BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING

DEPARTMENT OF SPORTS SCIENCE

RESEARCH TOPIC: DESIGNING AN E-ATHLETE PERFORMANCE DATA RECORD-KEEPING SYSTEM FOR PRIMARY SCHOOLS IN ZIMBABWE.

Zvikomborero Chirigo

A DISSERTATION / THESIS SUBMITTED IN FULFILMENT/PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN SPORTS MANAGEMENT.

MARCH 2024

Declaration

I hereby attest that this thesis is totally mine and that it has never been presented, in whole or in part, with any other application for a degree. The work provided is completely mine, unless otherwise mentioned in the references or acknowledgments.

Signature: 

Date:……29 MARCH 2024……

RELEASE FORM

I certify that the following student CHIRIGO ZVIKOMBORERO, Student Number B193155B was under my supervision. I further certify that he/she has attended all the scheduled meetings with me and that he/she has fulfilled all the requirements that I set before him/ her as the Supervisor. It is my professional judgment that the dissertation is of a sufficiently high standard to be submitted with my name attached to it as the Supervisor. I hereby release the student without reservation to submit his/her dissertation for marking.

Name of Supervisor: Dr Talent Moyo Signature:  **Date:10/10/2024**

Chairperson:Dr L.T Charumbira Signature:  **Date:10/10/2024**

Statement of permission to use

I hereby give Bindura University of Science Education library all the intellectual property rights attached to this dissertation. As the owner of the copyright over this work, the University may store, publish or otherwise distribute the entire volume of this work or parts thereof as its discretion dictates. I further certify that where applicable all copyright permission and or other authorization to use privileged information has been obtained and attached hereto. Therefore, the University should not suffer any prejudice owing to the contents of this work.

Name : Chirigo Zvikomborero

Signature : 

Date:29 March 2024

Abstract

The purpose of this project is to create a system for recording athlete performance that is especially suited for Zimbabwean primary schools. Primary school athletes' performances are currently being recorded and analyzed, however, this process is not standard and ineffective. The creation of a digital system that would simplify the process of gathering and keeping track of athletes' accomplishments, individual records, and other pertinent data is suggested by this study. The system would guarantee that administrators, instructors, and coaches could efficiently track and evaluate the development of athletes by providing them with accurate and easily available data. Primary schools in Zimbabwe can improve their sports programs by putting this approach into place. By encouraging data-driven training methods, spotting talent, and giving athletes insightful feedback, they can eventually create a culture of excellence in sports at the school.

The Statistical Package for Social Scientists (SPSS) version 27 was utilized for descriptive statistical analysis and parametric testing, while NVIVO version 12 was utilized to arrange the qualitative data into themes.

The gathered data shows a strong dependence on pen and paper as the major way of obtaining athlete data, with just a tiny proportion using digital technologies. The findings of a one-sample t-test on a variable linked to the accessibility of record-keeping for athletes, coaches, and other authorized professionals in the context of building an e-performance record-keeping framework for Zimbabwean primary schools.

Key Words

Acknowledgments

I would like to express my sincere gratitude to my supervisor for her invaluable guidance and support throughout the research process. I am also thankful to God for the strength he kept on renewing in me, and my family for their unwavering encouragement and belief in my abilities.

I am deeply thankful to my research participants for their cooperation and willingness to be a part of this study. Their insights and contributions have been instrumental in shaping this dissertation.

I extend my appreciation to my colleagues and friends for their constant motivation and support during challenging times. Their feedback and encouragement have been crucial in completing this dissertation.

To my husband Adrian and my son Mufaro, I would have not made it this far without your unwavering support. You were a whole support system that I will always cherish, and l am forever grateful.

Dedication

This thesis is dedicated to my mother. Her affection for me knew no boundaries, and she instilled in me the importance of hard work. You mean a lot to me. Your unfailing love, encouragement, and support have sustained me throughout my life. Thank you, Mom, now and always.

Table of Contents

List of Tables

List of Figures

List of appendices

Abbreviations and symbols

AT- Athletic trainer

EMR- electronic medical record

ERKS- establish an electronic recordkeeping system

HPE- higher professional education

ICA- International Council of Archives

IRMT- International Records Management Trust

NSO-National Sports Organizations

PDF-portable document formats

RDT- Resource dependence theory

SPSS- Statistical Package for Social Scientists

Glossary

Data- the quantities, characters, or symbols on which operations are performed by a computer, which may be stored and transmitted in the form of electrical signals and recorded on magnetic, optical, or mechanical recording media.

Information technology- a set of related fields that encompass computer systems, software, programming languages and data and information processing and storage. IT forms part of information and communications technology

Record keeping-the maintenance of a history of one's activities, such as financial dealings, by entering data in ledgers or journals, putting documents in files

Software- set of instructions, data or programs used to operate computers and execute specific tasks

System- a group of interacting or interrelated elements that act according to a set of rules to form a unified whole

CHAPTER 1

THE PROBLEM AND ITS SETTING

1.1 INTRODUCTION

This chapter presents the background of the study, the statement of the problem, the significance of the study, the research questions, the research objectives, the delimitation of the study, and the study outline.

1.2 BACKGROUND OF THE STUDY

The accelerating pace of e-performance recording has not spared the sports industry, which, as noted by Barr (2016), is utilizing technology to take advantage of floods of hitherto unheard-of growth prospects. An athlete's electronic performance record-keeping system is a piece of software or data created specifically to monitor and control athlete performance. Based on this description, the use of athlete e-performance record-keeping systems in sports is not in its infancy. Barr (2016) argued that the athlete e-performance record-keeping system is arguably the most impacted by technology because the search for innovations that might help with performance record-keeping has never stopped in this industry. The athletes, their coaches, technical personnel, and strength and conditioning personnel are all taken into consideration in this area. De Fremery (2018) stated that another prospective stakeholder who would be interested in discovering fresh talent might be talent scouts based on the analysis of the game and training performance parts.

According to Rathonyi et al. (2018), athletic management systems, for example, are used to centralize, analyze, and visualize data to enhance communication, guide decision-making, and maximize performance. According to studies, primary schools use automated video analysis, positioning and tracking data, and other scouting tools throughout Europe, Asia, Australia, and the United States. Most biometric data is gathered and analyzed during training and practice or to support post-game evaluations (Akenhead et al. 2016). Radiofrequency identification (RFID), Whoop straps, and authorized wearables are new technologies that are in use globally. According

to Omorege (2016), the main advantage of such devices is that they are portable and can be worn by athletes without significantly obstructing their ability to perform standard exercises and actions. Amulla, et al. (2020), contend that wearables are even more important for athletes since they may collect data on the athlete's body chemistry and heart rate, which helps them gauge and improve their performance. Coutinho et al. (2018) presented three major applications areas of technologies related to performance measurement that are primarily distinguished by the eventuality of the aim in their utilization, and these are training, health, and rehabilitation, to further emphasize the significance of technology in improving the performance of players. As a way of demonstrating football technical performance metrics, according to Nagahar et al. (2016), are made up of players' actions throughout a game, such as the number of completed passes, the time spent with the ball, the number of passes made between players, and the number of shoots a player takes to score a goal. The focus was on the overall distance travelled by players at moderate, high, and very high speeds in the case of health-related performance measurements, according to Ric et al. (2017) and Akenhead et al. (2016).

Primary school organizations and researchers are working to improve players' all-around performance, preserve their health, and help them achieve the greatest standards in their future endeavours as the sports sector has grown in popularity around the globe (Ric et al. 2017). The performance of players is closely monitored during sanctioned, competitive games that are played as a part of regional or international competitions (Amulla et al., 2020), as well as during unofficial games like team practices, intra-team competitions, and friendly matches with other teams (Akenhead, et al., 2016). According to Coutinho et al. (2018), electronic record-keeping systems have allowed schools to set up a trustworthy registration system with necessary data display and security features. Coutinho et al. (2018) go further to assert that it is critical to build a dependable registration system with data protection and security. In the opinion of Ric et al. (2017), the creation of an automated registration system will benefit the country's sporting community since e-registration and recording performance will be storage management, retrieval integrations, analysis reporting, and information sharing.

Despite the first world making significant development, the third world has not seen the same level of advancement let alone research on the matter. According to Martinez et al (2023), the application of talent selection in Zimbabwe is challenged by a lack of tools and staff to collect and

retain data, resulting in limited standards of performance data for athletes. In Zimbabwe, primary schools employ manual record-keeping techniques including paper-based records or simple spreadsheets to track and report sports performance. This system has drawn a lot of criticism for its shortcomings, including inaccurate data, accessibility issues, and challenging data analysis (Kasale, et.al 2018; Montellano, 2017; Popi & Veerle 2017). Schools and clubs produce team cards with the details of each player and submit them to the organizing director, who is often under the National Association of Primary Schools (NAPH), to register and collect statistics during competitions. These registration forms are not kept on file for archival or other uses. The best course of action is to develop a readily available database that can be used to analyze and alert stakeholders about the performance of the athletes. As a result, many athletes quit competing at a young age since they had no inspiring memories from their past. The current study's objective is to intervene in primary athletics by creating a framework which can direct the creation of an electronic system for recording athlete performance that can substitute manual registration, which has several disadvantages. Consequently, if all the athletes' information is made available, interested parties such as sports organizations and clubs will be able to access it. It is against this background that this research is set to create a framework which can direct the creation of an electronic system for primary schools in Zimbabwe.

1.3 STATEMENT OF THE PROBLEM

The existing absence of an effective and organized system for recording and keeping athletes' performance records in Zimbabwe's primary schools has created considerable obstacles for coaches, instructors, and parents in assessing and monitoring athletes' performance. Specifically, it has been challenging to correctly record data on the athletes' performances, including their accomplishments, growth, and weaknesses due to the lack of a centralized and automated database system. Additionally, there is a great deal of room for mistakes, inconsistencies, and data loss given the existing dependence on manual record-keeping techniques. There is an urgent need to design and construct an effective, efficient, and reliable E-performance record-keeping system in Zimbabwe given the growing importance of sports and the growing interest among primary school children in taking part in these activities. The current absence of a functional and well-organized system for monitoring and keeping track of the performance records of athletes in primary schools in Zimbabwe has had a substantial negative impact. This suggested system would allow coaches,

instructors, and parents to track and manage athlete performance data precisely and easily, resulting in increased performance, improved coaching, and more accurate assessments of athletes' performances. Therefore, this research is set to design a framework which can direct the invention of an athlete e-performance record-keeping system for primary schools in Zimbabwe.

1.4 SIGNIFICANCE OF STUDY

Upon completion of the study, recommendations would be expected to provide stakeholders in the primary school fraternity with an insight into the future, to embrace athlete e-performance record-keeping system to produce top-notch players and overall improvement of sports. The research is expected to give insight to coaches, instructors, parents, and primary school authorities on the significance of integrating e-performance record-keeping systems in the sport. The study is also determined to design an athlete e-performance recording system that can allow the coaches to have access to real-time updated performance data that would help them make informed decisions about athlete development, training plans, and team selection. The system can provide parents with insights into their children's athletic performance, allowing them to support and encourage their children in areas where they are excelling or to help them improve in areas they may struggle. The athletes themselves would be able to keep track of their performance, identify areas for improvement, and set achievable goals. The Ministry of Sport can also learn from this research. The system may provide insights into athlete development trends in Zimbabwe, which will positively influence policies and regulations around physical education, especially for primary schools. This can fully provide recommendations on how best different e-performance recording systems can enhance the performance of players and ultimately contribute towards improving sport in the country by supporting and supplying the resources required for producing world-class athletes. Moreover, the study will provide the foundation for future studies. The findings of the study will be able to inspire other researchers to further investigate other grey areas related to e-performance record-keeping systems and sports technology not covered in the present study.

1.5 RESEARCH QUESTIONS

PRIMARY QUESTION

What athlete e-performance record-keeping system can be designed for primary schools in Zimbabwe?

SUBSIDIARY QUESTIONS

1. What athlete e-performance record-keeping systems are currently being used for primary schools in Zimbabwe?
2. What are the current levels of athlete e-performance record-keeping systems being used for primary schools in Zimbabwe?
3. How effective are the current athlete e-performance record-keeping systems being used for primary schools in Zimbabwe?
4. What effective athlete e-performance record-keeping system can be designed for primary schools in Zimbabwe?

1.6 PRIMARY RESEARCH OBJECTIVES

PRIMARY OBJECTIVE

To design an athlete e-performance record-keeping system for primary schools in Zimbabwe

SUBSIDIARY QUESTIONS

1. To establish athlete e-performance record-keeping systems that are currently being used for primary schools in Zimbabwe.
2. To ascertain the current levels of athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.
3. To assess the effectiveness of the current athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.
4. To design an athlete e-performance record-keeping system for primary schools in Zimbabwe

1.7 DELIMITATIONS

This study will focus on the record-keeping of athletes in primary schools and does not extend to cover secondary schools and/or colleges. Furthermore, not all primary schools in the country will

be investigated, only government primary schools only schools in the northern central district due to time constraints and accessibility.

1.8 STUDY OUTLINE

The study is divided into six chapters, each of which serves a distinct function.

The problem and its setting: The first chapter presented the study by summarizing the background, research statement, and objectives.

Review of the literature: The second chapter will be dedicated to a review of the literature.

Research Methodology: The third chapter will go through the study's methodology and processes.

Results: In accordance with the goals of the study, the fourth chapter will present and discuss the research findings.

Discussion: The fifth chapter will thoroughly examine and debate the empirical findings.

Conclusions and recommendations: Chapter six reviews the whole research process and makes recommendations based on current data for each of the study goals.

1.9 CHAPTER SUMMARY

The chapter included a background for the research on the subject matter, providing a setting, current literature, and reasons why this study was necessary. The main goals and objectives of the study are highlighted in this section. The next chapter will conduct a literature review.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This study aims to create a framework for primary schools in Zimbabwe to maintain track of athletes' records. The research chapter's objective is to provide and analyze pertinent frameworks, theories, and studies that have been done in the area of athlete record-keeping. The chapter started by conceptualizing the main ideas that were being studied. Next, it looks at frameworks that other academics have created. The study's themes will be revisited in the fourth chapter, whereas the third section chapter examine research procedures applied in related studies.

2.2 Conceptualization

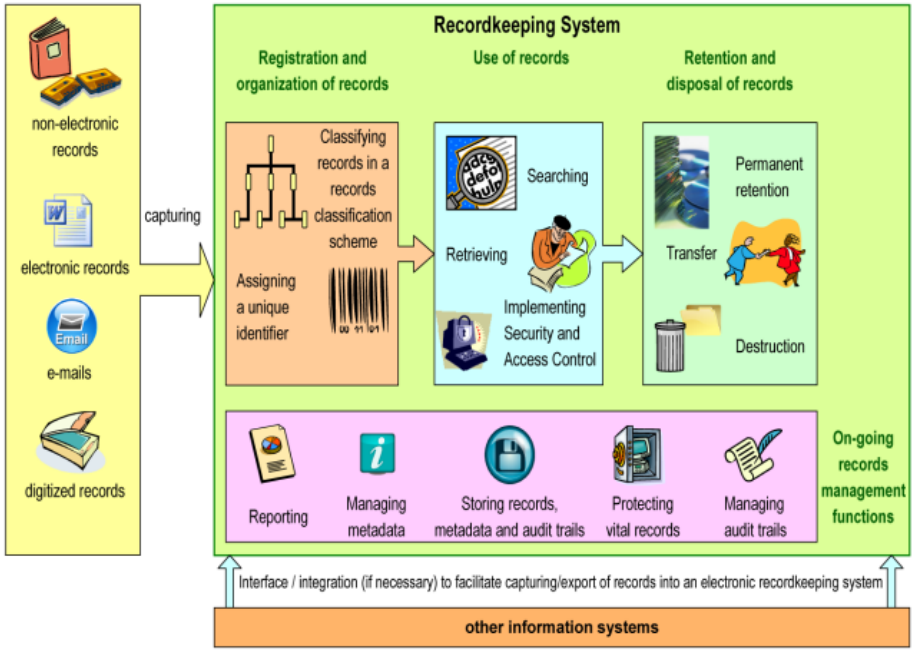
2.2. 1 Recordkeeping Systems

According to Coutinho et al. (2018), an athlete record-keeping system is a system for organizing and maintaining different kinds of data about athletes and their accomplishments. According to Amulla et al. (2020), the goal of maintaining records is to monitor and evaluate an athlete's development, accomplishments, and general performance in their particular sport. According to Matina and Ngulube (2019), a record-keeping system is a management tool for records. It is an information system, either manual or automated, with the functionality required to support and execute different records management procedures, including gathering, organizing, and classifying records to make them easier to find, use, dispose of, or preserve. In sports circles, gathering and arranging fundamental data is the first step in maintaining athlete records.

