attendance, most of the respondents (75%) agreed and 12.5% strongly agreed that CCTV monitoring of teacher attendance has improved classroom discipline, with only 12.5% neutral. The finding points to the broader accountability enabled by surveillance, not only for students but also for staff. This supports Kiage (2020), who found that teacher presence directly correlates with student behaviour in class. Regarding enhancing immediate disciplinary interventions, a majority (75%) of respondents agreed and 25% strongly agreed that immediate feedback provided by CCTV has helped in implementing timely disciplinary deterrents. This study results affirms that prompt feedback enables proactive rather than reactive discipline management which is in line with best practices recommended by the Ministry of Education (2020).

The study further sought to establish teachers' views on the impact of Closed Circuit Television Cameras on management of learners' discipline. The findings are presented in frequencies and percentages as shown in Table 16.

Table 16

Class Teachers' Views on Closed Circuit Television Camera

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	
CCTV											
Class teachers are all aware of the presence of CCTV cameras in classrooms and common areas?	1	2.7	7	18.9	6	16.2	14	37.8	9	24.3	100
CCTV cameras have improved student behaviour and discipline during classes	2	5.4	5	13.5	6	16.2	13	35.1	11	29.7	100
CCTV cameras have been effective in helping the administration in managing student discipline	0	0	8	21.6	7	18.9	12	32.4	10	27.0	100
There has been a notable reduction in classroom misconduct (e.g., talking out of turn, cheating) since the installation of CCTV cameras	2	5.4	4	10.8	5	13.5	16	43.2	10	27.0	100
CCTV cameras have positively influenced students' attitudes towards classroom rules and regulations	1	2.7	9	24.3	7	18.9	11	29.7	9	24.3	100
Incidences of stealing among students have reduced CCTV cameras significantly after the installation of CCTV cameras.	3	8.1	9	24.3	7	18.9	11	29.7	7	18.9	100
CCTV cameras have enhanced close monitoring of students behaviour hence effectively eliminating sneaking.	4	10.8	7	18.9	6	16.2	12	32.4	8	21.6	100
CCTV cameras have helped in protecting school infrastructure from being damaged by the learners	0	0	7	18.9	7	18.9	12	32.4	11	29.7	100
Monitoring of teachers attendance through CCTV cameras has promoted class discipline management.	3	8.1	8	21.6	7	18.9	11	29.7	8	21.6	100
Immediate feedback of behaviour pattern provided by CCTV cameras enhanced discipline deterrent measures.	2	5.4	7	18.9	5	13.5	13	35.1	10	27.0	100
CCTV cameras have encouraged attendance of class meetings thus promoting management of class discipline in the school.	0	0	5	13.5	5	13.5	15	40.5	12	32.4	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

The teachers' responses represented in table 16 shows that 37.8% of respondents agreed and 24.3% strongly agreed that class teachers are aware of the presence of CCTV cameras in classrooms and common areas. Only 2.7% strongly disagreed, indicating a high level of staff awareness. This high awareness is critical as it forms the foundation for effective surveillance-based discipline strategies. As noted by Hope (2009), surveillance effectiveness is enhanced when both staff and students are cognizant of being monitored, which promotes self-regulation and deters misbehaviour. Regarding, Influence of CCTV on Student Behaviour, a majority (35.1%) of the respondent agreed as 29.7% strongly agreed believing that CCTV has improved student behaviour during lessons. Only a small proportion (5.4%) strongly disagreed and expressed opposing views. These findings are consistent with findings by Fussey (2013), who observed that the presence of surveillance cameras in educational settings correlates with reduced disruptive behaviour and improved classroom engagement.

Majority of the respondents (51.3%) agreed or strongly agreed that monitoring teacher attendance using CCTV has promoted discipline management, while 29.7% disagreed. This suggests a more cautious acceptance of surveillance on staff. The dual role of surveillance in monitoring both students and staff raises ethical and operational considerations as reflected by all the principals interviewed who reported privacy concerns raised by both parents and students. However, despite the ethical issues, majority of the principals confirmed that the overall impact of CCTV cameras has been a noticeable improvement in discipline and accountability.

As noted by Ball (2010), the perceived trustworthiness of surveillance depends heavily on transparency and clear policy guidelines. Additionally, 59.4% of respondents agreed or strongly agreed that CCTV has helped the administration manage student discipline, while only 21.6% disagreed. This affirms that CCTV's assists school's administration in providing video evidence for behavioural assessment and decision-making. This finding is supported by Taylor (2010) who emphasizes that administrative efficiency in behaviour management increases when schools leverage real-time monitoring tools such as CCTV.

Further, on Reduction in Classroom Misconduct, more than 70% of respondents agreed or strongly agreed that there has been a reduction in classroom misconduct since CCTV installation. Specifically, 43.2% agreed, and 27.0% strongly agreed, while only 5.4% strongly disagreed. This supports findings by Boda and Szabó (2011), who argue that visible surveillance deters minor infractions like cheating or talking out of turn due to the perceived risk of being caught. Although 54% of respondents agreed or strongly agreed that CCTV cameras positively influence students' attitudes toward classroom rules, a notable 24.3% disagreed, suggesting mixed perceptions. According to Hope (2009), student attitudes toward surveillance often depend on how fairly and consistently the system is used. If students view CCTV as part of a broader fairness-based discipline system, compliance increases.

Regarding responses on reduction in Theft, only 48.6% of respondents agreed or strongly agreed that incidences of stealing have reduced, while 32.4% disagreed. This split suggests that while theft deterrence is partially achieved, other factors such as peer culture or camera blind spots may still play a role. The current study findings are backed by Gill and Spriggs (2005) who caution that while CCTV reduces crimes of opportunity, it may be less effective for premeditated behaviours without complementary security policies. Further, majority of the respondent (54%) agreed or strongly agreed that CCTV has helped eliminate sneaking, while 29.7% disagreed. This indicates moderate effectiveness in addressing unauthorized student movement. In addition, a combined 62.1% of respondents agreed or strongly agreed that CCTV has protected school property from vandalism. None strongly disagreed. This is consistent with Norris & Armstrong (1999), who noted that surveillance systems are particularly effective at deterring vandalism and property damage, especially in unsupervised school areas.

According to 62.1% of the respondents, immediate behavioural feedback from CCTV has enhanced discipline deterrence. This supports the idea that real-time data allows for prompt corrective actions. The findings are in harmony with Welsh & Farrington (2009) argument that the deterrent effect of CCTV is strongest when there is a clear and immediate consequence for negative behaviour, reinforcing accountability. Further, an overwhelming 72.9% agreed or strongly agreed that CCTV has encouraged

attendance in class meetings, thereby promoting discipline. This suggests that CCTV may indirectly improve not just monitoring, but also student engagement in communal and educational discussions, contributing to a more disciplined school culture. The study further sought to establish class secretaries' views on the impact of Closed Circuit Television Cameras on management of learners' discipline. The findings are presented in frequencies and percentages as shown in Table 17.

Table 17

Class Secretaries' Views on Closed Circuit Television Camera

Statement	SD		D		N		A		SA		Total %
	F	%	F	%	F	%	F	%	F	%	
CCTV											
CCTV have been effective in helping the administration in managing student discipline	0	0	5	13.5	4	10.8	17	45.9	11	29.7	100
CCTV have reduced stealing among students.	1	2.7	2	5.4	5	13.5	20	54.1	9	24.3	100
CCTV have reduced bullying in the school.	4	10.8	4	10.8	3	8.1	17	45.9	9	24.3	100
CCTV have effectively eliminated sneaking	1	2.7	4	10.8	5	13.5	18	48.6	9	24.3	100
CCTV have enhanced close monitoring of students behaviour hence improved discipline in students	1	2.7	4	10.8	7	18.9	19	51.4	6	16.2	100
CCTV have helped in protecting school infrastructure from being damaged by the learners	2	5.4	7	18.9	6	16.2	13	35.1	9	24.3	100
The CCTV make you more conscious of your behaviour while in the school	3	8.1	4	10.8	6	16.2	14	37.8	10	27.0	100
The use of CCTV has reduced misconduct or violations (e.g., cheating, fights, vandalism) in the school	1	2.7	9	24.3	4	10.8	15	40.5	8	21.6	100
Monitoring of teachers attendance through CCTV has promoted class discipline management.	1	2.7	6	16.2	5	13.5	15	40.5	10	27.0	100
Immediate feedback of behaviour pattern provided by CCTV enhanced discipline deterrent measures.	2	5.4	7	18.9	5	13.5	16	43.2	7	18.9	100
CCTV have encouraged attendance of class meetings thus promoting management of class discipline.	1	2.7	2	5.4	4	10.8	19	51.4	11	29.7	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

The data in table 17 shows views of respondents on whether CCTV cameras were effective in helping the administration manage student discipline where 45.9% of respondents agreed, and 29.7% strongly agreed, accounting for a total of 75.6%. Only 13.5% disagreed, and none strongly disagreed. This indicates a high level of student recognition of CCTV as a valuable disciplinary tool. This supports findings by Kassah (2018), who noted that CCTV provides real-time monitoring and helps school authorities respond swiftly to violations, thereby strengthening school governance. On whether CCTV cameras have reduced stealing, a combined 78.4% of respondents agreed (54.1% agreed, 24.3% strongly agreed), indicating a strong deterrent effect. Similarly, 70.2% agreed or strongly agreed that bullying had reduced due to CCTV surveillance, while only 21.6% disagreed or strongly disagreed. This is consistent with Ahmed and Nasreen (2020), who emphasized that CCTV acts as a psychological deterrent that discourages theft and peer-to-peer aggression in school environments.