Figure 2.1 below shows the generic functionality of record-keeping systems to support the various records management processes.

Figure 2. 1

Bookkeeping system



Source: Yuee (2020)

According to Matina and Ngulube (2019), a record-keeping system ought to possess the subsequent attributes to fulfill its intended purpose:

Integrity: Access and security measures should be in place to prevent unauthorized access, destruction, alteration, or removal of records;

Compliance: It should be managed to comply with all requirements arising from the legal and regulatory environment and business, as well as expectations in which the organization operates;

Dependability: It should be able to operate continuously and regularly in accordance with established guidelines and procedures;

Comprehensiveness: It should be able to handle records in any format that are obtained from various organizational activities and transactions; and

Systematic: It must have the ability to gather, preserve, and methodically handle records.

An organization may choose to establish an electronic record-keeping system (ERKS) in response to the growing trend of electronic exchanges for official transactions. This system would help the company manage both electronic and non-electronic records in a consistent and integrated way (Yuee, 2020). All records must be captured and kept in an identifiable and appropriate record-keeping system, regardless of the format or technical environment in which they are created, generated, or gathered. According to Gesmundo et al. (2022), the goal of entering a record into a record-keeping system is to link it to other records and create a relationship between the record, its originator, and the business context in which it was created. Complete records with the necessary content, organization, and context should be collected.

- The hardware and software of the ERKS should be installed at a proper location, such as a server room meeting industry standards and other related requirements;
- Digital media such as optical disks and tape storing electronic records should be accommodated in a safe environment with suitable climate control under regular monitoring;
- A program should be set up to monitor and refresh the digital media regularly, for instance, transferring the records to a new optical disc, having regard to the life span of the media to ensure the accessibility and usability of records over time;
- A program should be set up to back up records and the associated metadata and audit trails regularly to prevent their loss or damage;
- Migration of records, the associated metadata and audit trails should be conducted through successive hardware/software upgrades to retain the content, context and structure of records for their preservation and access over time;
- The storage requirements and arrangements should be regularly reviewed to meet records management and business needs; and
- Proper documentation should be maintained on the storage arrangements.

For storage of records in other formats like audio-visual materials and microfilms, an organization should seek specialist advice to ensure their preservation is commensurate with business needs (Yuee, 2020).

2.3 Theoretical Framework

2.3.1 Records Continuum Theory

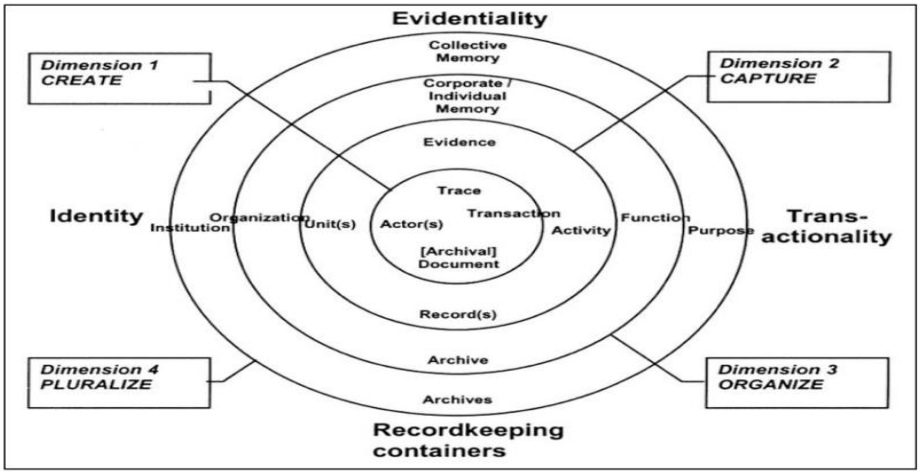
This study is anchored on the Records Continuum Theory developed by Frank Upward, an academic theorist at Monash University in Australia, with help from colleagues Sue Mckemmish and Livia Lacovino in the 1990s. As shown in Figure 2.2, an abstract model represents record-keeping-related activity as an ongoing movement in and through four dimensions and four axes.

Figure 2.2

Records Continuum Model by Frank Upward

Figure 2. 2

Records Continuum Model by Frank Upward



Source : Arpaci (2019)

According to Arpaci (2019), the records continuum is a consistent and coherent regime of management processes that spans from the creation of records (and even before that, within the design of the record-keeping system) to the preservation and use of records as repositories. It recognizes that the processes in the traditional records management and traditional archival domains are (independently) similar: creating or receiving records, classifying, appraising, controlling, maintaining, and making them accessible. It claims that these processes are so intertwined, overlapping, and integrated particularly but not exclusively in the electronic environment that any distinction is counterproductive (Khodayari and Khodayari, 2011).

Wicker, Vos, Scheerder and Breuer (2013) explain that the axes represent the basic elements of demonstrating accountability: who did what (transactionality), what evidence exists (evidentiality), and how it can be retrieved from documents and archives (evidentiality) (record-keeping containers). Create, Capture, Organize (thus maintaining up-to-date documents and archives), and Pluralize are four dimensions or layers that represent actions and documents created thus making available as evidence of collective memory) (Khodayari and Khodayari, 2011). As a result, Aparci (2019) asserts that the continuum approach views record-keeping as multidimensional, whereas the life-cycle approach views each stage as linear and distinct from the others. Mukred, Yusof, Mokhtar, and Fauzi (2019) contend that this implies that record keeping isn't time-based or sequential and that record actions are fluid and possibly concurrent: a record can be accessed for both current and archival purposes at the same time, especially if it's in digital form.

Additionally, the SERVQUAL instrument, which measures service quality in five dimensions—reliability, responsiveness, empathy, assurance, and tangibles—was established by Parasuraman et al. (1988), providing further support for the study. The dimensions find application in several settings within the educational sector as well. For example, Khodayari and Khodayari (2011) evaluated the relationship between their performance and the quality of university services using this model. They also demonstrated the SERVQUAL model's greater applicability compared to other service quality models. The use of SERVQUAL has increased during the past few decades. Sports and physical education views have received less attention than student perceptions of quality in the bulk of studies on the subject of higher education service quality.

The four components of the organizational record-keeping process—create, capture, organize, and pluralize—as well as the four axes of evidentiality, transactionality, record-keeping, and identity—are separated into four categories by the records continuum model. When represented as a theory, the continuum model shows record-keeping-based activity as a continuous movement in and through four dimensions and four axes (Mukred et al., 2019).

2.3.2 Resource Dependency Theory

This study further used the Resource dependence theory (RDT). RDT was originally developed in 1978 by Pfeffer and Salancik (2003) and its fundamental premise is that the key to organizational survival/success is in the acquirement of resources (Wicker et al., 2013). RDT also proposes that organizations' actions and processes are directly influenced by their external environment (Pfeffer and Salancik, 2003; Wicker et al., 2013). Sotiriadou and Wicker (2013) revealed that Canadian governing bodies were in the 90s forced to comply with governmental regulations to ensure the certainty of funding for future organizational survival. It is suggested that by complying with these actions, the National Sports Organizations (NSOs) can increase their certainty of resource acquisition. Sotiriadou and Wicker (2013) add that this is shown through signs of altered behavioural actions that match the principles of governmental constraints.

Organizations have been shown to position themselves using political mechanisms to better their external environment. Wicker et al. (2013) posit that this could help explain the willingness to conform to external procedures, such as the requirements to adopt key performance indicators, due to the increased certainty of gaining resources. Consequently, by placing themselves in this position, sports entities increase their dependency which leads to the adoption of politically motivated behaviours (Pfeffer and Salancik, 2003) and hence influence their degree of political autonomy (Sotiriadou and Wicker, 2003). Contrary to this argument, O'Neill, Calder and Hinz (2017) found that organizations that are dependent on regulatory governmental agencies do not conform to political activities. However, the consensus within academic literature is that upon becoming dependent on the governmental organization, behavioural actions alter which match the values of governmental constraints. These actions allow for assurance over the certainty of acquiring and maintaining resource levels.

Sotiriadou and Wicker (2013) revealed that resource dependence within non-profit sport clubs may become dependent on external consultants in an attempt to meet the conditions set by their government to obtain funding (such as using a strategic plan), thus increasing their dependence towards both the consultant and government, reducing their financial autonomy. This can be considered a perverse implication of a performance management system which requires engagement (most) resources obtained through meeting funders' requirements of implementing such a system to run the monitoring system

2.4 Methodological Review

Table2. 1

Methodological Review

Researcher	Country	Purpose	Models or Theoretical Framework Upon Which Study is Grounded	Sample Type and Size	Methodology Approach	Methodological Gap
Martin et al. (2021).	Ireland.	To construct and validate a framework for professional practice in applied performance analysis (PA) which identifies the components of practice, and the expertise which underpins it.		Systematic review methodology was used to search and identify relevant literature following the Evidence for Policy and Practice Information guidelines. For consideration, studies had to be peer-reviewed, in English and published	A framework synthesis methodology was adopted as an iterative way to develop a coherent picture of a "messy" heterogeneous collection of studies.	The substantial weight of UK publications in the sample may mean this framework is most reflective of applied PA practice in the UK, and further research is required to test its global application.

				between 2001 and 2019 inclusive.		
Gesmundo et al. (2022).	The Philippines.	To correlate the records management strategies of the administrative staff at Laguna State Polytechnic University with their professional performance.		A total of 59 administrative staff were selected as research participants.	Descriptive quantitative research.	A survey could be conducted to include several higher institutions and more so, focus on a single administrative function.
Mukred et al. (2021).	Malaysia.	To propose a framework for Electronic Records Management System (ERMS) implementation and identify the most critical factors that are related to the ERMS characteristics and cloud characteristics.	Technology Acceptance Model 3 (TAM3).	A total of 350 academicians and managers in the Yemeni public education sector were selected as participants in the study.	Quantitative approach method and complemented with questionnaires.	The study included academics only, other end users were not sampled in the study.

Winand et al. (2021).	Scotland.	The study is aimed at analyzing national sport organizations' performance management models and practices.	Resource Dependence Theory.	A total of 32 Scottish national sport organizations were sampled.	Qualitative approach. Four interviews of the governing body's representatives and one focus group including eight participants within the Scottish sports system were held.	The sample could have also included athletes.
Matina and Ngulube (2019).	Zimbabwe.	To investigate records management practices in selected primary schools in Zimbabwe as factors that contribute to governance, identity, research and memory needs.		A sample of 128 heads of primary schools in Bulawayo Province was used.	Survey approach. Self-administered questionnaires targeted 128 head teachers of primary schools in Bulawayo Province were used for data collection.	More research is needed to further delimit the study in relation to the aspect being studied for instance sports activities.
Mukred et al. (2019).	Switzerland.	To propose a framework containing factors that influence Electronic		A total of 75 related articles published in English were reviewed.	Explorative literature review	More articles in other languages could also be reviewed to ensure the

		Records Management System (ERMS) adoption in higher professional education (HPEs).				generalizability of findings.
Mampe and Kalusopa (2012).	Botswana.	The main purpose of the study was to establish the role of records management in the delivery of services by the Department of Corporate Services at the Ministry of Health in Botswana.		A census was employed in that the whole study population of 83 employees from the Corporate Services Division, Ministry of Health was targeted. However, only 59 participated in it.	This study used the case study approach but was complemented by methodological triangulation of both quantitative and qualitative approaches.	A study involving the corporate sector could also be carried out for purposes of comparative analysis.
Pallewatte et al. (2019).	Sri Lanka.	To evaluate performance of the all athletes in Sri Lanka by addressing the topic of Sri Lanka's Athletic performance and registration web-based system to improve the		The sample was composed of 25 athletes and 16 coaches.	Survey.	The selection of participants using a web-based system marginalizes other athletes with no access to the internet.

		athletics in the country.				
Riatti and Thiel (2023).	Germany.	Exploring existing evidence about the role of the body in esports.		The Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for scoping reviews (PRISMA-ScR) guidelines were used in selecting the literature for scoping review. Accordingly, 47 publications were included in this scoping review	Scoping review approach.	

2.5 Thematic Literature Review

2.5.1 Performance Recording of Athletes

The field of athletic performance recording has developed quickly in the short time it has existed. Gaining acceptance and increased credibility in the medical field and confirming the function of the athletic trainer (AT) in the medical field are two aspects of this growth. According to Montellano (2017), this means that when it comes to documentation for patient (athlete) care, communication, and ethical-legal obligations, it is vital to be held to the same standards as other medical professions. Depending on the context and state regulations, different standards for patient care and treatment documentation are needed for the performance of athletes. Meeting state, professional, and ethical standards of practice are made possible by using the proper documentation, regardless of one's level of athletic performance (Gesmundo, Glorioso, Raviz, and Apat, 2022).

Documenting the performance of an athlete has evolved over the years. Gesmundo et al. (2022) chronicled that early records were mostly hand-written, sometimes by the athletes themselves, and were rudimentary at best. With the wide variety of academic and clinical mentoring styles, experiential learning and formal education, many different views exist regarding what appropriate documentation should consist of (Abdolkhani, Halabchi, Safdari, Dargahi and Shadanfar, 2014). Likewise, Dikstra, Pollock Chakraverty and Alonso, 2014) posit that questions such as what, how and when to document continue to persist, and the nuances of the variety of work-type settings unique to the profession of athletic performance, create challenging and understandable inconsistencies. Standardization of contemporary documentation practices is essential for today's athlete performance regardless of one's employment setting. Furthermore, whether in written or electronic form, compliance with the accepted standards should be viewed as the gold standard.

According to Ahmed et al. (2010), there are four main goals for creating documentation guidelines. Above all, it is a professional obligation for athletes to adhere to record-keeping statutes and medical industry norms. Second, appropriate documentation ensures that an athlete's whole medical and performance history is recorded in a timely, accurate, and comprehensive manner. Third, proper record-keeping will facilitate communication and help to ensure a consistent level

of care among and within multiple caregivers across various settings. Lastly, incorporating best practices for documentation may serve to minimize the risk of malpractice for the AT and their employer in the event of litigation.

According to Abdolkhani et al. (2014), documentation is a contemporaneous narrative that describes athlete encounters and the athletic training services given for any medical circumstance that an athlete may meet. When a clinician is asked to recollect events at a later time, accurate and current medical records help to improve patient management and offer a clear account of the services provided (Dikstra et al., 2014). Fundamentally, documentation offers a record of a condition's initial evaluation, all interventions and treatments related to the condition, a chance to state the athlete's status in relation to their particular condition, and a written plan with objectives and results (Fragidis and Chatzoglou, 2018).

Fragidis and Chatzoglou (2018) contend that communication between clinicians is imperative to managing the patient (athlete), allowing for collaboration and consultations, and providing a continuum of care. Accordingly, communication with the patient (athlete) can serve to educate them on their condition, the proposed treatment (training) program, and the expected outcomes. Patient (athlete) communication can also serve to facilitate understanding and expectations of short and long-term goals. Gesmundo et al. (2022) pointed out that there are a number of additional benefits of thorough documentation and record-keeping. The list includes, but is not limited to; compliance with guidelines for third-party reimbursement; collecting data to assist with staffing, budgeting, inventory, and facility needs; assessing interventions for quality assurance purposes; facilitating concise and temporal communication between caregivers and stakeholders; and contributing information that may lead to practice-based evidence (research informed by clinical practice).

Inadequate documentation of the performance of an athlete may lead to less than desirable athlete outcomes and pose a risk to oneself, one’s employer(s), one’s patients, and potentially the profession as a whole. By establishing minimum guidelines and recommendations here, and implementing them into practice, athletes would be adhering to optimal measures of risk management. In today’s litigious society, Gesmundo et al. (2022) suggest that it is more important than ever to have thorough records of an athlete’s performance. Comprehensive documentation should provide a complete history of the athlete's care if a lawsuit is filed involving the athlete.

Given the lengthy timeframe between when an alleged incident may have occurred and when a claim is made, having the ability to refer back to written notes best serves an athlete in recollecting the facts of a case.

Fragidis and Chatzoglou (2018) aver that diligent decision-making about training and performance is essential and sporting bodies should embrace a new developing culture where performance coaching is integrated into a holistic approach to comprehensive health management and decision-making. More so, Ahmed et al. (2010) highlight that the secret of a successful performance outcome is to take a broad view of the athlete's health, not only pathology-driven but also at a functional level. This holistic approach includes strategies to reduce the risk of injury and illness as well as the management of existing health issues. Medical teams should also be prepared to prioritize the utilization of sports medicine and science to optimize and improve performance, especially for elite athletes with established health problems or disabilities (Abdolkhani et al., 2014; Harris, Brison and Dixon, 2021).

2.5.2 Significance of Electronic Record Management

An electronic medical record (EMR) is a real-time, athlete-centered digital version of an athlete's paper chart that is developed and managed within a single sports institution, according to Martin, Donoghue, Bradley, and McGrath (2021). A sports medicine specialist has a wide selection of EMR systems to select from. Certain products are made especially for athletes, while others are meant to be used by different types of caretakers at an establishments, like clinics, hospitals, and college health centres. EMR use has several benefits in both situations. The following is a list of some of the advantages:

- Providing accurate, up-to-date, and complete information about athletes at the point of care.
- Enabling quick access to athletes' records for more coordinated and efficient care.
- Securely sharing electronic information with athletes and other sports personnel.
- Helping providers more effectively diagnose athletes, reduce medical errors and provide safer care.
- Improving athlete and provider interaction and communication, as well as health care convenience.

- Helping promote legible, complete documentation and accurate, streamlined coding and billing.
- Enhancing privacy and security of athlete data.

To best serve the athlete, it is crucial to take into account how the specialists combine their unique areas of competence. Over the past 20 years, the importance of evidence-based sports medical practice has grown, particularly with the creation of specialized training programs around the globe (Mukred, Yusof, Al-Moallemi, Mokhtar, and Hawash, 2021). The area of athlete-centred treatment and decision-making has also advanced.

Mukred et al. (2021) state that preference-based medicine relies on views from patients and families (athletes, coaches) about their specific goals of care as well as treatment preferences in light of a realistic assessment of risks and benefits. That assessment requires sports medicine clinicians to systematically find and appraise the available medical evidence and synthesize and communicate it effectively to athletes and coaches. Clinicians must then gather critical evidence about values and preferences from athletes and coaches (Haugen, Seiler, Sandbakk and Tonnessen, 2019). Finally, clinicians, athletes and coaches must integrate both types of information to reach the optimal decision.

In conjunction with a New Zealand-based software company, the UK Athletics (UKA) medical team developed a bespoke electronic medical record (EMR) keeping and health monitoring system, the UKA Medical and Science Profiler. Doctors and physiotherapists used this online EMR system not only to document important health and performance events, special investigations, and treatments but also as a real-time 'readiness to train and compete' colour-coded guideline for funded Olympic and Paralympic athletes (Haugen et al, 2019). For this, they used a five-colour traffic light system shown in Table 2.1, based on the current health status for each active diagnosis to advise the athlete, individual coaches, and the Head Coaches on 'fitness to train and compete' issues after regular clinical assessment and reassessment of the athlete.

This system, as explained by Dikstra et al. (2019), assisted the medical team in responding appropriately to the inevitable element of risk-taking in elite sporting performance, based on the concept of voluntary and informed decision-making to train and compete. Whether there is a truly voluntary assumption of risk and how elite athletes are possibly influenced to make decisions to compete against their better judgment, are beyond the scope of this study.

Table 2.2:

The five-colour health and performance risk grading system

Ta

Health status: state-specific conditions where applicable	Medical/injury (health) risk	Performance risk*
Healthy—no illness/injury	**Minimal** risk to your future health based on your current health status *It should be noted that this grading is fluent and might change at any time should you become ill or injured. It is your responsibility to consult with a Sports Physician or Physiotherapist immediately if you have any health concerns*	**Minimal** risk of suboptimal performance based on your current health status and the nature of the sport/event *It should be noted that this grading is fluent and might change at any time should you become ill or injured. It is your responsibility to consult your coach/manager immediately if you have any concerns*
Asymptomatic chronic illness/injury (well controlled)—for example ► Asthma—well controlled; ► Insufficient Vitamin D; ► Previous ACL injury	**Low** risk to your health due to the nature of the conditions stated in column one *It should be noted that this grading is fluent and might change at any time should the condition(s) become symptomatic. It is your responsibility to consult with a Sports Physician or Physiotherapist immediately if you have any health concerns*	**Low** risk of suboptimal performance due to the nature of the conditions stated in column one and the demands of the sport *It should be noted that this grading is fluent and might change at any time should the condition(s) become symptomatic. It is your responsibility to consult your coach/manager immediately if you have any concerns*
Symptomatic illness/injury in full training/competition—for example ► Previous ACL/partial meniscectomy with mild effusion/pain associated with loading/training	**Mild** risk to your health due to the nature of the conditions stated in column one *It should be noted that this grading is fluent and might change at any time should the condition(s) become symptomatic. It is your responsibility to consult with a Sports Physician or Physiotherapist immediately if you have any health concerns*	**Mild** risk of suboptimal performance due to the nature of the conditions stated in column one and the demands of the sport *It should be noted that this grading is fluent and might change at any time should the condition(s) become more symptomatic. It is your responsibility to consult your coach/manager immediately if you have any concerns*
Symptomatic illness/injury with modified training—for example ► Recent stress fracture, asymptomatic and doing modified training but still unable to sustain normal training load	**Moderate** risk to your health due to the nature of the conditions stated in column one *It should be noted that this grading is fluent and might change at any time should the condition(s) become symptomatic. It is your responsibility to consult with a Sports Physician or Physiotherapist immediately if you have any health concerns*	**Moderate** risk of suboptimal performance due to the nature of the conditions stated in column one and the demands of the sport *It should be noted that this grading is fluent and might change at any time should the condition(s) become more symptomatic. It is your responsibility to consult your coach/manager immediately if you have any concerns*
Symptomatic illness/injury—no training—for example ► Pneumonia with high fever ► HOCM†	**High** risk to your health due to the nature of the conditions stated in column one **The medical advice is that training and competition should be avoided** *It should be noted that this grading might be fluent and might change at any time should the nature of the condition (s) change. It is your sole responsibility if you decide not to adhere to the medical advice and to consult with a Sports Physician or Physiotherapist immediately if you have any further concerns*	**High** risk of suboptimal performance due to the nature of the conditions stated in column one and the demands of the sport *It should be noted that this grading is fluent and might change at any time should the condition(s) become less symptomatic—consult your coach/manager immediately if you have any concerns*

Source: Haugen et al. (2019)

The five-colour health monitoring system was simplified to a three-colour system in the weeks before and also during major competitions:

- Green: healthy; low risk
- Orange: some health issues; moderate risk
- Red: significant health issue; high risk

According to Haugen et al. (2019), when ill or injured, the athlete and head coach (in conjunction with the personal coach, the lead event coach and the medical team) would then decide on their level of tolerance of risk and further competition. The decision to compete despite injury or illness was influenced by several intrinsic (type of injury) and extrinsic (level of competition) factors.

This approach is very similar to the one recently proposed: The risk/tolerance approach to the pre-participation examination (Martin et al., 2021). After scrutiny of the individual player's medical and performance history followed by a thorough physical examination, the medical staff assesses the level of risk that a player will be unable to perform or safely compete initially and throughout the season. The players are sorted into one of four classifications based on the assessment of risk:

- Class 1: Healthy; low risk,
- Class 2: Some health concerns; moderate risk,
- Class 3: Significant concerns; great degree of risk,
- Class 4: Risk too great from a MEDICAL point of view.

It is then the management's ultimate task (owner/president/ team manager/head coach) to decide on the level of tolerance of each player's assessed risk (Martin et al., 2021).

2.5.3 Importance of Recordkeeping in Educational Institutions

Any educational institution, regardless of the level, relies heavily on records. Through records, it recognizes and demonstrates orderly and systematic leadership and administration. Furthermore, records provide transparency to everyone who benefits from the institution, including individuals and stakeholders (O'Neil et al., 2017). Transparency of records only serves to demonstrate the institution's informative progress and equitable service delivery to its stakeholders. As cited by Ahmed et al. (2010), the academic service life and sporting performance of a student and their relationship with the educational institution might not end, given that students may return to the institution after graduation to request relevant academic documents, either to further their education or to obtain a referee note. Due to its strategic role in management, records are also one of the most important contributors to an organization's success. As a result, records, like any other business resource, must be managed systematically (Arpaci, 2019).

For any organization to function effectively, record keeping and good record management are also considered necessary (Gesmundo et al., 2022). While the study of Mukred et al. (2021) stated that in educational institutions, record keeping, and management are essential, the importance of institutions cannot be overstated. The institution's long-term viability is heavily reliant on the availability of useful records. As a result, records play an important role in education management, from the institution's founding to the stages of development, implementation, monitoring, evaluation, and renewal of its programs, and these are vital pieces of information for the

institution's continued survival. Moreover, according to O'Neil et al. (2017), good records management improves the efficiency and effectiveness of public service delivery by reducing litigation risks, promoting accountability and transparency, ensuring compliance with regulatory requirements, and promoting informed decision–making. Furthermore, every strategy implemented by institutions is vital for the order of records. Thus, educational institutions' policies help ensure that the system of creating, modifying, and preserving records runs smoothly. Furthermore, Yuee (2020) indicated that organizations and individuals commonly need to consult records of previous activities and decisions in the course of their business activities, for instance, to provide background information, establish the existence of a precedent, or substantiate or refute a claim or allegation.

In this case, records are essential to an organization's administrative function. Furthermore, Mukred et al. (2019) emphasized that registry staff must record, keep, and manage these records using good record management practices. Their ability to effectively manage these records will determine the quality of records/information the educational institutions will have and the type of decision they will make, as well as their job performance. However, Matina and Ngulube (2019) noted that in public educational institutions, the lack of adequate equipment to effectively manage electronic records is a major indictment of the administration's commitment to record-keeping. Similarly, O'Neil et al. (2017) mentioned that many students have suffered as a result of poor records management in terms of credentials, exam scripts, and results at many educational institutions. This was also the issue raised by Dikstra et al. (2019) that due to poor records organization, retrieving students' academic and athletic records was slow and time-consuming.

According to Fragidis and Chatzoglou (2018), records management is a must-have function for industries, charitable organizations, government agencies, civic groups, medical, commerce, financial, schools, colleges, universities, and other types of entities that generate information that must be kept for a specific amount of time. As explained by Lush and Yuee (2020), keeping records straight is not only good business practice but also necessary for running a productive, well-functioning company. The foundation for business intelligence and the ability to make data-driven decisions that affect the bottom line is having a proper record management system. Moreover, academic records management is an essential tool in the educational institution administration's effective and efficient operations of students' records (Mukred et al., 2019). Effective records

management is one of the strategies for ensuring quality assurance in educational institution management (Matina and Ngulube, 2019). Records help with decision-making, documenting public operational processes, providing evidence of policies, decisions, transactions, and activities, and assisting the university in legal cases (Gesmundo et al., 2022). Thus, all schools must take responsibility for the proper storage and management of their records.

Clear, consistent, and organized records are essential for maintaining compliance and avoiding future issues (Fragidis and Chatzoglou, 2018). For example, developing effective office filing policies can make it easier to locate important documents. No matter how much documentation is completed on computers, there will always be a portion that must be printed and filed by hand. Regardless of how detailed an office filing policy is, someone must be responsible for implementing it daily for it to be effective (Mukred et al., 2019). This is important as Yuee (2020) emphasized that losing important and sensitive data can have a significant impact on business operations. Backups ensure that at least one additional copy of important files can be easily restored if the originals are lost or damaged (Montellano, 2017).

The management of an institution's records determines its reliability and trustworthiness. As such, records must be stored in a safe environment that ensures accessibility and protects records from environmental damage (Yuee, 2020). According to Gesmundo et al. (2022), a well-kept record can protect the institution in situations where the legal defence of their actions is required. Documentation also ensures a level of professionalism and evidence of practice improvement.

2.5.4 Electronic Records Management

The development of information technology (IT) and the widespread use of networked computers to conduct business have resulted in exponential growth of records being created digitally. More and more records relating to decision-making and program delivery are created and kept in electronic forms such as e-mails, spreadsheets and video recordings (Yuee, 2020). However, Abdolkhani et al. (2014) caution that electronic records have a vulnerable nature and present unique challenges in managing an organization’s records because of -

- The fragility of the media such as magnetic tapes, optical discs and USB drives upon which they are recorded;
- The dependency on technology to allow access and use of electronic records which cannot be read directly without the aid of computer software and hardware;

- The ease of manipulation for instance the updated, deleted, altered intentionally or inadvertently without being discovered; and
- The absence of self-evident and ready contextual information for example who created it, when, to whom was it sent and why, to enable the records to be understandable and useable over time.

Having regard to the above considerations and the need for proper controls over electronic records, Fragidis and Chatzoglou (2018) contend that new records management policies, strategies, practices, procedures and tools benchmarked against international records management standards and best practices are required to support efficient and effective management of electronic records and non-electronic records under such an environment in an organization. Electronic records management (ERM), which advocates the adoption of electronic means to manage electronic and non-electronic records in a consistent and integrated manner, has therefore evolved in recent years to provide the solution (Yuee, 2020).

Based on the ERM implementation experience of some of the developed countries/regions Matina and Ngulube (2019) contend that an ERKS, which is designed and developed in accordance with well-established records, management principles and practices and can support efficient business operations of an organization, is commonly adopted as a solution to drive ERM in office setting. By definition, an ERKS is an information/computer system with the necessary records management capabilities designed to electronically collect, organize, classify and control the creation, storage, retrieval, distribution, maintenance and use, disposal and preservation of records throughout the life cycle of records (Yuee, 2020). It aims to manage records with the desired levels of confidence and integrity, by combining both advantages of electronic ways of working with well-established records management principles (Mukred et al., 2021).