Responses show that 72.9% of students agreed or strongly agreed that CCTV cameras have reduced sneaking in the school. Only 13.5% disagreed. This suggests that surveillance discourages students from engaging in unauthorized movements within school premises. This supports Mureithi (2019), who found that student behaviour is influenced by the perceived risk of being caught on camera, leading to better adherence to school rules. Students also agreed that CCTV cameras enhance close monitoring of behaviour: 67.6% either agreed or strongly agreed that this has led to improved discipline. Regarding CCTV cameras and consciousness, only 13.5% disagreed. Moreover, 64.8% indicated that CCTV makes them more conscious of their behaviour. These findings align with Foucault's (1977) theory of the "panoptic on effect," where individuals internalize surveillance and self-regulate their actions even in the absence of direct oversight. While still positive, views on CCTV preventing damage to infrastructure were more mixed: only 59.4% agreed or strongly agreed, while 24.3% were neutral, and 24.3% disagreed. This could imply that while CCTV offers some protection, other complementary strategies may be required for full effectiveness. Further, majority of respondents (62.1%) indicated that CCTV had reduced incidents such as cheating, fights, and vandalism. However, 24.3% disagreed. This shows general support, though not without some reservations, possibly due to blind spots or limitations in camera coverage.

According to Owusu-Bempah & Amoah (2021), the effectiveness of CCTV in reducing school misconduct is often linked to both coverage and active monitoring, reinforcing the importance of operational efficiency. Monitoring teacher attendance through CCTV also received favourable responses, with 67.5% of students agreeing or strongly agreeing that this promoted class discipline. Only 18.9% disagreed. The integration of surveillance appears to have an indirect yet important impact on teacher accountability, which in turn influences student behaviour positively. This agrees with Kariuki and Mugo (2021), who argued that transparent teacher monitoring fosters a culture of mutual responsibility between staff and students. About 62.1% of students felt that CCTV cameras, by providing immediate feedback on behaviour, supported deterrent measures. This reinforces the value of timely responses in managing discipline issues.

As supported by Ndung'u and Kimani (2020), real-time data provided by surveillance tools enables prompt corrective action, reducing the recurrence of indiscipline cases. Finally, 81.1% of students agreed or strongly agreed that CCTV has promoted attendance of class meetings, enhancing discipline management. This high percentage demonstrates that surveillance not only affects negative behaviour but also encourages positive participation in academic and administrative activities.

4.5 Biometric Attendance Registers on the Management of Students' Discipline

This section analysis the second objective of this study that was to ascertain the Impact of Students Biometric Attendance Registers on the Management of Students' Discipline in Imenti North sub County in Meru County. The research instrument addressed the influence of BAS in promoting discipline among the students, reducing instances of fraud and the impact on the choice of new strategies of managing discipline cases in the school.

4.5.1 Impact of Students Biometric Attendance Registers on the Management of Students' Discipline

Through the study, the researcher wanted to know whether use of BAS impacted on the way schools managed discipline among students in Imenti North Sub County in Meru County, Kenya. The research instrument addressed several aspects that could measure effectiveness of application of BAS on management of students' discipline. In the study, the researcher used Likert scale to evaluate the respondents' agreement with the

research variables. The scale variables were: Strongly agree (5); Agree (4); Neutral (3); Disagree (2) and Strongly disagree (1). Table 18 displays the deputies' views on the impact of BAS on learners' discipline.

Table 18

Deputy Principals' Responses on Biometric Attendance System

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	
BAS											
You are comfortable with using biometric attendance systems.	0	0	2	25.0	0	0	4	50.0	2	25.0	100
Biometric attendance systems are more accurate than traditional attendance registers	0	0	0	0	0	0	8	100.0	0	0	100
Biometric attendance systems reduce instances of attendance fraud (e.g., proxy attendance).	0	0	0	0	0	0	5	62.5	3	37.5	100
It is very convenient to use the biometric attendance system	0	0	0	0	0	0	6	75.0	2	25.0	100
Biometric attendance systems have helped in improving punctuality among students and staff.	0	0	0	0	1	12.5	3	37.5	4	50.0	100
There is no major concerns regarding the privacy and security of your biometric data.	0	0	1	12.5	1	12.5	5	62.5	1	12.5	100
Biometric attendance system has enhanced teacher-student contact hours thus promoting discipline among the students.	0	0	0	0	1	12.5	6	75.0	1	12.5	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

According to the results presented in table 18, 50% of respondents agreed and 25% strongly agreed that they were comfortable using BAS, while 25% disagreed. The majority of respondents expressed satisfaction with the use of biometric systems, suggesting a positive user experience. According to Kumar and Rao (2019), user acceptance of biometric technology increases with familiarity and system reliability. Regarding Accuracy Compared to Traditional Methods, all respondents (100%) agreed that biometric attendance systems are more accurate than traditional attendance registers. This consensus affirms the reliability of biometric systems. This suggestion is in harmony with Olatunji and Adebayo (2021) who have highlighted the superiority of biometric systems in capturing real-time, error-free attendance data. Further, 62.5% of respondents agreed and 37.5% strongly agreed that biometric systems help reduce fraudulent practices such as proxy attendance. This finding correlate with a study by Mutua and Njuguna, (2020) which affirms that Biometric verification ties attendance records to unique personal identifiers, thereby minimizing impersonation and data manipulation.

Further, a total of 100% of respondents indicated a positive perception of convenience, with 75% agreeing and 25% strongly agreeing that BAS is convenient to use. The results reflect that BAS is perceived as a seamless and time-saving method. According to Singh & Jha (2022), system convenience influences technology adoption in institutional contexts. Additionally, on Improvement in Punctuality, 50% strongly agreed and 37.5% agreed that biometric attendance systems have improved punctuality, while 12.5% remained neutral. The results show a strong correlation between BAS use and improved punctuality. This supports findings by Wekesa and Njoroge (2021), who argued that accountability enforced through biometric check-ins promotes time discipline. Further, regarding Teacher-Student Contact Time and Discipline, a combined 87.5% of respondents agreed or strongly agreed that BAS has enhanced teacher-student contact time, indirectly promoting student discipline. The findings align with the principals' views that the biometric attendance system has greatly improved punctuality and attendance. The Principals also pointed out that it was impossible for students to sign in for their friends, generation of attendance reports was automatic and chronic absentees were identified early. The finding affirms that when teachers arrive promptly and consistently, class contact hours' increase, supporting

academic engagement and classroom management. This study finding concurs with Maina and Mwangi (2018) observation that Biometric data ensures accountability from both staff and students.

Concerning Privacy and Security Concerns, 12.5% of respondents disagreed, 12.5% were neutral, 62.5% agreed while 12.5% strongly agreed that there were no major concerns regarding the privacy and security of their biometric data. While the majority are confident about data protection, a minority expressed uncertainty or concern. The findings of the current study are in harmony with Ajayi and Daramola (2020) who observed that data privacy remains a critical issue in biometric systems, and schools must implement secure data management protocols to maintain trust.

The study further sought to establish class teachers' views on the impact of CCTV on students 'discipline in Imenti North sub County. The results are presented in frequencies and percentages as shown in Table 19.

Table 19

Class Teachers' Views on Biometric Attendance System

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	
BAS											
Biometric attendance systems have helped in reducing absenteeism in your classes	2	5.4	6	16.2	4	10.8	14	37.8	11	29.7	100
Biometric attendance system has eliminated Chronic absenteeism among students.	2	5.4	6	16.2	4	10.8	15	40.5	10	27.0	100
Biometric attendance system has enhanced punctuality in reporting to school.	2	5.4	4	10.8	5	13.5	14	37.8	12	32.4	100
Biometric attendance system has encouraged attendance of routine class meetings by class teachers thus promoting management of class discipline	2	5.4	6	16.2	5	13.5	14	37.8	10	27.0	100
Biometric attendance system has enabled the school administrators to come up with new strategies of managing discipline cases in the school.	3	8.1	5	13.5	4	10.8	15	40.5	10	27.0	100
Biometric attendance systems have helped to ensure that students do not skip or falsely mark attendance.	2	5.4	6	16.2	5	13.5	14	37.8	10	27.0	100
The biometric attendance system contributes to students' accountability regarding attendance	2	5.4	4	10.8	6	16.2	17	45.9	8	21.6	100
Biometric attendance systems help in identifying students who need support (e.g., for low attendance or frequent tardiness)	4	10.8	5	13.5	4	10.8	14	37.8	10	27.0	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

According to the data, 67.5% of respondents agreed or strongly agreed that BAS has helped in reducing absenteeism in classes, while only 21.6% disagreed or strongly disagreed. Similarly, 67.5% affirmed that chronic absenteeism had also been significantly addressed through BAS. These findings align with Alharthi et al. (2017), who observed that biometric systems, by accurately recording attendance, discourage student absenteeism and eliminate loopholes in manual registers. On Enhancement of Punctuality and Routine Attendance, the responses show that 70.2% of the respondents agreed or strongly agreed that biometric systems enhance punctuality in school reporting. Additionally, 64.8% felt BAS had improved class teachers' attendance in meetings, contributing to better discipline management. This supports the findings by Rani and Reddy (2018), who noted that time-sensitive biometric tracking promotes responsibility among students and staff, improving institutional time discipline.

According to 67.5% of the participants Strategic Discipline Management, biometric attendance systems have helped administrators create new strategies for managing discipline. Furthermore, 64.8% indicated that BAS has reduced false marking or skipping of attendance. The findings concur with Kumar and Joseph (2020) who argue that biometric technology allows for data-driven planning by school leaders, helping to identify patterns and address discipline issues more proactively.

Regarding accountability and Student Monitoring, a notable 67.5% of respondents agreed or strongly agreed that BAS enhances student accountability, while 64.8% said it helps identify students in need of support due to low attendance or frequent tardiness. These findings are consistent with Mugisha and Atwebembeire (2019), who emphasized that biometric data not only reduces fraud but also aids in identifying students who require pastoral or behavioural support interventions.

Table 20

Class Secretary Biometric Attendance System

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	%
BAS											
Biometric attendance system help reduce cheating or proxy attendance in classes.	2	5.4	10	27.0	4	10.8	12	32.4	9	24.3	100
Class secretaries are comfortable with the use of biometric attendance systems for attendance taking.	2	5.4	3	8.1	6	16.2	19	51.4	7	18.9	100
There has been a significant improvement in class attendance since the biometric system was implemented.	2	5.4	4	10.8	7	18.9	15	40.5	9	24.3	100
The biometric attendance system contributes to students' sense of accountability and responsibility.	1	2.7	7	18.9	11	29.7	9	24.3	9	24.3	100
Biometric attendance system has enabled the school administrators to come up with new strategies of managing discipline cases in the school	0	0	3	8.1	5	13.5	19	51.4	10	27.0	100
Biometric attendance system has eliminated Chronic absenteeism among students	3	8.1	4	10.8	4	10.8	21	56.8	5	13.5	100
Biometric attendance system has enhanced punctuality in reporting to school	0	0	4	10.8	4	10.8	21	56.8	8	21.6	100
Biometric attendance system has encouraged attendance of routine class meetings by class teachers thus promoting management of class discipline	4	10.8	3	8.1	7	18.9	15	40.5	8	21.6	100
Biometric attendance system has enhanced teacher-student contact hours thus promoting discipline among the students.	2	5.4	11	29.7	5	13.5	13	35.1	6	16.2	100

SA= Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

The data presented in table 20 shows that 32.4% of the class secretaries agreed and 24.3% strongly agreed that the biometric system has helped reduce cheating or proxy attendance. Meanwhile, 27.0% disagreed, and 5.4% strongly disagreed. This suggests a positive trend, although some scepticism still exists among students. This is supported by Ahmed and Khan (2021), who found that biometric systems minimize the opportunity for impersonation and ensure the integrity of attendance records. Majority of students (51.4% agreed and 18.9% strongly agreed) noted that class secretaries are comfortable using the BAS, with only 5.4% strongly disagreeing and 8.1% disagreeing. This indicates general acceptance and ease of use among those responsible for managing attendance records. This aligns with Mwangi and Kimotho (2020), who observed that the successful adoption of technology in schools depends on user-friendliness and administrative training.

The biometric system appears to have positively influenced student attendance: 40.5% agreed, and 24.3% strongly agreed that attendance has improved since its implementation. Only 5.4% strongly disagreed, while 10.8% disagreed. These findings are consistent with Tshabalala and Maphosa (2019), who concluded that electronic attendance systems contribute significantly to improving student attendance rates by increasing accountability. When asked whether the biometric system contributed to a sense of responsibility, 24.3% agreed, and another 24.3% strongly agreed. However, a significant 29.7% were neutral, and 18.9% disagreed. This mixed response may indicate that the connection between technology and behavioural transformation is still evolving among some students. The concept of "digital accountability" discussed by Kariuki & Mugo (2021) supports the idea that biometric systems foster a sense of personal responsibility by linking attendance to individual identity.

A large majority (51.4% agreed, 27.0% strongly agreed) believed that the biometric system enabled administrators to develop new strategies for managing discipline. However, only 8.1% disagreed, indicating strong support for the role of BAS in improving administrative decision-making. The findings were in line with Owusu-Bempah and Amoah (2021) observations that biometric records provide reliable data that can inform intervention programs, early warning systems, and attendance tracking mechanisms.

Responses further show that 56.8% of respondents agreed, and 13.5% strongly agreed that chronic absenteeism has been eliminated. While 10.8% each were neutral and disagreed, this still reflects a predominantly positive view. This supports the findings of Ndegwa (2018), who argued that biometric systems limit students' ability to avoid classes unnoticed, reducing absenteeism over time. A striking 78.4% of respondents agreed or strongly agreed that BAS has enhanced punctuality, with 0% disagreeing strongly and only 10.8% being neutral. This suggests that the system not only tracks attendance but also encourages students to report on time.

This is echoed in the study by Singh & Verma (2020), which found a statistically significant relationship between biometric clock-in systems and improved punctuality among high school students. Regarding class meetings, 62.1% agreed or strongly agreed that BAS encouraged teacher attendance, thus enhancing discipline. Similarly, 51.3% agreed or strongly agreed that BAS increased teacher-student contact hours, while 29.7% disagreed. As Wambua (2020) suggests, when teachers are consistently present and engaged, student discipline improves through increased supervision, role modelling, and communication.

4.6. Impact of Discipline Information System on the Management of Students' Discipline

This section analysis the third objective of this study that was to determine the impact of Discipline Information System on the management of students' discipline in Imenti North sub county in Meru County. The research instrument addressed the influence of DIS in promoting discipline among the students, enhancing fairness and transparency in handling disciplinary issues, incidences of students' indiscipline and the impact on the choice of new strategies of managing discipline cases in the schools. Respondents were required to indicate their agreement with given statements on the impact of technology student discipline management in their schools measured by a Likert scale as follows: Strongly agree (5); Agree (4); Neutral (3); Disagree (2) and strongly disagree (1). Table 21 shows the frequencies and percentages of deputy principals' responses

Table 21

Deputy Principals' Views on Discipline Information System

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	
DIS											
DIS has helped in identifying students who may need further behavioural interventions.	0	0	1	12.5	0	0	3	37.5	4	50.0	100
DIS has allowed immediate feedback of student's behaviour pattern thus necessitating quick discipline deterrent measures.	0	0	1	12.5	0	0	4	50.0	3	37.5	100
DIS has been very effective in tracking disciplinary issues which has reduced the incidences of students' indiscipline.	0	0	0	0	1	12.5	6	75.0	1	12.5	100
DIS has enabled the school administrators to come up with new strategies of managing discipline cases in the school.	0	0	0	0	2	25.0	2	25.0	4	50.0	100
DIS has contributed to fairness and transparency in handling disciplinary issues.	0	0	0	0	0	0	7	87.5	1	12.5	100
As an administrator, you often refer to DIS for updates or incidents.	0	0	0	0	1	12.5	4	50.0	3	37.5	100
There has been a great improvement in behaviour and discipline in the institution due to the use of DIS	0	0	0	0	0	0	7	87.5	1	12.5	100

SA= Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

As shown in Table 21, 37.5% of respondents agreed and 12.5% strongly agreed that DIS has been effective in tracking disciplinary issues, totalling 50% in favour. Only 37.5% disagreed or strongly disagreed, while 12.5% remained neutral. The findings show that the Discipline Information System is perceived as effective in various areas of school discipline management. This suggests a moderately positive perception of the DIS in its tracking functionality. This finding is supported by Ogola & Mwanja (2021) who highlighted that effective tracking enables timely action and reduces recurrence of offenses.