As with the development of other IT systems and in line with the international best practices and experience of other countries/regions in taking forward ERM, it is incumbent upon an organization to develop a set of functional requirements which not only describes the characteristics of a good ERKS but also helps the organization design, develop and implement an ERKS compliant with its records management policy and requirements (Mukred et al., 2019).

Having regard to the experience of overseas jurisdictions in implementing ERKS, Yuee (2020) argues that ERM is not just to have a proper ERKS in place though it is an essential component.

The successful implementation of ERM and ERKS in an organization also depends on the following critical success factors -

- Formulate ERM policy and strategies and integrate them as part of the corporate records management program and define clearly the roles and responsibilities of staff in managing records;
- Foster a corporate culture of taking responsibility for records management among all staff members and adopt electronic means to manage records;
- Analyze business processes before incorporating ERM processes into business operations;
- Provide training and support to ensure compliance with the corporate records management policy and requirements; and
- Develop practices and guidelines in managing electronic records to guide staff members.

Given the complex issues involved, including functional and technical requirements for the IT system, and the key success factors mentioned above, Winand et al. (2021) assert that organizations wishing to pursue ERM and implement an ERKS should conduct a study to examine their readiness for ERM before embarking on the project.

2.5.5 Requirements for Management of Electronic Records in Sport

There have been attempts globally by several international agencies, to develop standards and best practices for managing electronic records. These agencies include the International Standards Organization, the National Archives of Australia, the DLM Forum, the International Records Management Trust (IRMT), the International Council of Archives (ICA) and The National Archives of the United Kingdom (Mukred et al., 2019). As observed by Montellano (2017), these requirements are an attempt to provide standard guidelines for enhancing best practice, professionalism and effectiveness of systems deployed in managing electronic records. The requirements stipulate what would be the acceptable capabilities for systems used for managing electronic records in electronic environments.

A literature search across these entities reveals that the requirements presented by all the institutions are identical in substance, which confirms a sense of consensus across these entities on what would constitute fundamental requirements for the successful management of electronic records. Accordingly, Matina and Ngulube (2019) argue that the origin of these requirements is

not indicated in the literature but what emerges is that the institutions tend to borrow from each other, make modifications and remain unanimous on the general requirements.

For instance, the ICA refers to its version as principles and functional requirements for records in electronic office environments. The ISO adopted the ICA version and made this the ISO 16175 standard titled the same way. The National Archives of the UK refers to their version as "Requirements for Electronic Records Management Systems" (Matina and Ngulube, 2019). The IRMT has also developed guidelines under its Training in Electronic Records Management (TERM) project. The National Archives of Australia provides guidelines for implementing an electronic document and records management system key considerations (Gesmundo et al., 2022).

Several standards have also been developed to provide guidelines for managing electronic records. Some of these are:

- ISO 23081-1:2006 Metadata for records - Part 1: Principles.
- ISO 23081-2:2009 Managing metadata for records - Part 2: Conceptual and implementation issues.
- ISO 23081-3:2011 Managing metadata for records - Part 3: Self-assessment method.
- DoD 5015.2-STD US Department of Defense: Design Criteria Standard for Electronic Records Management Applications.
- British Standard BS 10008:2008: Evidential weight and legal admissibility of electronic information –specification.
- ISO 15836 – Information and documentation: Dublin metadata element set.
- ISO/TR 18492:2005: Document Management Applications – Long-term preservation of electronic document-based information.
- ISO/TR 15801:2005: Electronic Imaging – Information stored electronically
- Recommendations for trustworthiness and reliability (published locally as SANS 15801:2005).
- ISO 19005-1:2005: Document management – Electronic document file format for long-term preservation. Part 1: Use of PDF 1.4 (PDF/A-1) (published locally as SANS 19005-1:2006).

These requirements provide guidelines for managing electronic records within the continuum from creation to disposal (Gesmundo et al., 2022). These guidelines include the following:

- **Creation and capture of Electronic records:** The ICA provides that "Electronic records management systems must capture the content, structure and context of records to ensure they are reliable and authentic representations of the business activities or transactions in which they were created or transmitted". It also requires that electronic records systems should be integrated with business applications that generate electronic records so that the records can be captured within the electronic records management systems (ICA 2008: Section 3.1). The MoReq standard requires that ERMS must capture "the content of the electronic record, including information defining its form and rendition and information defining the structure and behaviour of the electronic record, retaining its structural integrity (for example, all the components of an e-mail message with attachment(s), or of a web page, with their links)".
- **Classification:** Classification refers to the logical arrangement or grouping of records to facilitate description, storage, search and retrieval (ISO 15489-1, 3.5). Systems for managing electronic records must enable the classification of records at all levels of aggregation (ICA 2008). Classification helps determine the relationship between records and establishes hierarchies that facilitate better storage of and faster access to information. This is important in enhancing the efficiency and effectiveness of business operations. The MoReq standard demands that the classification of electronic records within electronic records management systems must reflect the organization's standard way of classifying information. It should not limit the number of levels that can be accommodated in a classification scheme (MoReq 3.1).
- **Description (Metadata):** ISO 15489 Standard defines metadata as, data describing the content, context and structure of records and their management through time (Section 3.12). It describes the record, including its contents, context, structural components, conditions of use and security, and relationships with other records, with people and with business being transacted. Metadata also helps identify past and future events, which document actions affecting the record for instance amendments, revisions, etc. which help in affirming the authenticity, integrity and reliability of the records and information (Fragidis and Chatzoglou, 2018). The MoReq standard requires that in managing electronic

records, metadata definition should enable different sets of metadata elements for different types of records. Systems for managing electronic records should also permit defining metadata in different formats including alphanumeric, dates and logical data types (Yuee, 2020). The United States Environmental Protection Agency proposes that the following attributes should be captured as part of metadata: office of origin; keysearch words; date; author; file number/code; authorizers if any; security classification; disposition date; and version.

- **Management in the continuum:** while managing records throughout the continuum, Yuee (2020) suggests that the systems for managing electronic records should be able to: distinguish records from non-record materials; identify the retention-disposition scheduling; allow for the disposition of records – either destruction or archiving; identify the status of records current, semi-current or non-current. Support for various formats of electronic records including portable document formats (PDFs), word documents, spreadsheets, text files, etc. should be possible to enable versatility in access.
- **Access and Security:** Systems for managing electronic records should provide for possibilities of access options to electronic records, offline and online, as applicable. Access rights should be granted based on role-based profiles and responsibilities. In terms of security, the system should provide robust security capabilities to protect the records from unauthorized access, depreciation and damage (Yuee, 2020). It should allow for backup of records. The ICA requires that audit trails should be captured for all actions on the system and any changes to documents must be documented. Security levels should be enforced at all levels of system granularity – file, folder and system levels. It should also be enforced across the online data transmission lines to protect the records against online threats like eavesdropping and information hijacking (Arpaci, 2019). Information encryption and digital signatures are predominant capabilities for protecting information while in online transit (Fragidis and Chatzoglou, 2018).
- **Search and Retrieval:** The ICA states that electronic records systems should "provide a flexible range of functions that operate on the metadata related to every level of aggregation and on the contents of the records through user-defined parameters to locate, access and retrieving individual records or groups of records and/or metadata" (Mukred et al., 2019). Adequate systems for managing electronic records should allow users a variety of search

criteria and capabilities using all metadata fields available. They allow also for search within the content of the documents. Capabilities like optical character readers and intelligent character readers are essential to enable narrower, specific and unique searching and retrieval of records (Yuee, 2020). They should also enable free text and Boolean searches as well as query-define searches. The MoReq standard provides that the electronic records system's search facilities should be integrated and should, to users, appear the same for all levels of the classification scheme. In other words, users should see the same interface, features and options whether searching for classes, files or records (Gesmundo et al., 2022).

- **Retention and disposition:** retention schedules define how long records should be kept in the operational system before being removed. Disposition refers to how the records will be discarded when they are removed from the active system either, destruction, transfer or archiving (Matina and Ngulube, 2019). In managing electronic records, destruction would mean deletion from hard drives or crashing of auxiliary media where applicable.

  Both retention and disposition are guided by legal and regulatory requirements as well as an organization's policies. According to MoReq model, a good system for managing electronic records must provide a function that specifies retention schedules, automates reporting and destruction actions, and provides integrated facilities for exporting records and metadata. It should also restrict any changes on retention/disposition schedules to the system administrator (Gesmundo et al., 2022). Retention and disposition scheduling is essential in managing electronic records because it has an impact on the efficiency and effectiveness of the records management processes. Removing unnecessary records, optimizes the costs that would have been incurred managing. It also reduces the volume of records hence speeding up search, and retrieval and improving access (Yuee, 2020). For electronic records, in particular, removing unwanted records from the storage media creates a room that allows the retrieval process to be faster since the search is narrowed. This can be seen in how fast a computer processes the search query because the size of the metadata database is equally reduced. Within the public sector, legal requirements must be given priority when defining retention-disposition schedules (Fragidis and Chatzoglou, 2018).
- **Electronic records preservation and archiving:** Preservation of electronic records is concerned with ensuring the electronic records remain available for use for the duration

they are needed. It affects records in, active, semi-active or non-active phases. In the context of e-government, this is very important given the demands to provide information over time for compliance, accountability, administrative, informational value or even to serve litigation processes (Mukred et al., 2021). The primary demand in preserving electronic records is to maintain the availability and usability of the records over time as technology changes and as they remain necessary for business operations. Systems for managing electronic records should have strategies for the long-term preservation of the electronic records as guided by the retention-disposition schedule (Yuee, 2020).

Matina and Ngulube (2019) observe that digital records present many preservation challenges due to rapid changes in both hardware and software. As a result, systems for managing electronic records must conceptualize and provide for mechanisms preserving the records over time, both at hardware and software levels. A reference model for an open archival information system (OAIS) was developed by the Consultative Committee for Space Data Systems in 2012 (the OAIS Model) provides fundamental guidelines for digital preservation that could help in preserving electronic records (Arpaci, 2019).

Yuee (2020) reveals that digital preservation systems are generally separate from electronic records management systems and it would require operational interoperability for adequate records preservation to be achieved. In other words, when records are captured in the electronic record management system, they may require to be transferred into the digital repositories for long-term preservation during the disposal phase. This would imply, depending on the preservation strategy adopted, the interoperability between the electronic records system and the digital preservation environment has to exist along with the software and hardware used, and the document formats supported by both.

2.6 Chapter Summary

The chapter has reviewed athlete record keeping systems which are being used in elite sports. The chapter has shown that record-keeping systems in primary school sport were thinly covered in literature. Many of the views pertaining to record-keeping systems were found in domains outside the scope of the study. However, the purpose of this study is to close this yawning gap through

producing evidence-based e-record record-keeping tools for collecting and analyzing data in primary school sports.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

This chapter serves to describe the philosophical underpinnings and outlines methodological choices made in this research. The discussion revolves around the following points: the research purpose, research paradigm, approach to theory development, methodological choice, primary research strategy, time horizons, choosing research participants, data collection procedures, and quality assurance and compliance measures.

3.2 RESEARCH PURPOSE

This research is exploratory, to gain insights and gather preliminary data. Saunder (2023) asserts that exploratory investigations are most appropriate for fields of inquiry that have received less attention from previous research and literature. The researcher will use the exploratory design to gather primary data from primary schools through surveys, interviews, and observations. The study collected information on the current record-keeping practices, the challenges faced, and the needs and requirements of the schools. This study was not only limited to gaining insights about the current situation but is also determined to find solutions to the problem. Based on the collected data, the study will explore potential solutions and technologies that can be implemented to improve athlete record-keeping in primary schools. This might entail creating an e-athlete record framework, mockups, and wireframes. Since the research may provide policies, procedures, and educational resources to promote the implementation and adoption of the framework in primary schools, it can be referred to as an interventional study.

3.3 RESEARCH PARADIGM

Pragmatism research philosophy is highly suitable for a research study aimed at designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe. Saunder et al. (2023) argue that pragmatism places a strong emphasis on practicality, problem-solving, and real-world relevance, making it the ideal approach for a study that aims to design a practical and useful framework for primary schools. It ensured that the design of the framework considers the existing

resources, infrastructure, and capabilities of these schools. This philosophy urged the researcher to engage with teachers, students, and administrators to gain insights into the specific needs and challenges faced by primary schools in Zimbabwe when it comes to athlete e-performance record keeping. The pragmatism research philosophy emphasizes problem-solving (Doldor et al., 2017). In this study, pragmatism drove the researcher to identify and address the challenges faced by primary schools in Zimbabwe in maintaining athlete e-performance records. It encouraged the researcher to critically evaluate the existing record-keeping practices, identify gaps, and propose innovative solutions to overcome these challenges. The pragmatism research philosophy emphasizes real-world relevance. It recognizes that research should have direct implications and applications in the real world (Saunder et al., 2023). In the context of this study, pragmatism would focus on creating a framework that aligns with the needs and expectations of primary schools in Zimbabwe. Tobi and Kampen (2018) argue that pragmatism is most appropriate since it offers the advantage of utilizing many techniques and paradigms while emphasizing common meanings and achieving coordinated action. This research will therefore apply the positivist and interpretivist approaches. These approaches-involved consulting experts, conducting pilot studies, and actively engaging stakeholders to ensure that the designed framework effectively addresses the identified issues.

3.4 APPROACH TO THEORY DEVELOPMENT

The research took an abductive approach to theory development, as informed by Saunders et al. (2023), who stated that a topic with a wealth of information in one context but far less in the context in which one is researching may lend itself to an abductive approach, allowing the researcher to modify an existing theory. More studies have been undertaken in the field of sports e-performance recording and analysis, however, elementary schools in Zimbabwe continue to fall behind when compared to other best practices across the world. Saunders et al. (2023) also found that pragmatists and critical realists tend to perform abductive research, which further supports the researcher's choice of theory construction technique. Several arguments have also been seen in favour of this approach. Miles et al. (2019) opine that abduction research design allows for the exploration of multiple factors in this case, such as technology, education, and sport. Moreso, it then allows the researcher to consider various perspectives leading to innovative and effective solutions. In the view of Newhart and Pattern (2018), the abductive approach involves an iterative

process of observation and pattern recognition. Therefore, this iterative approach is well-suited for designing a framework as it allows for continuous refinement and improvements based on feedback and existing literature.

3.5 METHODOLOGICAL CHOICES

This study used mixed methods research to create an athlete e-performance record-keeping framework for Zimbabwean elementary schools. The procedure would entail integrating quantitative and qualitative research methodologies in a complimentary manner to produce a more full and nuanced knowledge of the problem at hand. Tobi and Kampen (2018) endorse this strategy since using mixed methodologies allows for data triangulation, which increases the validity and dependability of the conclusions. According to Miles et al. (2019), the quantitative and qualitative study findings might be compared to discover areas of agreement and disagreement, resulting in a more thorough knowledge of the situation. In this case, quantitative methods such as surveys or questionnaires can be used to gather numerical data, such as performance statistics or preferences on record-keeping systems. Qualitative methods, such as interviews or focus groups, can be used to gather in-depth insights on specific issues, for example, challenges faced by primary schools in Zimbabwe in maintaining athlete records. By combining qualitative insights with quantitative data, researchers can develop a framework that not only considers theoretical frameworks and best practices but also considers the practical needs, preferences, and limitations of primary schools in Zimbabwe.