Majority of the respondents revealed that 25% agreed and 25% strongly agreed that the system helps in identifying students requiring further behavioural intervention, while 37.5% were neutral. Additionally, half of the respondents believe the system assists in early identification, aligning with studies such as that by Mwaura (2020), which emphasized that data-driven systems can aid in early behavioural interventions. In addition, most of the respondents (37.5%) strongly agreed and 12.5% agreed that the system promotes fairness and transparency. Only 12.5% disagreed, while 37.5% were neutral. The result indicates that a majority view the DIS as a tool enhancing procedural fairness. Research by Wambugu et al. (2019) supports that automated records reduce bias and enhance transparency in disciplinary procedures.

Regarding effectiveness of DIS, most respondents agreed that the Discipline Information System was effective in promoting discipline. Specifically, 50% agreed or strongly agreed that the DIS has been effective in tracking disciplinary issues, while 63% agreed that the DIS helped identify students who may need behavioural interventions. Additionally, 50% acknowledged the system's contribution to fairness and transparency in handling disciplinary issues. Over 75% of the respondents indicated that they regularly referred to the DIS for updates on indiscipline cases. This reflects a high level of system utilization and suggests that DIS plays a central role in managing learner behaviour. Moreover, an equal proportion agreed that there had been an improvement in student behaviour due to the use of the DIS. Similarly, 75% indicated that timely intervention based on system data significantly reduced disruptive behaviour, and 100% agreed that enforcement of school rules has positively influenced discipline.

An overwhelming 75% agreed that DIS improved student behaviour, and 75% also indicated timely interventions reduced disruptions. This correlates with McIntosh et al. (2013), who linked timely, data-driven interventions with behaviour improvements in school settings. Further, most respondents (75%) agreed that enforcement of rules using digital tools improved discipline, while 87.5% believed technology influenced disciplinary decisions. This supports Gastic (2010), who argued that objective data enables more consistent disciplinary outcomes. Finally, 50% of the respondents strongly agreed that the use of technology has positively influenced decision-making processes concerning discipline, underlining the value placed on digital data in managing student behaviour. The finding also concurs with majority of the principals who recently adopted a digital Discipline Information System that records all discipline-related incidents. They were of the view that the system allowed teachers to report cases online, while administrators monitor patterns of behaviour resulting in improved data accuracy easier to identification of students who need counselling or intervention.

Table 22

Class Teachers' views on Discipline Information System

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	
DIS has effectively been used to record or monitor students' disciplinary actions in your class.	4	10.8	5	13.5	5	13.5	13	35.1	10	27.0	100
DIS has helped to streamline the process of managing student discipline	2	5.4	6	16.2	5	13.5	15	40.5	9	24.3	100
DIS has been very effective in maintaining consistency and fairness in handling disciplinary issues.	2	5.4	4	10.8	7	18.9	15	40.5	9	24.3	100
Positive changes in student behaviour have been observed due to the implementation of the DIS	1	2.7	5	13.5	6	16.2	15	40.5	10	27.0	100
DIS has helped in identifying patterns or recurring behavioural issues among students	2	5.4	4	10.8	5	13.5	17	45.9	9	24.3	100
DIS promotes a transparent and fair approach to managing student behaviour and discipline.	1	2.7	5	13.5	4	10.8	16	43.2	11	29.7	100
DIS has helped track students discipline record which has reduced the incidences of students indiscipline	1	2.7	7	18.9	6	16.2	12	32.4	11	29.7	100
DIS has helped in preventing learners from damaging school property	2	5.4	6	16.2	5	13.5	15	40.5	9	24.3	100
DIS has allowed immediate feedback of students' behaviour pattern thus necessitating quick discipline deterrent measures.	1	2.7	5	13.5	6	16.2	15	40.5	10	27.0	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

Concerning Monitoring and Streamlining discipline, the study revealed that 62.1% of respondents agreed or strongly agreed that DIS has effectively monitored student disciplinary actions, while 64.8% believed that it streamlined the discipline management process. This confirms the role of technology in improving administrative efficiency, as suggested by Wango (2015), who highlighted the importance of timely and accurate documentation of student behaviour in fostering school order. Further, a combined 64.8% agreed or strongly agreed that the system maintained fairness and consistency in disciplinary procedures. This supports the notion that automated systems reduce human bias, creating a more equitable environment for students. This finding is in line with research by Chukwuma and Nwosu (2020) who found that digital discipline tools improve transparency, providing equal treatment in disciplinary decisions, which is crucial for student trust and compliance.

Additionally, respondents confirmed that 67.5% had observed positive behavioural changes due to the DIS, and 70.2% said it helped identify recurring behavioural issues among students. These results reflect the arguments of Simatwa (2017), who posited that tracking behavioural trends enables early intervention, reducing repeat offenses and supporting reformative discipline. Regarding Promotion of Transparency, a total of 72.9% agreed or strongly agreed that the DIS promotes transparency and fairness in behaviour management. This suggests that staff trust the system and that it enhances institutional credibility. The findings correlate with a study by Odongo and Chumba (2018), which suggests that transparent systems increase adherence to school rules and foster an environment of mutual respect between students and school authorities. A total of 62.1% of respondents agreed or strongly agreed that the DIS helps track student behaviour records, reducing indiscipline cases. Additionally, 64.8% indicated that the system helped prevent property damage by identifying at-risk students. This finding aligns with Ngugi and Mumiukha (2019), who noted that maintaining consistent behaviour records deters misconduct and improves overall school safety. Further, respondents reported that 67.5% agree or strongly agree that immediate feedback from the system supports quicker disciplinary responses. This allows for real-time interventions, reducing the severity and recurrence of behaviour issues. The findings on this aspect is supported by Welsh and Farrington (2009) who suggest that the deterrent effect of digital systems is amplified when consequences are applied swiftly after incidents.

Table 23

Class Secretaries' Responses on Discipline Information System

Statement	SD		D		N		A		SA		Total
	F	%	F	%	F	%	F	%	F	%	
DIS											
All Students are aware of DIS used to track and manage student behaviour in the school.	3	8.1	4	10.8	7	18.9	16	43.2	7	18.9	100
The system records and tracks only relevant major and minor disciplinary issues.	2	5.4	8	21.6	7	18.9	11	29.7	9	24.3	100
The existence of DIS deters students from engaging in misconduct or inappropriate behaviour.	1	2.7	4	10.8	5	13.5	19	51.4	8	21.6	100
DIS helps in maintaining a disciplined environment in the school.	2	5.4	9	24.3	3	8.1	12	32.4	11	29.7	100
All disciplinary actions are tracked or recorded in DIS.	1	2.7	3	8.1	5	13.5	15	40.5	13	35.1	100
The DIS ensure fairness and transparency in handling disciplinary issues.	3	8.1	10	27.0	4	10.8	12	32.4	8	21.6	100
DIS has helped track students discipline record which has reduced the incidences of students indiscipline	0	0	3	8.1	5	13.5	18	48.6	11	29.7	100
Sharing of discipline information through DIS has reduced indiscipline cases in the school	0	0	7	18.9	6	16.2	15	40.5	9	24.3	100
DIS has allowed immediate feedback of students' behaviour pattern thus necessitating quick discipline deterrent measures.	3	8.1	4	10.8	6	16.2	14	37.8	10	27.0	100

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; F=Frequency and %=Percentage

A significant majority of respondents indicated awareness of the Discipline Information System. Specifically, 43.2% agreed and 18.9% strongly agreed that all students are aware of DIS, representing 62.1% in total. Only 18.9% were neutral, and a small percentage (8.1% strongly disagreed, 10.8% disagreed) were unaware. This supports the argument by Wambua (2020), who emphasized that system effectiveness begins with stakeholder awareness. The high level of student awareness suggests that DIS is well integrated into school policy communication channels. The question of whether DIS records only relevant major and minor issues received a total of 54% agreement (29.7% agreed, 24.3% strongly agreed), while 21.6% disagreed and 5.4% strongly disagreed. A notable 18.9% were neutral. This suggests that while most students view DIS as focused on essential disciplinary issues, there remains a need to improve the clarity and relevance of what is recorded. According to Kariuki and Mugo (2021), clearly defined categories and transparent criteria are essential to build trust in digital discipline systems.