3.6 PRIMARY RESEARCH STRATEGY

The study used a practical action research technique to create an athlete e-performance record-keeping framework for elementary schools in Zimbabwe. According to Miles et.al. (2019), action research is a set of practices that respond to people's desire to act creatively in the face of practical and often pressing issues in their lives in organizations and communities; thus, it calls for people to engage in collaborative relationships, opening new communicative spaces in which dialogue and development can flourish. In this case, primary school coaches, teachers, and administrators can actively engage in the development and implementation of the e-performance record-keeping framework. The action research strategy allowed for real-time feedback and adjustments based on

the practical needs and challenges that arise during the process. By involving primary school stakeholders in every phase of the research, action research promotes a continuous improvement cycle. It enables the identification of obstacles, implementation issues, and potential enhancements, leading to iterative refinements of the athlete's e-performance record-keeping framework. This increased the likelihood of long-term adoption and continued use, resulting in improved athlete performance tracking, informed coaching decisions, and overall enhancement of sports programs in Zimbabwean primary schools.

3.7 TIME HORIZONS

This study used a cross-sectional design in this study. This design offers several advantages and strengthens the research process. Firstly, a cross-sectional design allows for the collection of data at a single point in time, providing a snapshot of the current state of athlete performance record-keeping in primary schools (Saunders et.al 2023). This is particularly important in the context of designing a framework because it provides insight into the existing practices, challenges, and needs of primary schools in Zimbabwe. By conducting a cross-sectional study, researchers can capture a wide range of data from different schools, allowing for a comprehensive understanding of the current landscape. Secondly, a cross-sectional design enables the researcher to compare and analyze data across different variables simultaneously. In the case of designing an e-athlete performance record-keeping framework, this would allow for the examination of various factors such as school size, location, resources, and infrastructure in relation to the current record-keeping practices. Moreover, the cross-sectional design allows the comparing of variables, and identifying patterns, trends, and gaps in the existing practices, which are crucial for designing an effective framework that caters to the diverse needs of different schools. Furthermore, a cross-sectional design offers a cost-effective and time-efficient approach to data collection. Since data is collected only once, it reduces the burden on both the researcher and participants. For a study focused on designing a framework, this is particularly advantageous as it allows the researcher to gather the necessary data without placing an extensive burden on primary schools and their staff. It also allows researchers to gather data from multiple schools within a relatively short period, enabling a more efficient analysis process. Additionally, a cross-sectional design can provide an opportunity to engage with a larger sample size, allowing for more robust and generalizable findings. By including a diverse range of primary schools in Zimbabwe, the researcher can ensure the findings

of the study accurately represent the challenges and needs faced by a broader population. This is crucial for designing an e-athlete performance record-keeping framework that can be applicable and beneficial to a wide range of primary schools in the country.

3.8 CHOOSING RESEARCH PARTICIPANTS

The population for this research included the coaches are responsible for training and guiding the primary school athletes, academic physical education teachers who may have involvement or responsibilities related to athlete performance tracking or data management in primary schools, school administrators and officials responsible for overseeing and managing sports programs in primary schools, Information technology professionals or experts who can contribute to the technical aspects of developing and implementing the e-performance record keeping framework, Parents or guardians of primary school athletes who have an interest in monitoring and tracking their child's athletic performance and individuals involved in education policy-making at the regional or national level, as they can shape policies and guidelines related to sports programs and athlete performance tracking in primary schools.

To establish the sample for both strands, the researchers will use the purposive stratified sampling technique to select the following group; coaches, physical education teachers, National Association of Primary School heads; informational IT experts, parents, and regional schools inspector. To select participants in the qualitative strand the researcher will use purposive sampling techniques to select the participants to be interviewed. Given the diversity of the population, purposeful sampling can aid in the recruitment of research participants who may be able to contribute information regarding the study's key phenomena (Creswell, 2016). The researcher targeted a sample of fifteen with a representative of each stratum

Table 3. 1

Qualitative Sample

Stratum	Sample
Physical education teachers	5
Coaches	5
National Association of Primary School heads	1
informational IT experts	I
Regional schools Sports inspector	1
Total	15

Stratified sampling was used for the questionnaire survey, stratified random sampling helped the researcher to subdivide the research population into different sub-groups also known as strata, and then chose the required number of items or people from within each sub-group using random sampling techniques (Denscombe, 2017). Theoretical sampling principles were employed to determine the sample sizes. The selected sample is based on judgmental choice over cases that will best enable the answering of research questions and meet research objectives following the recommendations of Neumann (2015); Bush and Burns (2010); and Saunders et al. (2013).

Table 3.2

Quantitative Sample

Quantitative Sample

Stratum	Sample size
Physical education teachers	20
Coaches	20
National Association of Primary School heads	20
Total	60

A total of seventy (60) participants will be randomly selected from the sub-groups to participate in the study. The sample size of 70 questionnaire participants was informed by the views of Miles et.al. (2019) who were for the idea that a small sample size allows for an intensive analysis of the problem, whereas a large sample size allows for the development and testing of a general theory in a study. In this study, the aim is not to develop or test a theory.

3.9 DATA COLLECTION PROCEDURES

In accordance with the study's aims, a questionnaire and interview guide were first created for this research. A pilot study was conducted after the procedure. the researcher carried out a pilot study in accordance with Sekaran and Bogie's (2020) theory, which states that the goal of the pilot test is to improve the interview guides and questionnaire for the qualitative survey and the quantitative survey so that respondents will not have any trouble answering the questions or recording the data. In advance of a more extensive investigation, the researcher tested data-gathering tools and research procedures in a pilot project before the main study, a pilot study helped identify possible issue areas with the research instruments and methods.

In this study, the interview were aimed at soliciting descriptive data that was be deemed critical in assisting the researcher to be well-informed in designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe. The interview is arguably the most utilized data collection instrument in qualitative research. The investigator will set up convenient times and venues for the interviews. However, other options like phone calls and video chats will be

used for individuals who might not be within the researcher's reach. The researcher will establish a private, cosy space for participants to talk about their experiences during the interviews. To acquire correct data, the researcher recorded the interviews; occasionally, this involves transcribing the recordings.

The researcher distributed questionnaires to the subjects who have been identified for the quantitative strand. Both in-person and online survey technologies were used for this. Instructions on how to fill out and submit the questionnaire are provided clearly and simply. The outcomes were recorded in the spreadsheet for future transmission as soon as the data is received.

3.10 DATA ANALYSIS AND PRESENTATION PROCEDURES

Qualitative data was analyzed using the NVIVO-generated themes and content and SPSS to analyze quantitative data.

The process of analyzing qualitative data is as follows (Dollah et al. 2017). The first step would be to import the data, which comprised of transcripts from interviews with coaches, teachers, and parents. Once the data is imported into NVIVO, the researcher will begin to analyze it using various tools and techniques available in the software. For example, the researcher can use a coding system to identify key themes and concepts within the data. The NVIVO further provides tools. The software allows the researcher to organize and group the data into meaningful categories or concepts. NVIVO also provides tools for visualizing the data, such as word clouds and graphs. These visualizations can help the researcher identify patterns and relationships within the data that may not be immediately apparent from the text. Finally, the researcher can use the software to present the findings of the research clearly and concisely. The software provides various output options, such as tables, graphs, and reports, which can be customized to meet the specific requirements of the research.

The quantitative data was analyzed using SPSS and the stages will be as follows:

- Data cleaning: The first step involves cleaning the data to ensure that it is complete and accurate. This includes checking for missing values and outliers.
- Descriptive statistics: Descriptive statistics are used to summarize the main features of the data. This includes measures of central tendency such as the mean, median, and mode, as well as measures of variability such as the standard deviation, variance, and range.

- Frequency analysis: Frequency analysis is used to determine the frequency of occurrence of each value in a data set. This is useful for identifying trends or patterns in the data.
- Correlation analysis: Correlation analysis is used to examine the relationship between two or more variables in the data set. This involves calculating the correlation coefficient, which ranges from -1 to 1, indicating the strength and direction of the relationship.
- Multiple regression analysis: Multiple regression analysis is used to examine the relationship between two or more independent variables and a single dependent variable. This can help in predicting outcomes or identifying patterns in the data.
- Data visualization: SPSS software provides various tools for visualizing data, such as histograms, scatter plots, and bar charts. These can be used to present the findings of the research clearly and concisely.

3.11 QUALITY ASSURANCE AND COMPLIANCE

3.11.1 Validity and Reliability/Trustworthiness Issues

The researcher took many steps to guarantee the reliability of the data gathered and collected. These steps included verifying the information's credibility, dependability, transferability, and conformance. According to Barton (2015), a reliable set of data is consistent and error-free, which facilitates the creation and acquisition of more pertinent information from the reader's point of view.

Dependability

The pilot study for the current investigation ascertained the reliability of the research instruments that will be used in this investigation. Participants in primary schools who will not be included in the sample will be included in the pilot project. The researcher anticipates being able to refine the research questions through this procedure, which is sometimes referred to as pilot testing (Bless et al. 2019) Bless et al. 2019). As a result, they ere be in a better position to present the findings in a way that will make sense to all respondents. This was expected to guarantee the reliability of the data to be obtained by obtaining pertinent and helpful information.

Transferability

According to Bless et al. (2019), conducting interviews with a sample that was not selected for study inclusion should be viewed as a method of assessing transferability, which suggests that the data collection instruments should yield comparable results if they were used on other participants

at a different research location. Coaches, athletes, and school officials who will be a part of the population but not selected for the sample will also be interviewed by the researcher.

Credibility

Athletes, coaches, and administrators are examples of active primary school stakeholders who can be included to increase the credibility of the data collected. This is because a diverse range of backgrounds will be represented, implying a range of viewpoints from the primary school community. Because the statistics will be based on the experiences and perspectives of people who live in the same geographic area and have daily access to running and primary school sports, they will be credible.

Conformability

In qualitative research, the conformability test is also known as the objectivities test. Bless et al. (2019) state that if some individuals agree with the research's findings, it may be considered objective. The supervisor will be asked to review all of the data in this study, and the researcher will also solicit recommendations and opinions from select lecturers.

3.11.1 Ethical considerations

When doing research, ethical issues must be taken into account, particularly when using human subjects. These are a few ethical practices that this study took into account.

Informed Consent: Participants were informed about the nature and purpose of the study and their right to refuse to participate. Participants will also be informed about the potential risks and benefits of the study.

Confidentiality: The confidentiality of participants shall be maintained, and no identifying information should be disclosed without their written consent.

Data Protection: Researchers ensured that data are stored securely and protected against unauthorized access or disclosure.

Privacy: The privacy of participants was protected. Any data that will be used to identify participants shall be kept confidential.

Inclusion of Vulnerable Groups: Researchers ensured that all participants, including those who are children, are included in the study and are treated fairly.

Beneficence: The researcher should ensure that the study benefits the participants and the wider community. They should also ensure that the study does not harm participants or the community.

3.12 CHAPTER SUMMARY

The methodology that the researcher employed to conduct this investigation was covered in this chapter. The research tools, techniques, and population have all been detailed. The study's methodology was also covered in this chapter. Data Analysis and Presentation were the main topics of the following chapter.

CHAPTER 4

RESULTS

4.1 INTRODUCTION

This chapter presents the demographics of the study participants, assesses the normality of the collected data, and reports the findings from the questionnaires and interviews. The focus is on designing an athlete's e-performance record-keeping framework tailored for primary schools in Zimbabwe. The quantitative and qualitative results provide insights into the current practices, challenges, and requirements for an effective electronic system to track and monitor athlete performance in this context.

4.2 RESPONSE RATE

Table 4.1

Interview Response Rate

Stratum	**Sample**	**No Interviewed**	**%**
Physical education teachers	4	4	100
Coaches	4	4	100
National Association of Primary School Heads	4	4	100
Informational IT experts	2	2	100
Regional Schools Sports inspector	1	1	100
Total	15	15	100

The 100% participation rate across all stakeholder groups implies that the research findings and proposed e-performance record-keeping framework can be comprehensive, representative, and well-grounded in the realities of primary school athletics in Zimbabwe. This high level of engagement enhances the validity, reliability, and acceptability of the research outcomes, increasing the likelihood of the framework being practical, relevant, and effective in addressing the unique challenges faced by these institutions.

Table 4.2

Questionnaire Response rate

Stratum	**Sample size**	**Questionnaire returned**	**%**
Physical education teachers	30	30	100
Coaches	20	18	90
National Association of Primary School heads	20	13	65
Total	70	61	87

The data presents a commendable overall response rate of 87% for the questionnaires distributed as part of the research on designing an athlete's e-performance record-keeping framework for primary schools in Zimbabwe. Specifically, the response rate from physical education teachers was 100%, indicating a high level of engagement and interest from this critical stakeholder group. The response rate from coaches was also impressive at 90%, suggesting that they recognize the importance of the research and its potential impact on their roles. However, the response rate from the National Association of Primary School Heads was relatively lower at 65%. While still a reasonable response, it may be beneficial to further explore the reasons behind the lower participation from this group and address any potential concerns or barriers to ensure comprehensive input from school administrators. The high overall response rate of 87% is a positive indicator of the relevance and significance of the research topic to the target audience. It implies that the findings and recommendations derived from the questionnaire data have been

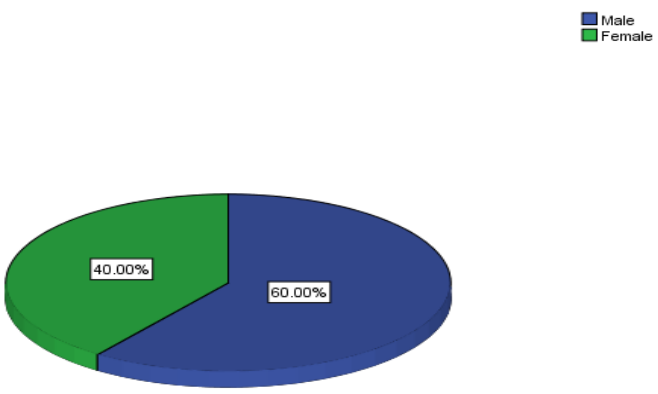
representative of the perspectives and experiences of a substantial portion of the stakeholder groups involved in athlete development and performance record-keeping in primary schools.

This data implies that the research benefits from a robust and diverse set of insights, enabling the development of an e-performance record-keeping framework that addresses the specific needs and challenges faced by physical education teachers, coaches, and school administrators. The high response rate increases the validity and reliability of the research findings, ensuring that the proposed framework is well-grounded in the realities and requirements of the primary school athletic ecosystem in Zimbabwe.

4.3 DEMOGRAPHICS

Figure 4.1

Gender of interviewee respondents

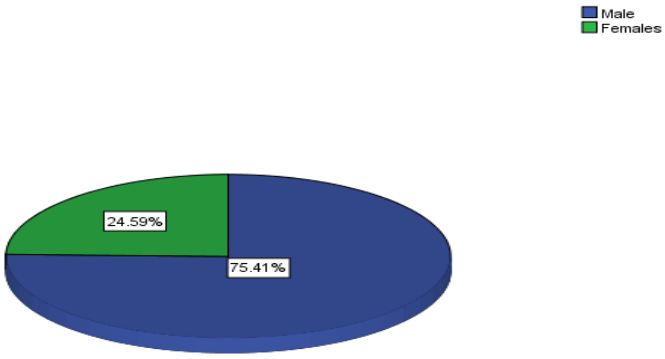


The data provided indicates that out of the total 15 interview respondents, 9 (60%) identified as male and 6 (40%) identified as female. In the context of the research on designing an athlete e-

performance record-keeping framework for primary schools in Zimbabwe, the gender distribution of the interview respondents is important. It suggests that there was a relatively equal representation of male and female respondents, with a slightly higher percentage of male respondents. This gender distribution implies that the research has taken into account the perspectives and experiences of both male and female athletes in the design of the framework. It indicates a level of inclusivity, ensuring that the needs and requirements of both genders are considered.