A strong 73% of respondents agreed (51.4%) or strongly agreed (21.6%) that the existence of DIS deters students from engaging in misconduct. Only 13.5% were neutral, and a combined 13.5% disagreed or strongly disagreed. This supports Ogola (2020), who observed that students are less likely to engage in inappropriate behaviour when they know their actions are monitored and recorded, creating a preventive effect. Over 62% of students (32.4% agreed, 29.7% strongly agreed) indicated that DIS contributes to maintaining discipline in the school. However, 24.3% disagreed and 5.4% strongly disagreed, suggesting that while the system is generally effective, its consistency or implementation may require further enhancement. This mirrors findings by Marwa and Muthomi (2019), who argued that discipline systems are most effective when paired with active enforcement and student engagement.

A large majority (75.6%) confirmed that all disciplinary actions are tracked in the system (40.5% agreed, 35.1% strongly agreed), while only a small minority disagreed (8.1%) or strongly disagreed (2.7%). This indicates high confidence in the completeness of the records maintained. This aligns with Tshabalala and Maphosa (2019), who found that digital tracking tools provide administrators with

reliable data to enforce consistency and accountability in school discipline. When asked whether DIS ensures fairness and transparency, 32.4% agreed and 21.6% strongly agreed. However, 27.0% disagreed, and 8.1% strongly disagreed, with 10.8% being neutral. This mixed view suggests that while many students trust the system, a sizable group harbours scepticism about how fairly the system is applied. According to Fombad (2018), digital discipline systems can foster trust if implemented with fairness, consistency, and avenues for appeal.

When asked whether tracking student discipline records has helped reduce indiscipline, a large portion agreed (48.6%) or strongly agreed (29.7%), totalling 78.3%. Only 8.1% disagreed, and 13.5% were neutral. This affirms the preventive value of historical behavioural data in decision-making. Nansubuga (2021) notes that a well-maintained behavioural history enables targeted interventions and early warnings, reducing repeat offenses. Students also felt that sharing discipline information via DIS has reduced indiscipline: 64.8% agreed or strongly agreed, while only 18.9% disagreed. This indicates that transparency within student records may contribute to improved behaviour through peer accountability or administrative follow-up. This is supported by Ndung'u and Kimani (2020), who found that real-time discipline communication discourages recurrence of offenses by making consequences visible. Lastly, 64.8% agreed (37.8%) or strongly agreed (27.0%) that DIS allows immediate feedback on student behaviour, enabling quick deterrent action. Only 10.8% disagreed strongly, suggesting broad support for the system's responsiveness. Kassah (2018) argues that immediacy in feedback loops is critical in reinforcing behavioural expectations and reducing disciplinary lag.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study aimed to investigate the impact of technological interventions in enhancing management of student's discipline. The study was guided by the following objectives: to establish the impact of CCTV cameras on management of students' discipline within the school environment in selected public secondary schools in Imenti North sub county in Meru County; to evaluate the impact of biometric attendance systems on the management of students' discipline in selected public secondary schools in Imenti North sub county in Meru County and to determine the impact of discipline information systems on the management of students' discipline in selected public secondary schools in Imenti North sub county in Meru County.

The first objective of the study findings revealed that CCTV surveillance was a major contributor to enhanced school security, Prevention of misconduct and creating a safe and orderly environment for both learners and staff. A significant number of respondents agreed that immediate visual feedback from CCTV footage deterred inappropriate behaviour, promoting discipline through real-time monitoring. However, there was less consensus on the use of CCTV to monitor teacher attendance, with concerns possibly linked to privacy and trust issues among staff.

Despite these concerns, teachers felt that the cameras support both student and teacher accountability, particularly with regard to class attendance and rule enforcement. Further, the findings indicated CCTV cameras improved student behaviour during classes and in common areas. Reduces classroom misconduct property damage and allows immediate feedback that informs appropriate and timely disciplinary actions.

Regarding the second objective the study findings established Biometric attendance systems enhanced accuracy in attendance tracking, reduced proxy attendance, student absenteeism and tardiness and improved punctuality. The study also revealed that Biometric attendance system moderately improves teacher-student contact hours, which indirectly foster discipline. Moreover, the findings indicated that the system significantly increases student accountability as it becomes difficult to falsify

attendance. Further, the study found that the biometric system is convenient and reliable in supporting early identification of students who may need pastoral or disciplinary attention. However, privacy and data security concerns were raised indicating a need for clear data governance policies and transparency in data usage.

In relation to the third objective the research study found that the Discipline Information System is widely regarded as an effective tool for managing student behaviour. The study revealed that the system aids in identifying students who require behavioural interventions, systematically track indiscipline cases and promote fairness and transparency in decision-making. Furthermore, the findings indicated that DIS record is a reliable information tool and a valuable reference point in disciplinary decision-making. However, its effectiveness may depend on how well its insights are acted upon by the school administration. This aligns with behavioural monitoring theory, which posits that the consistent tracking of behaviour can enhance responsiveness and early intervention, but must be paired with meaningful action to create impact.

Most respondents indicated increased confidence in managing student discipline due to technological support. This is an indication of the empowering nature of real-time monitoring and digital documentation. Majority acknowledged that technology improves the overall learning environment and student discipline, suggesting that discipline and academic performance are closely linked. CCTV cameras, biometric attendance, and the Discipline Information System were seen to work better when used in combination, providing a holistic approach to student management. Enforcement of rules, when supported by technology and clear administrative structures, was considered effective in managing student discipline. There was strong support for expanding the use of technology in other areas of student management, including early intervention and behaviour tracking. Timely recording and follow-up of disciplinary cases were seen to reduce the frequency and severity of behavioural issues. Most respondents believed that indiscipline negatively affects academic outcomes, reinforcing the importance of effective discipline management.

5.2 Conclusion

Regarding the integration of DIS, CCTV, and BAS in the management of learners' discipline, the research established that these technologies enhance decision-making processes, timely interventions, record accuracy and fairness. Additionally, the integration of these systems also creates a data-driven discipline management environment, where actions are informed by real-time evidence. This aligns with systems theory in education, which suggests that when different components such as data systems, surveillance, and attendance tracking work together, the management process becomes more effective and efficient.

The study further revealed that integration of these technological tools in school discipline management has enhanced transparency, accountability, and monitoring thus significantly improving discipline management in secondary schools. Overall, the use of these technologies has contributed to a more disciplined, orderly, and academically supportive environment.

In regard to the first objective the research established that CCTV systems significantly improve the security environment and deter misbehaviour, contributing positively to student discipline. The study found that the systems impact is highest when used for monitoring student behaviour rather than staff attendance. Further, the findings concluded that CCTV cameras serve as an effective deterrent for misconduct and help in protecting both learners and property.

In relation to the second objective the study found that Biometric Attendance System is effective in improving attendance accuracy and reducing fraudulent reporting. The systems also have a modest but positive impact on discipline, primarily through punctuality and presence. Further biometric attendance systems address absenteeism, increase punctuality, and support strategic student management.

For the third objective, the study determined that Discipline Information System plays a crucial role in tracking, documenting, and responding to student disciplinary cases. The Discipline Information System also enables systematic record-keeping, supports,

transparency, early intervention, fairness in decisions, and promotes consistent enforcement of school policies.

5.3 Recommendations

Based on the findings and conclusions of the study, the following recommendations are proposed:

- i. The government through the Ministry of education science and technology, parents and guardians should provide funding for the installation and maintenance of Closed Circuit Television Camera Systems in schools, especially in under-resourced areas.
- ii. Ministry of education, science and technology should undertake training programs for Teachers and school administrators on how to utilize Biometric Attendance Registers effectively in student behaviour management.
- iii. School administrators should leverage data from the Discipline Information System to identify behaviour trends, high-risk students, and target interventions more effectively.
- iv. Education policy makers and administrators should develop clear policies that govern the ethical and effective use of closed circuit television surveillance systems and biometric monitoring technologies to protect students' rights and improve accountability, trust and compliance among staff and students.
- v. School Board of Management should engage Parents and guardians in technological initiatives, especially where student data and behaviour tracking are involved, to ensure transparency and mutual accountability.