Figure 4. 12

Gender of Questionnaire respondents

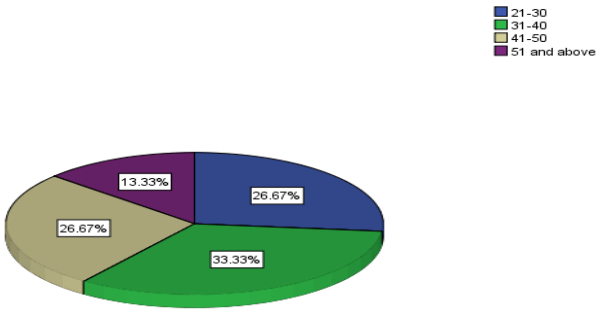


The data provided indicates that out of the total 61 questionnaire respondents, 46 (75.4%) identified as male, and 15 (24.6%) identified as female. In the context of the research on designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe, the gender distribution of the questionnaire respondents is significant. It indicates a higher representation of male respondents (75.4%) compared to female respondents (24.6%). This gender distribution may

have implications for the research, as it suggests a potential gender imbalance in the perspectives and experiences incorporated into the design of the framework.

Figure 4.3

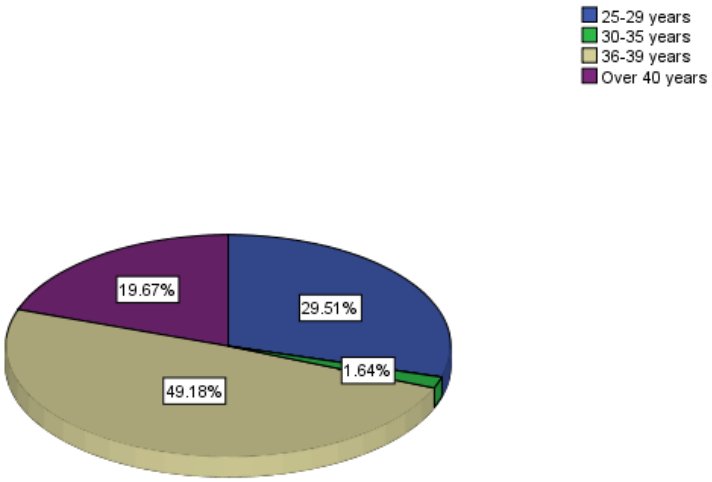
Age of interview respondents



The data provided indicates the age distribution of the interview respondents for the research on designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe. The age groups and their corresponding frequencies are as follows:21-30 years: 4 respondents (26.7%), 31-40 years: 5 respondents (33.3%),50 years: 4 respondents (26.7%),51 and above: 2 respondents (13.3%). The data suggests that the interview respondents are distributed across different age groups, with no single age group dominating the sample. The research implies that it has collected perspectives from a diverse range of age groups. This can be beneficial as it allows for a comprehensive understanding of the needs and preferences of athletes across different stages of life. This ensures that the design of the athlete e-performance record-keeping framework addresses the specific requirements and considerations of athletes across various age ranges.

Figure 4.4

Age of questionnaire respondents

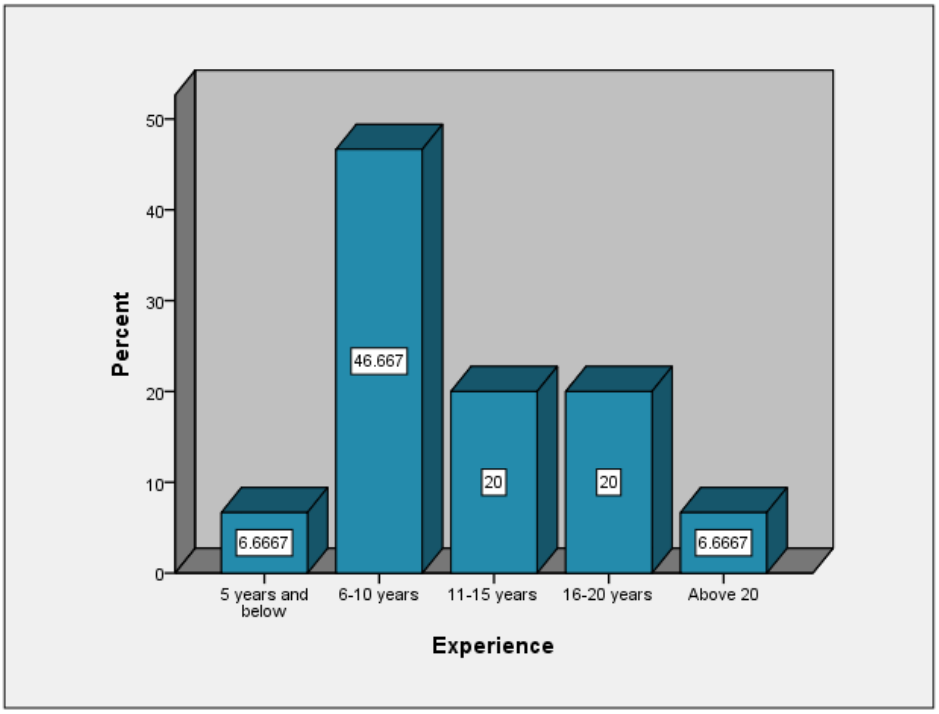


The data provided indicates the age distribution of the questionnaire respondents for the research on designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe. The age groups and their corresponding frequencies are as follows: 25-29 years: 18

respondents (29.5%), 30-35 years: 1 respondent (1.6%),36-39 years: 30 respondents (49.2%), and Over 40 years: 12 respondents (19.7%). The data implies that the majority of the respondents fall within the age range of 36-39 years (49.2%). This suggests that the research gathered insights predominantly from individuals in this age group. The research implies that the perspectives and experiences of athletes in the older age groups might be more heavily represented.

Figure 4.5

Professional Qualification of Interview Respondents



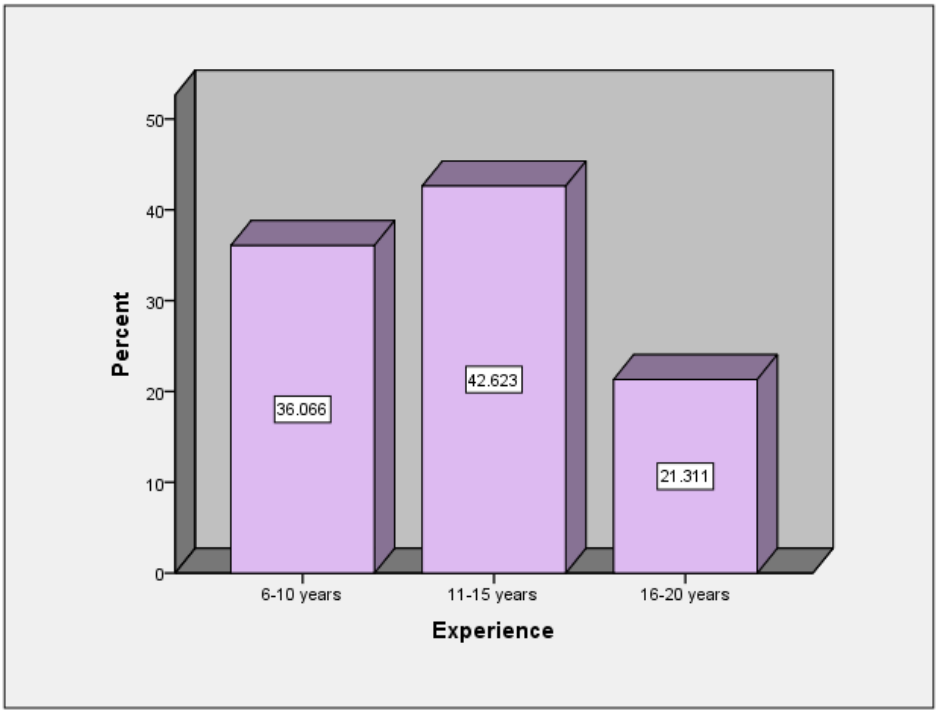
The data provided represents the experience levels of the interview respondents, primarily consisting of school heads, coaches, data analysts, and physical education teachers. The respondents' experience levels are categorized into five groups: 5 years and below, 6-10 years, 11-15 years, 16-20 years, and above 20 years. The largest proportion of respondents (46.7%) falls within the experience range of 6-10 years. This suggests that the research has collected insights primarily from individuals who have gained a moderate level of experience in their respective roles. The data reveals that there is only one respondent each with experience of 5 years and below and above 20 years. This indicates a potential limitation in terms of insights from individuals with less experience or more extensive expertise. By including respondents with different roles, the research can capture a diverse range of perspectives and requirements for designing an effective athlete e-performance record-keeping framework.

Figure 4.6

Formatted: Font: Bold

~~Figure 4. 6~~

Tttle?



The data provided indicates the distribution of experience levels among the respondents for the research on designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe.

The experience groups and their corresponding frequencies are as follows:6-10 years: 22 respondents (36.1%), 11-15 years: 26 respondents (42.6%),16-20 years: 13 respondents (21.3%). The data suggests that the majority of the respondents have experience in the range of 11-15 years (42.6%), followed by 6-10 years (36.1%), and finally 16-20 years (21.3%). The distribution of experience levels indicates that the research has captured insights from individuals with varying levels of athletic experience. This can provide a comprehensive understanding of the needs and perspectives of athletes at different stages of their athletic careers. By incorporating the perspectives of athletes with different levels of experience, the research can develop a more robust

and inclusive e-performance record-keeping framework that caters to the specific needs and goals of athletes at various stages of their athletic journey.

4.4 TEST FOR NORMALITY OF DATA

Table 4.3

Test of Normality of Qualitative Data

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
age	.202	15	.101	.885	15	.056

a. Lilliefors Significance Correction

The data provided shows the results of tests of normality for the variable "age" among the interview respondents, consisting mainly of school heads, coaches, data analysts, and physical education teachers. The Kolmogorov-Smirnov statistic for the "age" variable is 0.202, with 15 degrees of freedom. The associated p-value is 0.101, which is greater than the common significance level of 0.05. This suggests that the "age" variable follows a normal distribution, as the test does not provide sufficient evidence to reject the null hypothesis of normality. The Shapiro-Wilk statistic for the "age" variable is 0.885, with 15 degrees of freedom. The corresponding p-value is 0.056, which is slightly above the significance level of 0.05. Similar to the Kolmogorov-Smirnov test, the Shapiro-Wilk test does not provide strong evidence to reject the assumption of normality for the "age" variable. Since the "age" variable is normally distributed among the interview respondents, it allows for more accurate and reliable statistical analyses.

Table 4.4

Test of Normality of Quantitative Data

Tests of Normality

	Kolmogorov-Smirnov[a]	Shapiro-Wilk

	Statistic	Df	Sig.	Statistic	df	Sig.
Age	.332	61	.000	.777	61	.000

a. Lilliefors Significance Correction

The data provided shows the results of tests of normality for the variable "Age" among the questionnaire respondents, mainly consisting of school heads, coaches, data analysts, and physical education teachers. The Kolmogorov-Smirnov statistic for the "Age" variable is 0.332, with 61 degrees of freedom. The associated p-value is 0.000, which is less than the common significance level of 0.05. This indicates that the "Age" variable does not follow a normal distribution, as the test provides significant evidence to reject the null hypothesis of normality. The Shapiro-Wilk statistic for the "Age" variable is 0.777, with 61 degrees of freedom. The corresponding p-value is 0.000, which is below the significance level of 0.05. Similar to the Kolmogorov-Smirnov test, the Shapiro-Wilk test provides strong evidence to reject the assumption of normality for the "Age" variable. Based on the test results, there is a significant violation of the assumption of normality for the "Age" variable among the question respondents. The possible reason for this non-normality is justified because the research is attracted to respondents mostly coaches and physical education teachers who share age characteristics leading to a non-normal distribution of age within the sample.

4.5 ANALYSIS AND PRESENTATION OF DATA LINKED TO RESEARCH QUESTIONS

4.5.1 Reliability Statistics

The SPSS data analysis software version 21 was utilized in this study to test the reliability of the questionnaire.

Table 4.9

Cronbach Reliability statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
999	.848	29

The provided information includes the reliability statistics, specifically Cronbach's Alpha, for a research questionnaire. In this case, Cronbach's Alpha value of .848 suggests that the items included in the e-performance record-keeping framework questionnaire for primary schools in Zimbabwe demonstrate a good level of internal consistency. This indicates that the items are measuring the same construct reliably, providing confidence in the overall scale or questionnaire. The researchers can have confidence in the consistency of responses and use the questionnaire to gather reliable data on various aspects related to the design of the e-performance record-keeping framework.

4.5.2 Research objectives 1: To establish athlete e-performance record-keeping systems that are currently being used for primary schools in Zimbabwe.

The researcher used comparative analysis to identify patterns or differences. In particular, the researcher used cross-tabs and chi-square tests for this purpose.

Table 4. 16

Crosstabulation

Zimbabwe primary schools have adopted digital sports registration systems to register students for different sports * Zimbabwe primary schools use grade books and sports achievement records to keep athletes' sports progress. * Zimbabwe primary schools use team roasters to record athletes' personal information Crosstabulation		
Zimbabwe primary schools use team roasters to record athletes' personal information: Total		
Count		
	Zimbabwe primary schools use grade books and sports achievement records to keep athletes' sports progress.	Total

		Strongly Disagree	Disagree	Agree	Strongly Agree	
Zimbabwe primary schools have adopted digital sports registration systems to register students for different sports	Strongly Disagree	0	1	32	0	33
	Disagree	0	0	3	12	15
	Agree	3	0	0	7	10
	Strongly Agree	3	0	0	0	3
Total		6	1	35	19	61

The provided Table 4.10 presents a crosstabulation of responses related to three statements in Zimbabwean primary schools:

"Zimbabwe primary schools have adopted digital sport registration systems to register students for different sports."

"Zimbabwe primary schools use grade books and sport achievement records to keep athletes' sports progress?"

"Zimbabwe primary schools use team rosters to record athletes' personal information."

The crosstabulation table provides insights into the relationship between the three statements. The majority of respondents (32 out of 33) agree with the adoption of digital sport registration systems to register students for different sports. This suggests a positive attitude towards the use of digital systems for managing sports activities in Zimbabwean primary schools. A significant number of respondents (seven out of 10) strongly agree with the use of grade books and sports achievement records to track athletes' sports progress. This indicates that there is support for traditional record-keeping methods in primary schools. The use of team rosters to record athletes' personal

information receives a high level of agreement, with the majority of respondents (35 out of 61) agreeing and 19 respondents strongly agreeing. This suggests that team rosters are considered an important tool for managing and organizing athletes' personal information.

\

Table 4. 27

Chi-square Tests

Chi-Square Tests				
Zimbabwe primary schools use team roasters to record athletes' personal information		Value	Df	Asymp. Sig. (2-sided)
Strongly Disagree	Pearson Chi-Square	.[b]		
	N of Valid Cases	6		
Disagree	Pearson Chi-Square	.[c]		
	N of Valid Cases	1		
Agree	Pearson Chi-Square	.[b]		
	N of Valid Cases	35		
Strongly Agree	Pearson Chi-Square	.[b]		
	N of Valid Cases	19		
Total	Pearson Chi-Square	82.178[a]	9	.000
	Likelihood Ratio	83.071	9	.000
	Linear-by-Linear Association	6.602	1	.010
	N of Valid Cases	61		
a. 12 cells (75.0%) have an expected count of less than 5. The minimum expected count is .05.				
b. No statistics are computed because Zimbabwe primary schools use grade books and sports achievement records to keep athletes' sports progress. is a constant.				

c. No statistics are computed because Zimbabwe primary schools have adopted digital sport registration systems to register students for different sports and Zimbabwe primary schools use grade books and sport achievement records to keep athletes' sport progress. are constants.

The data provided presents the results of Chi-Square tests conducted on the responses of participants regarding the use of team rosters to record athletes' personal information in Zimbabwean primary schools. The Chi-Square tests reveal that the total Chi-Square test statistic is 82.178, with 9 degrees of freedom, and a p-value of 0.000. This indicates a significant association between the respondents' answers and the use of team rosters in Zimbabwean primary schools. The Likelihood Ratio test statistic is 83.071, with 9 degrees of freedom, and a p-value of 0.000. Similar to the total Chi-Square test, this test also indicates a significant association between the responses and the use of team rosters. The Linear-by-Linear Association test statistic is 6.602, with 1 degree of freedom, and a p-value of 0.010. This test examines the trend or linear association between the responses. It suggests that there is a significant linear relationship between the responses and the use of team rosters. Therefore, the respondents' answers indicate a diversity of opinions regarding the use of team rosters in Zimbabwean primary schools. The significant Chi-Square test results suggest that the responses are not distributed randomly and are associated with the use of team rosters. The presence of a significant association implies that there may be underlying factors influencing the respondents' opinions about team rosters. The non-constant responses imply that changes can occur in the use of team rosters in Zimbabwean primary schools. This may involve reevaluating current practices or considering alternative methods for recording athletes' personal information.

Based on the interview responses, it appears that the majority of participants rely on traditional pen-and-paper methods for tracking and maintaining athlete records. Only a few participants mentioned the use of digital technology. Here are some quotes from the interview responses that highlight this trend:

Participant A: "*We currently track and maintain athlete records using the old-fashioned pen and paper method. We have physical files and forms where we manually record their performances."*

Participant C: *"At our primary school, we haven't fully embraced digital technology for athlete record-keeping. We stick to the traditional method of using notebooks and writing down the relevant information."*

Participant G: *"We do use some digital tools for record-keeping, but it's limited. Most of the time, we rely on pen and paper to document the athletes' achievements and keep track of their progress."*

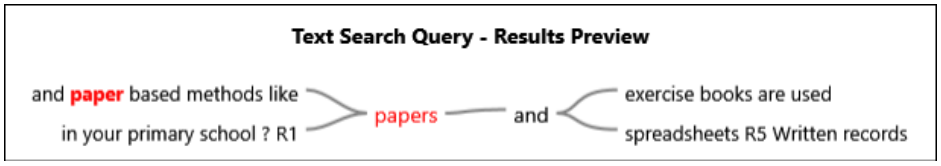
Participant D: *"In our primary school, the primary method of maintaining athlete records is through manual entry using pen and paper. We haven't explored digital options extensively."*

Participant E: *"Currently, we don't have a digital system for athlete record-keeping. Our coaches and teachers rely on handwritten notes and forms to record the necessary details."*

These quotes from the interview responses demonstrate a consistent trend where the participants predominantly use pen and paper methods for tracking and maintaining athlete records in primary schools. The mentions of limited or occasional use of digital technology indicate that the adoption of digital record-keeping methods is not widespread or well-established among the participants. The text search query on NVIVO version 12 supports the limited use of digital technology as paper, book, and handwritten records appear to be frequently mentioned.

Figure 4.7

Text Search Query Results on the record-keeping systems that are currently being used for primary schools in Zimbabwe.



Triangulating qualitative and quantitative results can provide a comprehensive understanding of the sports record-keeping systems currently being used in primary schools in Zimbabwe. In this

case, both strands of data indicate that while electronic systems, such as computers, are used to some extent, manual data capture remains a regular practice.

4.5.3 Research Objectives 2: To ascertain the current levels of athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.

To ascertain the current levels of athlete e-performance record-keeping systems being used for primary schools in Zimbabwe, the researcher computed a correlation to examine the relationship between two variables.

Variable 1: "Zimbabwe primary schools have adopted digital sports registration systems to register students for different sports".

Variable 2: "Schools are prioritizing technology integration, data-driven decision-making, and personalized record systems".

Table 4.12

Correlations

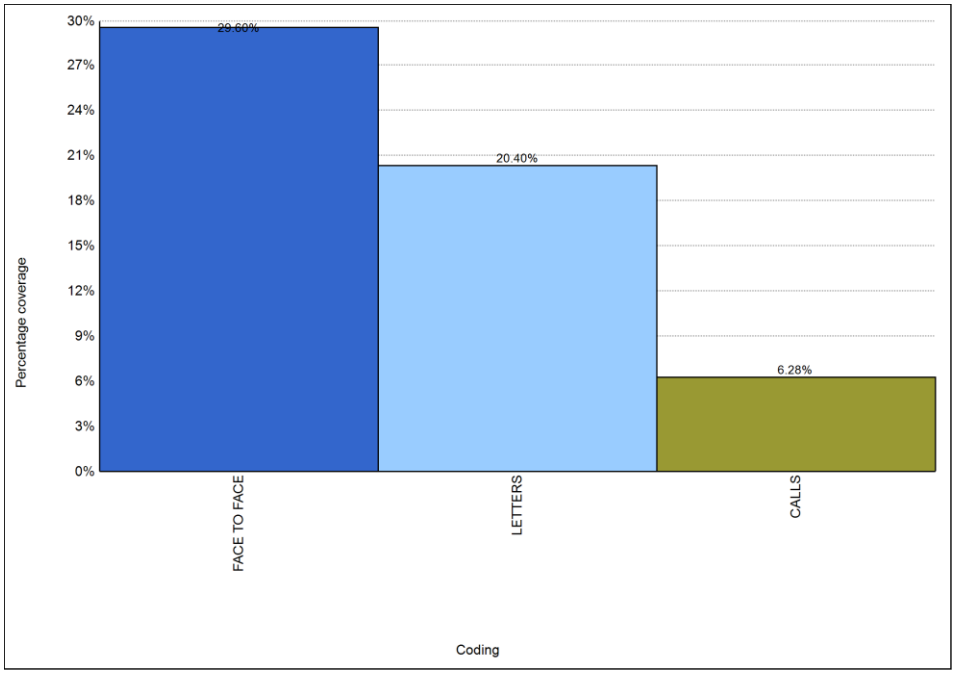
Item		Zimbabwe primary schools have adopted digital sports registration systems to register students for different sports	Schools are prioritizing technology integration, data-driven decision making and personalized record systems
Zimbabwe primary schools have adopted digital sports registration systems to register students for different sports	Pearson Correlation	1	.191
	Sig. (2-tailed)		.141
	The sum of Squares and Cross-products	99.738	22.426
	Covariance	1.662	.374
	N	61	61

Schools are prioritizing technology integration, data-driven decision making and personalized record systems	Pearson Correlation	.191	1
	Sig. (2-tailed)	.141	
	The sum of Squares and Cross-products	22.426	138.557
	Covariance	.374	2.309
	N	61	61

The provided correlation table presents the correlation coefficients between two variables. The correlation coefficient between the adoption of digital sport registration systems and the prioritization of technology integration, data-driven decision-making, and personalized record systems is 0.191. The significance (Sig.) value associated with the correlation coefficient indicates the probability of obtaining the observed correlation by chance. In this case, the Sig. value is 0.141. The correlation coefficient of 0.191 suggests a weak positive correlation between the adoption of digital sport registration systems and the prioritization of technology integration, data-driven decision-making, and personalized record systems in Zimbabwean primary schools. The positive correlation coefficient of 0.191 indicates a weak tendency for the two variables to move together in the same direction. In other words, as the adoption of digital sports registration systems increases, there is a slight tendency for schools to prioritize technology integration, data-driven decision-making, and personalized record systems. The non-significant Sig. value suggests that the observed correlation between the two variables is likely due to chance rather than a true systematic relationship.

Figure 4.8

The current levels of athlete e-performance record-keeping systems being used for primary schools in Zimbabwe



The data provided indicates the methods of communication and sharing of athlete records among the interviewees in the study. According to the data, 29.60% of the interviewees reported using face-to-face communication to share athlete records with coaches, parents, or other stakeholders. This suggests that direct, in-person interactions are a common method of communication.

Participant E: "*We usually have regular meetings with coaches and parents to discuss the athletes' progress. During these meetings, we share the records and provide updates on their performance."*

Participant B: "*Face-to-face communication allows for more personalized discussions and immediate clarification of any concerns. We find it effective in sharing athlete records and fostering open communication."*

The data shows that 20.40% of the interviewees utilize letters as a method of communication for sharing athlete records. This suggests that written correspondence is still a prevalent means of conveying information.

Participant C: *"We send letters to coaches and parents, providing them with detailed athlete records. This method ensures that the information is documented and can be referred to whenever needed."*

Participant H: *"Letters are useful for sharing athlete records, especially when reaching out to parents who may not be easily accessible in person. It allows us to provide a physical copy of the records and any additional information.*"

As per the data, 6.68% of the interviewees rely on calls as a mode of communication for sharing athlete records. This indicates that verbal communication over the phone is used, potentially for immediate updates or discussions.

Participant E: "*When we need to share athlete records quickly or have urgent discussions, we prefer phone calls. It allows for real-time communication and enables us to address any issues promptly."*

These quotes provide support for the data on communication methods used to share athlete records. They highlight the common use of face-to-face communication, the utilization of letters for written correspondence, and the preference for phone calls for immediate updates or urgent discussions. The methods indicated to have some shortcomings for instance face-to-face communication and calls may lack a formal record of the information shared while letters are inherently one-way communication, providing limited opportunities for a discussion.

The analysis of both quantitative and qualitative data provides a clear indication that primary schools in Zimbabwe are predominantly relying on non-digital means of recording and capturing athletic data. The findings consistently demonstrate a strong reliance on traditional methods such as pen and paper, face-to-face communication, letters, and phone calls for record-keeping and communication. The implications of this reliance on non-digital methods include potential inefficiencies, limited accessibility to records, and challenges in data management and analysis. It suggests a gap in the adoption and integration of digital technologies that could offer more streamlined and effective solutions for recording, tracking, and sharing athlete data. The findings highlight the importance of embracing digital solutions to overcome the limitations associated with traditional methods and unlock the potential for more effective and efficient record-keeping practices in the context of primary school sports.

4.5.4 Research Objectives 3: To assess the effectiveness of the current athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.

To assess the effectiveness of the current athlete e-performance record-keeping systems being used for primary schools in Zimbabwe, the researcher used a one-sample T-test. The purpose of a one-

sample t-test is to determine whether the mean of a single sample significantly differs from a known or hypothesized population mean.

Table 4.13

One -Sample statistics

	N	Mean	Std. Deviation	Std. Error Mean
The record-keeping is easily accessible to athletes, coaches, and other authorized personnel	61	2.08	1.418	.182

Table 4.14

One -Sample statistics

	Test Value = 3.0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The record-keeping is easily accessible to athletes, coaches, and other authorized personnel	-5.058	60	.000	-.918	-1.28	-.55

The provided information presents the results of a one-sample t-test conducted on a variable related to the accessibility of record-keeping for athletes, coaches, and other authorized personnel in the context of designing an e-performance record-keeping framework for primary schools in Zimbabwe. The t-value of -5.058 and the small p-value of .000 indicate that the mean accessibility of record keeping for athletes, coaches, and other authorized personnel is significantly lower than the test value of 3.0. This suggests that the current e-performance record-keeping framework in

primary schools in Zimbabwe may not adequately provide easy access to records for the intended users. The negative mean difference of -0.918 further supports the finding that the accessibility of record keeping is below the expected value. The negative value indicates that, on average, the accessibility scores are lower than the test value. The 95% confidence interval (-1.28 to -0.55) provides a range of values in which the true population difference is likely to lie. As the entire confidence interval is below zero, it strengthens the conclusion that the mean accessibility is significantly lower than the test value.

The interview data reveals concerns regarding the ineffectiveness of using paper records to capture athlete performance data, as reported by some coaches. Here are some quotes reflecting coaches' frustrations and the potential loss of data associated with paper-based record-keeping:

Participant A: "*Keeping athlete performance records on paper is quite challenging. Sometimes, the papers get misplaced or damaged, leading to the loss of valuable data. It's frustrating because we invest time and effort into recording and analyzing the information, only to have it compromised.*"

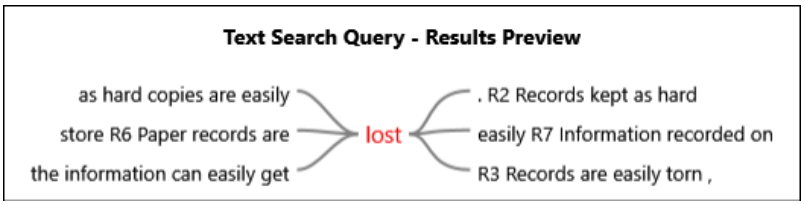
Participant J: "*Paper records are prone to errors and can easily be misplaced. There have been instances where important data sheets have gone missing, resulting in gaps in our records. It hampers our ability to track athletes' progress accurately*."

Participant G: "*I find it difficult to manage and organize stacks of paper records. It takes a lot of time and effort to manually sort through them when we need specific information. There have been instances when I couldn't find a particular record, and it's frustrating because it affects our ability to make informed decisions."*

These quotes from coaches highlight the drawbacks of using paper records for capturing athlete performance data. The concerns raised include the potential loss or damage of records, the likelihood of errors, and the challenges associated with the organization and retrieval of specific information. Such limitations can impede coaches' ability to effectively track athlete progress, make data-driven decisions, and ensure the accuracy and completeness of records. These challenges underscore the need for a more robust and reliable system for recording athlete performance data, such as adopting digital platforms or sports management software. The text-search query also highlights the views of the participants.

Figure 4.9

The effectiveness of the current athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.



Both the quantitative and qualitative data strongly indicate that the methods used by primary schools to capture athletic data, primarily relying on pen and paper, are ineffective. The quantitative data reveals a significant reliance on pen and paper as the primary means of capturing athlete data, with only a small percentage utilizing digital methods. This numerical evidence supports the notion that the current approach is outdated and ineffective for efficient data management. Qualitative data further reinforces this conclusion by providing firsthand accounts from coaches regarding the inefficiencies of using paper records. The interviews highlight issues such as loss of data, susceptibility to damage, errors, and difficulties in organization and retrieval. Coaches express frustration over the limitations of paper records and the subsequent impact on their ability to effectively track athlete progress, make informed decisions, and maintain accurate and accessible records. Moreover, the qualitative data emphasizes the lack of durability of printed paper records, making them unreliable for long-term reference. The challenges of keeping and preserving paper records further contribute to the ineffectiveness of this method.