5.4 Suggestions for Further Research

To build upon this study, further research is recommended in the following areas:

- i. Longitudinal studies to examine the long-term impact of technology on student behaviour and academic outcomes.
- ii. Comparative studies between schools that use such technologies and those that do not, to measure their effectiveness.
- iii. Cost-benefit analysis of implementing advanced discipline management systems in low-resource school environments in terms of financial sustainability and behavioural outcomes.

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APPENDICES

Appendix I: Consent Form for Participants:

Study Title: Impact of Technology on Management of Student Discipline in selected public secondary schools in Imenti north sub county, Meru County.

Researcher: Paul Kariuki Ngige

Institution: Tharaka University

Contact Information: 0721461530

Dear participant,

You are being invited to participate in a research study about the impact of technology on the management of student discipline in secondary schools in Imenti North sub county, Meru County. The purpose of this research is to explore the perceived impact of technology on student discipline from the perspective of class secretaries, class teachers and deputy principals. This study aims to understand how various technological tools impact on student behavior and discipline management practices within educational settings.

Your participation in this study is entirely voluntary. You will be asked to complete a questionnaire regarding your experiences, observations and opinions about the use of technology in managing student discipline. Completing the questionnaire will take approximately 10 minutes of your time.

Your responses will be kept strictly confidential and anonymous. All data will be stored securely and used for research purposes only. Your participation may contribute to a better understanding of how technology can be effectively used to manage student discipline. The findings of this study may help educational institutions develop more effective strategies for promoting positive student behavior.

If you have any questions about this study, please feel free to contact

Paul Kariuki Ngige.

Email: paulocusto76@gmail.com

.....
Participant Consent:

I, the undersigned, consent to participate in the study titled “impact of technology on the management of student discipline” having read and understood the information provided in this consent form and acknowledge that I have been informed of the study’s purpose, procedures and my rights as a participant.

Participant's Signature _____ **Date** _____

Appendix II: Introductory Letter

Dear Participant,

I am a student of THARAKA UNIVERSITY currently undertaking a master degree in education management and in the process of writing my research project.

I therefore invite you to participate in a research study entitled “Impact of Technology on the management of student discipline in selected public secondary schools in Imenti North Sub County in Meru County.”

Your responses will remain confidential and anonymous. Data from this study will be kept under secure systems and reported as a collective effort. However, your participation in this study is completely voluntary. To participate in this study, therefore, kindly answer the questions on the questionnaire in utmost good faith and return the questionnaire on completion. Thank you.

Yours Faithfully,

Paul K. Ngige

Tel: 0721461530

E – Mail: paulocusto76@gmail.com

Appendix III: Questionnaire for Deputy Principals

Instructions:

- Do not write your name on the questionnaire.
- Answer all questions to the best of your ability.
- Indicate with a tick in the space provided your choice of response and provide comments where applicable

SECTION A: Demographic Information for

Please tick (✓) or fill in the appropriate option.

1. Gender
☐ Male
☐ Female
2. Age bracket
☐ 25–34 years
☐ 35–44 years
☐ 45 years and above
3. How long have you been a deputy principal?
☐ Less than 1 year ☐ 1–3 years ☐ 4–6 years ☐ Over 6 years
4. Which is your highest level of education completed?
☐ Doctorate Degree ☐ Master's Degree ☐ Bachelor's Degree ☐ Diploma in Education
5. To what extent are technological resources available in your school?
☐ Very High (e.g., full ICT labs, digital monitoring systems)
☐ Moderate (e.g., limited computer access, internet)
☐ Low (e.g., few or outdated devices, limited internet)
☐ None
6. Have you ever received training in the use of technology for managing learner discipline?
☐ Yes
☐ No
7. How often do you use technology (e.g., digital records, online behavior systems) to manage discipline?
☐ Daily
☐ Weekly
☐ Occasionally
☐ Never

SECTION B: Students' Discipline Management

This section has statements regarding the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i.	Discipline Information System has been effective in tracking disciplinary issues					
ii.	Discipline Information System has helped in identifying students who may need further behavioural interventions.					
iii.	The Discipline Information System has contributed to fairness and transparency in handling disciplinary issues.					
iv.	You often refer to the Discipline Information System for updates or incidents of indiscipline.					
v.	The overall use of technology (CCTV, Biometric, and Discipline Systems) has helped in maintaining discipline and security at your institution					
vi.	The combination of CCTV cameras, biometric attendance registers, and discipline information systems has contributed to a more disciplined and secure environment					
vii.	The use of these technologies fosters a sense of responsibility among the students.					
viii.	There has been a notable improvement in behaviour and discipline in the institution due to the use of the Discipline Information System					
ix.	Timely interventions of indiscipline cases has significantly reduced disruptive behaviour among students in the school					
x.	Enforcement of the school rules and regulations has impacted positively on the students discipline within the school.					
xi.	The use of technology has influenced decision-making processes in handling discipline matters within the school					

SECTION C: Closed Circuit Television Cameras.

This section has statements regarding the impact CCTV of on the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i.	The installation of CCTV cameras in the institution has positively affected security					
ii.	Knowing that CCTV cameras are present in the school makes you as a school administrator feel safer.					
iii.	CCTV cameras have prevented misconduct or disciplinary violations.					
iv.	CCTV cameras have been effective in helping the administration in managing student discipline					
v.	CCTV cameras have reduced stealing among students.					
vi.	CCTV cameras have effectively eliminated sneaking					
vii.	CCTV cameras have contributed to a positive learning or working environment.					

viii.	CCTV cameras have helped in protecting school infrastructure from being damaged by the learners					
ix.	Monitoring of teachers attendance through CCTV cameras has promoted class discipline management.					
x.	Immediate feedback of behaviour pattern provided by CCTV cameras enhanced discipline deterrent measures.					

SECTION D: Biometric Attendance System

This section has statements regarding the impact of biometric attendance system on the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (√) or cross mark (x).

	Statement	1	2	3	4	5
i.	You are comfortable with using biometric attendance systems.					
ii.	Biometric attendance systems are more accurate than traditional attendance registers					
iii.	Biometric attendance systems reduce instances of attendance fraud (e.g., proxy attendance).					
iv.	It is very convenient to use the biometric attendance system					
v.	Biometric attendance systems have helped in improving punctuality among students and staff.					
vi.	There is no major concerns regarding the privacy and security of your biometric data.					
vii.	Biometric attendance system has enhanced teacher-student contact hours thus promoting discipline among the students.					

SECTION E: Discipline Information System

This section has statements regarding the impact of discipline information system on the management of students' discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (√) or cross mark (x).

	Statement	1	2	3	4	5
i.	The Discipline Information System has helped in identifying students who may need further behavioural interventions.					
ii.	Discipline Information System has allowed immediate feedback of student's behaviour pattern thus necessitating quick discipline deterrent measures.					
iii.	Discipline Information System has been very effective in tracking disciplinary issues which has reduced the incidences of students' indiscipline.					
iv.	DIMS has enabled the school administrators to come up with new strategies of managing discipline cases in the school.					
v.	The Discipline Information System has contributed to fairness and transparency in handling disciplinary issues.					

vi.	As an administrator, you often refer to the Discipline Information System for updates or incidents.					
vii.	There has been a great improvement in behaviour and discipline in the institution due to the use of the Discipline Information System.					

Appendix IV: Questionnaire for Class Teachers

Questionnaire

Instructions:

- Do not write your name on the questionnaire.
- Answer all questions to the best of your ability.
- Indicate with a tick in the space provided your choice of response and provide comments where applicable

SECTION A: Demographic Information

Please tick (✓) or fill in the appropriate option.

1. Gender
 - ☐ Male
 - ☐ Female
2. Age bracket
 - ☐ 25–34 years
 - ☐ 35–44 years
 - ☐ 45 years and above
3. How long have you been a class teacher?
 - ☐ Less than 1 year
 - ☐ 1–3 years
 - ☐ 4–6 years
 - ☐ Over 6 years
4. Which form you are involved with as a class teacher?
 - ☐ Form 2
 - ☐ Form 3
 - ☐ Form 4
5. What is the category of your school?
 - ☐ National
 - ☐ Extra county
 - ☐ County
 - ☐ Sub County
6. Which is your highest level of education completed?
 - ☐ Doctorate Degree
 - ☐ Master's Degree
 - ☐ Bachelor's Degree
 - ☐ Diploma in Education
7. To what extent are technological resources available in your school?
 - ☐ Very High (e.g., full ICT labs, digital monitoring systems)
 - ☐ Moderate (e.g., limited computer access, internet)
 - ☐ Low (e.g., few or outdated devices, limited internet)
 - ☐ None
8. Have You Ever Received Training in the Use of Technology for Managing Learner Discipline?
 - ☐ Yes
 - ☐ No

9. How often do you use technology (e.g., digital records, online behavior systems) to manage discipline?

- ☐ Daily
☐ Weekly
☐ Occasionally
☐ Never

SECTION B: Students' Discipline Management

This section has statements regarding the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i.	There is more confident in your ability to manage student discipline effectively due to the presence of these technologies.					
ii.	The use of these technologies enhances the overall learning environment and discipline at the institution.					
iii.	The combined technologies of CCTV cameras, biometric attendance registers, and the Discipline Information System contribute to improved overall student discipline at the institution					
iv.	Enforcement of the school rules and regulations has impacted on the students discipline within the school.					
v.	The school has clear structures and systems to handle disciplinary referrals					
vi.	Further integration of these technologies should be done in other areas of student management or behaviour monitoring					
vii.	Records of students discipline cases have influenced the frequency of occurrence of student's indiscipline.					
viii.	Timely interventions of indiscipline cases has significantly reduced disruptive behaviour among students in the school					
ix.	Incidences of students' indiscipline have negatively impacted on the school general academic performance.					
x.	The use of technology has influenced decision-making processes in handling discipline matters within the school					
xi.	Students are more likely to follow rules and behave responsibly due to these technologies.					

SECTION C: Closed Circuit Television Cameras.

This section has statements regarding the impact CCTV of on the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to

rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i.	Class teachers are all aware of the presence of CCTV cameras in classrooms and common areas?					
ii.	CCTV cameras have improved student behaviour and discipline during classes					
iii.	CCTV cameras have been effective in helping the administration in managing student discipline					
iv.	There has been a notable reduction in classroom misconduct (e.g., talking out of turn, cheating) since the installation of CCTV cameras					
v.	CCTV cameras have positively influenced students' attitudes towards classroom rules and regulations					
vi.	Incidences of stealing among students have reduced CCTV cameras significantly after the installation of CCTV cameras.					
vii.	CCTV cameras have enhanced close monitoring of students behaviour hence effectively eliminating sneaking.					
viii.	CCTV cameras have helped in protecting school infrastructure from being damaged by the learners					
ix.	Monitoring of teachers attendance through CCTV cameras has promoted class discipline management.					
x.	Immediate feedback of behaviour pattern provided by CCTV cameras enhanced discipline deterrent measures.					
xi.	CCTV cameras have encouraged attendance of class meetings thus promoting management of class discipline in the school.					

SECTION D: Biometric Attendance System

This section has statements regarding the impact of biometric attendance system on the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i.	Biometric attendance systems have helped in reducing absenteeism in your classes					
ii.	Biometric attendance system has eliminated Chronic absenteeism among students.					
iii.	Biometric attendance system has enhanced punctuality in reporting to school.					
iv.	Biometric attendance system has encouraged attendance of routine class meetings by class teachers thus promoting management of class discipline					
v.	Biometric attendance system has enabled the school administrators to come up with new strategies of managing discipline cases in the school.					

vi.	Biometric attendance systems have helped to ensure that students do not skip or falsely mark attendance.					
vii.	The biometric attendance system contributes to students' accountability regarding attendance					
viii.	Biometric attendance systems help in identifying students who need support (e.g., for low attendance or frequent tardiness)					

SECTION E: Discipline Information System

This section has statements regarding the impact of discipline information system on the management of students' discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross (x).

	Statement	1	2	3	4	5
i.	The Discipline Information System has effectively been used to record or monitor students' disciplinary actions in your class.					
ii.	The Discipline Information System has helped to streamline the process of managing student discipline					
iii.	The Discipline Information System has been very effective in maintaining consistency and fairness in handling disciplinary issues.					
iv.	Positive changes in student behaviour have been observed due to the implementation of the Discipline Information System					
v.	The Discipline Information System has helped in identifying patterns or recurring behavioural issues among students					
vi.	The Discipline Information System promotes a transparent and fair approach to managing student behaviour and discipline.					
vii.	Discipline Information System has helped track students discipline record which has reduced the incidences of students indiscipline					
viii.	Discipline Information System has helped in preventing learners from damaging school property					
ix.	Discipline Information System has allowed immediate feedback of student's behaviour pattern thus necessitating quick discipline deterrent measures.					

Appendix V: Questionnaire for Class Secretaries

Questionnaire

Instructions;

1. Do not write your name on the questionnaire.
2. Answer all questions to the best of your ability.
3. Indicate with a tick in the space provided your choice of response and provide comments where applicable

SECTION A: Demographic Information

Please tick (✓) or fill in the appropriate option.

4. Gender
 - ☐ Male
 - ☐ Female
5. Age bracket
 - ☐ Below 18 years
 - ☐ 18–24 years
 - ☐ 25–34 years
 - ☐ 35–44 years

Which role/position do you hold in the school?

 - ☐ Deputy Principal
 - ☐ Class Teacher
 - ☐ Class Secretary
6. How long have you been a class secretary?
 - ☐ Less than 1 year
 - ☐ 1–3 years
 - ☐ 4–6 years
 - ☐ Over 6 years
7. Which form you are involved with as a class secretary?
 - ☐ Form 2
 - ☐ Form 3
 - ☐ Form 4
8. What is the category of your school?
 - ☐ National
 - ☐ Extra County
 - ☐ County
 - ☐ Sub County
9. To what extent are technological resources available in your school?
 - ☐ Very High (e.g., full ICT labs, digital monitoring systems)
 - ☐ Moderate (e.g., limited computer access, internet)
 - ☐ Low (e.g., few or outdated devices, limited internet)
 - ☐ None
10. Have you ever received training in the use of technology for managing learner discipline?

☐ Yes

☐ No

11. How often do you use technology (e.g., digital records, online behavior systems) to manage discipline?

☐ Daily

☐ Weekly

☐ Occasionally

☐ Never

SECTION B: Students' Discipline Management

This section has statements regarding the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i.	The combined use of CCTV cameras, biometric attendance systems, and the Discipline Information System has helped improve overall student discipline at the institution					
ii.	The implementation of these technologies (CCTV, Biometric, and DIS) changed the way you and your peers behave in the school.					
iii.	These technologies (CCTV cameras, biometric attendance, and DIS) promote a sense of responsibility among students.					
iv.	The integration of technology been effective in preventing misconduct such as cheating, fighting, or bullying.					
v.	Enforcement of the school rules and regulations has impacted on the students discipline within the school.					
vi.	Timely interventions of indiscipline cases has significantly reduced disruptive behaviour among students in the school					
vii.	Incidences of students' indiscipline have negatively impacted on the school general academic performance.					
viii.	The use of technology has positively influenced decision-making processes in handling discipline matters within the school					
ix.	The integration of technology has impacted positively on overall school management.					

SECTION C: Closed Circuit Television Cameras

This section has statements regarding the impact of CCTV on the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i.	CCTV cameras have been effective in helping the administration in managing student discipline					

ii.	CCTV cameras have reduced stealing among students.					
iii.	CCTV camera have reduced bullying in the school.					
iv.	CCTV cameras have effectively eliminated sneaking					
v.	CCTV cameras have enhanced close monitoring of students behaviour hence improved discipline in students					
vi.	CCTV cameras have helped in protecting school infrastructure from being damaged by the learners					
vii.	The CCTV cameras make you more conscious of your behaviour while in the school					
viii.	The use of CCTV cameras has reduced misconduct or violations (e.g., cheating, fights, vandalism) in the school					
ix.	Monitoring of teachers attendance through CCTV cameras has promoted class discipline management.					
x.	Immediate feedback of behaviour pattern provided by CCTV cameras enhanced discipline deterrent measures.					
xi.	CCTV cameras have encouraged attendance of class meetings thus promoting management of class discipline in the school.					

SECTION D: Biometric Attendance System

This section has statements regarding the effects of biometric attendance system on the management of student discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i	Biometric attendance system help reduce cheating or proxy attendance in classes.					
ii	Class secretaries are comfortable with the use of biometric attendance systems for attendance taking.					
iii	There has been a significant improvement in class attendance since the biometric system was implemented.					
iv	The biometric attendance system contributes to students' sense of accountability and responsibility.					
v	Biometric attendance system has enabled the school administrators to come up with new strategies of managing discipline cases in the school					
vi	Biometric attendance system has eliminated Chronic absenteeism among students					
vii	Biometric attendance system has enhanced punctuality in reporting to school					
viii	Biometric attendance system has encouraged attendance of routine class meetings by class teachers thus promoting management of class discipline					
ix	Biometric attendance system has enhanced teacher-student contact hours thus promoting discipline among the students.					

SECTION E: Discipline Information System

This section has statements regarding the impact of discipline information system on the management of students' discipline. Kindly respond with the response that matches your opinion. Kindly use the scale 1-Strongly disagree, 2-disagree, 3- Neutral, 4- Agree, 5- Strongly agree to rate your response on each statement in the table below by ticking as appropriate in the boxes using a tick (✓) or cross mark (x).

	Statement	1	2	3	4	5
i.	All Students are aware of the Discipline Information System (DIS) used to track and manage student behaviour in the school.					
ii.	The system records and tracks only relevant major and minor disciplinary issues.					
iii.	The existence of a Discipline Information System deters students from engaging in misconduct or inappropriate behaviour.					
iv.	The Discipline Information System helps in maintaining a disciplined environment in the school.					
v.	All disciplinary actions are tracked or recorded in the Discipline Information System.					
vi.	The Discipline Information System ensure fairness and transparency in handling disciplinary issues.					
vii.	Discipline Information System has helped track students discipline record which has reduced the incidences of students indiscipline					
viii.	Sharing of discipline information through DIS has reduced indiscipline cases in the school					
ix.	Discipline Information System has allowed immediate feedback of student's behaviour pattern thus necessitating quick discipline deterrent measures.					

Appendix VI: Interview Guide for Principals

1. Greetings and Introduction:

The purpose of the interview.

2. Demographic Questions:

- i. Length of stay/ experience as a principal in the school
- ii. The total students' population in the school.
- iii. The category of the school

3. Topic-Specific Questions:

- i. Challenges faced in managing students' discipline
- ii. CCTV Cameras and management of learners' discipline. (experience, impact and challenges)
- iii. Biometric Attendance systems and management of learners' discipline. (experience, impact and challenges)
- iv. Discipline information management system and management of learners' discipline. (experience, impact and challenges)

4. Conclusion:

- i. Impact of the integration of CCTV, BAS and DIS on overall school management
- ii. Any additional information

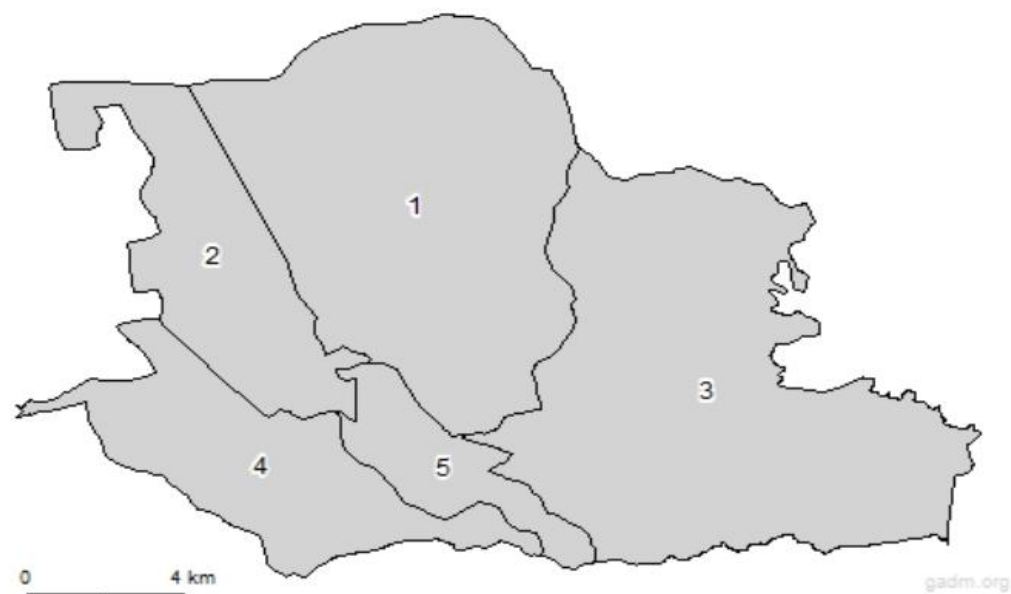
Appendix VII: Maps Showing Study Area



Source: <https://en.wikipedia.org>

World / Kenya / Meru / North Imenti

North Imenti has 5 third level subdivisions



Map ID	Name
1	Nyaki West
2	Municipality
3	Nyaki East
4	Ntima West
5	Ntima East

Source: <https://constitutionnet.org>

Appendix VIII: Tharaka University Introductory Letter

THARAKA P.O BOX 193-60215, MARIMANTI, KENYA		UNIVERSITY Website: https://tharaka.ac.ke Social Media: tharakauni Email: info@tharaka.ac.ke Phone : +254745 838 353
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**OFFICE OF THE DIRECTOR
BOARD OF POSTGRADUATE STUDIES**

REF: TUN/BPGS/PL/06/25 10th April, 2025

To Whom It May Concern

Dear Sir/Madam,

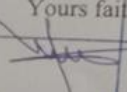
RE: PAUL KARIUKI NGIGE ADMISSION NUMBER AMT24/03146/20

Paul Kariuki Ngige is a postgraduate student at Tharaka University undertaking a Master degree in **Educational Management**. The student has completed his coursework and is expected to proceed for collection of data after successfully defending his proposal at faculty level. The title of the study is **"Impact of Integration of Technology on Management of Student Discipline in Public Secondary Schools in Imenti North Sub- County, Meru County, Kenya."**

Any assistance accorded to him will be highly appreciated.

Thank you in advance.

Yours faithfully,


Dr. Ambrose Vengi, Ph.D.
Director, Board of Postgraduate Studies.
MARIMANTI, KENYA

THARAKA UNIVERSITY
DIRECTOR BOARD OF POSTGRADUATE STUDIES
10 APR 2025
P.O. BOX 193-60215
MARIMANTI, KENYA

TUN is ISO 9001:2015 Certified...



Education for Freedom/Elimu ni Uhuru

Appendix IX: Tharaka University Institutional Scientific and Ethics Review Committee Letter

THARAKA

P.O BOX 193-60215,
MARIMANTI, KENYA



UNIVERSITY

Website: <https://tharaka.ac.ke>
Social Media: [tharakauni](#)
Email: info@tharaka.ac.ke
Phone : +254 745 838 353

INSTITUTIONAL SCIENTIFIC AND ETHICS REVIEW COMMITTEE

10th April, 2025

REF: TUNISERC/NSEC/ M045

Dear Paul Kariuki Ngige,

RE: Impact of Integration of Technology on Management of Student Discipline in Public Secondary Schools in Imenti North Sub- County, Meru County, Kenya

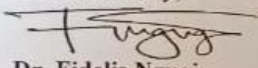
This is to inform you that *Tharaka University ISERC* has reviewed and approved your above research proposal. Your application approval number is *ISERC04023*. The approval period is *10th April, 2025 – 10th April, 2026*.

This approval is subject to compliance with the following requirements;

- Only approved documents including (informed consents, study instruments, MTA) will be used
- All changes including (amendments, deviations, and violations) are submitted for review and approval by *Tharaka University ISERC*.
- Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to *Tharaka University ISERC* within 72 hours of notification
- Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to *Tharaka University ISERC* within 72 hours
- Clearance for export of biological specimens must be obtained from relevant institutions.
- Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- Submission of an executive summary report within 90 days upon completion of the study to *Tharaka University ISERC*.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI)
<https://research-portal.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely,


Dr. Fidelis Ngugi
Chairperson, ISERC Tharaka University

TUN is ISO 9001:2015 Certified...



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Appendix X: National Commission for Science, Technology and Innovation (NACOSTI) Authorization

 REPUBLIC OF KENYA Ref No: 483976	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION Date of Issue: 21/August/2025
RESEARCH LICENSE	
	
This is to Certify that Mr.. Paul Kariuki Ngige of Tharaka University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Meru on the topic: IMPACT OF INTEGRATION OF TECHNOLOGY ON MANAGEMENT OF STUDENT DISCIPLINE IN PUBLIC SECONDARY SCHOOLS IN IMENTI NORTH SUB-COUNTY, MERU COUNTY, KENYA for the period ending : 21/August/2026.	
License No: NACOSTI/P/25/4173765	
483976 Applicant Identification Number	Ag. Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION Verification QR Code 
NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.	
See overleaf for conditions	