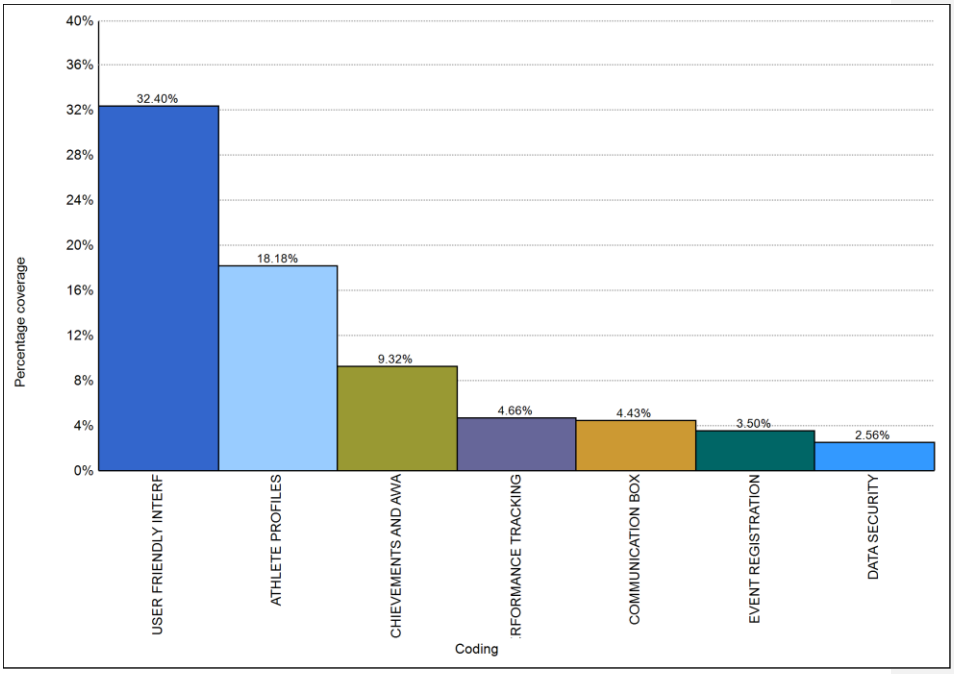
Taken together, the quantitative and qualitative findings demonstrate that the current reliance on pen and paper as the primary method of capturing athletic data in primary schools is inadequate and inefficient.

4.4.5 Objective 4: To design an athlete e-performance record-keeping system for primary schools in Zimbabwe.

The views of participants were grouped using the NVIVO version 22. The figure captured the views of the participants**.**

Figure 4.10

Content analysis for documents



Participants expressed the need for an e-performance record system with specific features, including athlete profiles, achievement tracking, security measures, performance monitoring, a communication box, and event registration. These requirements highlight the participants' desire for a comprehensive and user-friendly digital platform that encompasses all aspects of athlete management, data tracking, and communication. By incorporating these features into an e-performance record system, primary schools can streamline the process of capturing, analyzing, and sharing athlete data while ensuring data security and facilitating efficient communication between coaches, athletes, and parents

4.4.6 Chapter Summary

This chapter focused on the key elements of the research study: response rate, test of normality of data, and the presentation of quantitative and qualitative data using SPSS and NVIVO. These

methodological considerations ensured robust data analysis and interpretation, laying the foundation for the subsequent chapters' discussions on the design and implementation of an e-performance record-keeping framework for primary schools in Zimbabwe.

CHAPTER 5

DISCUSSION

5.1 INTRODUCTION

This chapter delves into the compelling findings from interviews and surveys, which will serve as the foundation for creating an innovative E-Performance Record-Keeping Framework adapted to

primary schools' needs. This chapter includes a thorough combination of qualitative interviews and quantitative surveys, designed to capture the many opinions and experiences of educators, administrators, and other stakeholders involved in primary school sports and education.

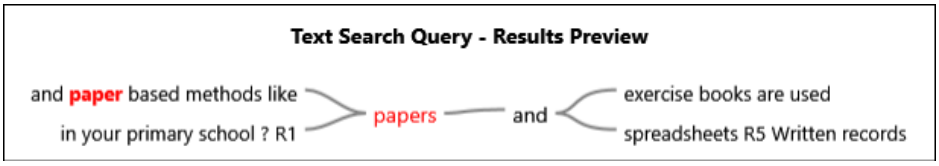
5.2 DISCUSSION

5.2.1 Research objectives 1: To establish athlete e-performance record-keeping systems that are currently being used for primary schools in Zimbabwe.

The results obtained from the crosstabulation analysis (Table 4.10) and Chi-square Tests (Table 4.11) of responses related to three statements in Zimbabwean primary schools provide valuable insights into the attitudes and practices regarding sports registration, sport progress tracking, and recording athletes' personal information. Firstly, there is an indication of a positive acceptance and willingness to embrace digital systems for managing sports activities in Zimbabwean primary schools. Secondly, a significant number of respondents use grade books and sports achievement records to track athletes' sports progress. This highlights the support for traditional record-keeping methods in primary schools, suggesting that educators and administrators recognize the value of these tools in monitoring and evaluating athletes' performance. Lastly, the use of team rosters to record athletes' personal information receives a high level of agreement. This underscores the importance placed on team rosters as a practical means of managing and organizing athletes' personal information, facilitating efficient communication and coordination within sports teams. Based on the interview responses, it appears that the majority of participants rely on traditional pen-and-paper methods for tracking and maintaining athlete records. For instance, some participants argue that *"At our primary school, we haven't fully embraced digital technology for athlete record-keeping. We stick to the traditional method of using notebooks and writing down the relevant information." And "We currently track and maintain athlete records using the old-fashioned pen and paper method. We have physical files and forms where we manually record their performances."*. The text search query in Figure 4.7 clearly defines the most used record-keeping systems.

Figure Number

Title



Nonetheless, signs of employing e-record systems include the usage of computer-based databases such as Excel and Word. Participants demonstrated a lack of comprehension and a consistent record-keeping approach, with some appearing to use both written and electronic methods. Gesmundo, Glorioso, Raviz, and Apat (2022) claim that standardization of current documentation methods is critical for today's athletic performance, independent of the job situation. Furthermore, whether in printed or electronic form, conformance with acknowledged standards should be considered the gold standard. In this sense, it appears that Zimbabwean primary school sports lack extensive documentation that offers a complete history of the athletes (Gesmundo et al. 2022).

5.2.2 Research Objectives 2: To ascertain the current levels of athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.

The examination of both quantitative and qualitative data demonstrates that primary schools in Zimbabwe mostly use non-digital methods of recording and capturing sports data. To ascertain the current levels of athlete e-performance record-keeping systems being used for primary schools in Zimbabwe, the researcher computed a correlation to examine the relationship between two variables (Table 4.12).

Variable 1: "Zimbabwe primary schools have adopted digital sports registration systems to register students for different sports".

Variable 2: "Schools are prioritizing technology integration, data-driven decision-making, and personalized record systems".

The positive correlation coefficient of 0.191 indicates a weak tendency for the two variables to move together in the same direction. In other words, as the adoption of digital sports registration systems increases, there is a slight tendency for schools to prioritize technology integration, data-driven decision-making, and personalized record systems. Similarly, in the qualitative strand, the findings constantly show a substantial dependence on conventional record-keeping and

communication techniques such as pen and paper, in-person communication, letters, and phone conversations. For instance, some interviewees argue that;

"We send letters to coaches and parents, providing them with detailed athlete records. This method ensures that the information is documented and can be referred to whenever needed."

"*Face-to-face communication allows for more personalized discussions and immediate clarification of any concerns. We find it effective in sharing athlete records and fostering open communication."*

"When we need to share athlete records quickly or have urgent discussions, we prefer phone calls. It allows for real-time communication and enables us to address any issues promptly."

Matina and Ngulube (2019) argue that the consequence of this reliance on non-digital technologies include significant inefficiencies, restricted access to information, and difficulties with data administration and analysis. It indicates a gap in the use and integration of digital technology that might provide more efficient and effective methods for recording, tracking, and sharing athlete data. Similarly, electronic records management (ERM), which encourages the use of electronic tools to manage electronic and non-electronic documents in a consistent and integrated way, has grown in recent years to give a solution (Yuee, 2020). The findings emphasize the importance of using digital solutions to overcome the constraints associated with traditional approaches and uncover the potential for records management capabilities designed to electronically collect, organise, classify, and control the creation, storage, retrieval, distribution, maintenance and use, disposal, and preservation of records throughout their life cycle (Yuee, 2020).

5.2.3 Research Objectives 3: To assess the effectiveness of the current athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.

Both quantitative and qualitative statistics suggest that the techniques employed by elementary schools to collect sports data, which mostly rely on pen and paper, are unsuccessful. The quantitative data shows a strong dependence on pen and paper as the major way of obtaining athlete data, with just a tiny proportion using digital technologies. The findings of a one-sample t-test on a variable linked to the accessibility of record-keeping for athletes, coaches, and other authorized professionals in the context of building an e-performance record-keeping framework for Zimbabwean primary schools. The t-value of -5.058 and the modest p-value of.000 shows that the

average accessibility of record keeping for athletes, coaches, and other authorized people is considerably lower than the test value of 3.0. This shows that the present e-performance record-keeping structure in Zimbabwe's primary schools may not give proper access to information for intended users. This numerical evidence backs up the claim that the existing method of data management is out of date and ineffectual.

Qualitative evidence supports this hypothesis by offering personal stories from coaches about the inefficiencies of utilising paper records. The interviews focus on topics such as data loss, vulnerability to harm, mistakes, and difficulty with organisation and retrieval. For instance, some responses argue that;

"*Keeping athlete performance records on paper is quite challenging. Sometimes, the papers get misplaced or damaged, leading to the loss of valuable data. It's frustrating because we invest time and effort into recording and analyzing the information, only to have it compromised.*"

"*Paper records are prone to errors and can easily be misplaced. There have been instances where important data sheets have gone missing, resulting in gaps in our records. It hampers our ability to track athletes' progress accurately*."

Coaches are frustrated by the limits of paper records and how this affects their ability to successfully track athlete growth, make educated decisions, and keep accurate and accessible data. Furthermore, the qualitative data emphasizes the lack of durability of printed paper documents, rendering them unsuitable for long-term reference. The difficulties of storing and preserving paper documents add to the ineffectiveness of this strategy. Accordingly, Zimbabwe Primary School sports are missing the advantages of records preservation and archiving (Gesmundo et al., 2022), retention and disposition (Yuee 2020), search and Retrieval (Mukred et al., 2019), and access and Security (Arpaci, 2019).

5.2.4 Objective 4: To design an athlete e-performance record-keeping system for primary schools in Zimbabwe

The participants in the study expressed several key initiatives for primary school sports, emphasizing the need for an e-performance record system with specific features. These initiatives aim to enhance athlete management, data tracking, and communication within primary schools' sports programs as shown on Figure 4.10.

Firstly, participants highlighted the importance of athlete profiles within the e-performance record system. These profiles would serve as comprehensive digital profiles for each athlete, containing relevant information such as personal details, sports preferences, medical history, and performance records. Yuee (2020) believed athlete profiles would provide a centralized repository of information, facilitating easy access and reference for coaches, administrators, and other relevant parties.

Achievement tracking was identified as another crucial feature of the e-performance record system. Participants emphasized the need to monitor and record athletes' progress and achievements over time. This would enable coaches and educators to assess individual performance, identify areas for improvement, and tailor training programs accordingly. Rathonyi et al. (2018): Akenhead et al. (2016) argue in favour of data tracking emphasising that such tracking mechanisms would support evidence-based decision-making and help nurture athletes' development.

Data security was a significant concern raised by participants. They emphasized the importance of implementing robust security measures within the e-performance record system to safeguard sensitive athlete information. This includes measures such as secure logins, role-based access controls, and encryption protocols to protect data integrity and prevent unauthorized access. In support of this Coutinho et al. (2018), say that electronic record-keeping systems have enabled schools to establish a reliable registration system that includes data display and security aspects. Coutinho et al. (2018) go on to say that it is necessary to have a reliable registration system with data protection and security

. According to Ric et al. (2017), the development of an automated registration system would assist the country's athletic community since e-registration and performance recording will include storage management, retrieval integrations, analytical reporting, and information sharing.

Performance monitoring emerged as a key initiative, with participants expressing the desire for real-time monitoring and analysis of athlete performance. They emphasized the need for features that allow coaches to track and evaluate metrics such as skill development, physical fitness, and game statistics. Real-time monitoring would enable timely interventions, informed feedback, and personalized coaching strategies to maximize athletes' potential.

Effective communication was also identified as a vital aspect of the e-performance record system. Participants expressed the need for a communication box or messaging platform within the system, facilitating seamless communication between coaches, athletes, and parents. This would enable timely updates, event notifications, performance feedback, and general coordination, fostering a collaborative and supportive sports environment.

Lastly, event registration functionality was highlighted as an essential feature. Participants emphasized the convenience of an integrated event registration system within the e-performance record system. This would streamline the process of registering athletes for sports events, managing team rosters, and ensuring efficient participation logistics.

5.3 CONCEPTUAL FRAMEWORK

The Sankey diagram provides a clear visualization of how the visual elements are interconnected across different aspects of the e-athlete performance recording system, allowing for a comprehensive understanding of their relationships and flows. In this Sankey diagram, each aspect is represented by a horizontal bar, and the visual elements associated with that aspect are shown as vertical flows originating from the respective bars. The diagram illustrates the interconnectedness and flow of visual elements across different aspects of the e-athlete performance recording system.

Figure 5.2

An Athlete E-performance Record-keeping Framework For Primary Schools in Zimbabwe

- Starting from the "Event Registration Functionality" bar, the flows represent visual elements such as the registration form, event selection options, submit button, and registration status indicators.
- From the "Feedback Option" bar, flows can represent visual elements such as feedback form, input field for feedback, submit button, and feedback history or log.
- Similarly, the diagram depicts the visual elements associated with the remaining aspects: real-time monitoring and analysis of athlete performance, automated registration system, robust security measures within, achievement tracking, and athlete profiles within the e-performance record system.

The study's architecture culminates in the e-record-keeping framework, which includes various elements.

Figure 5.2

Dashboard

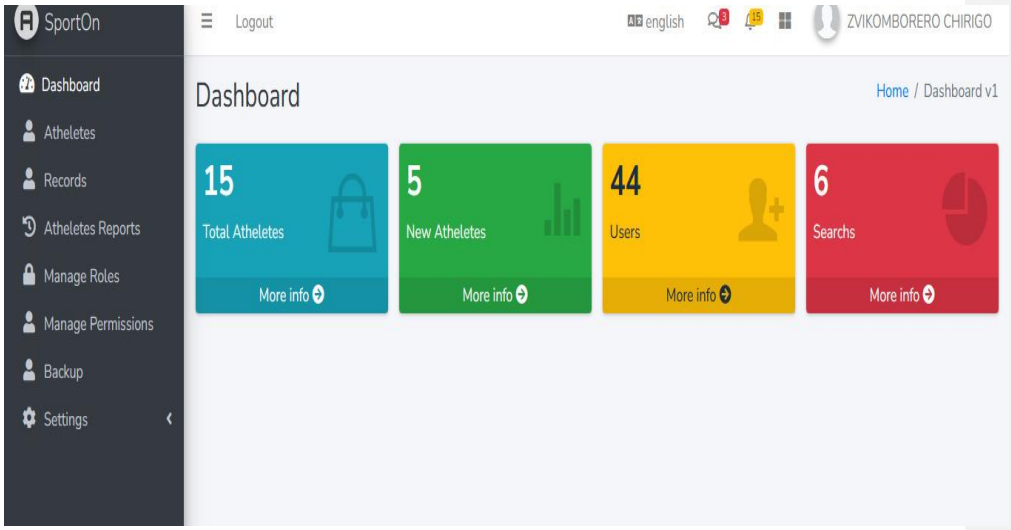
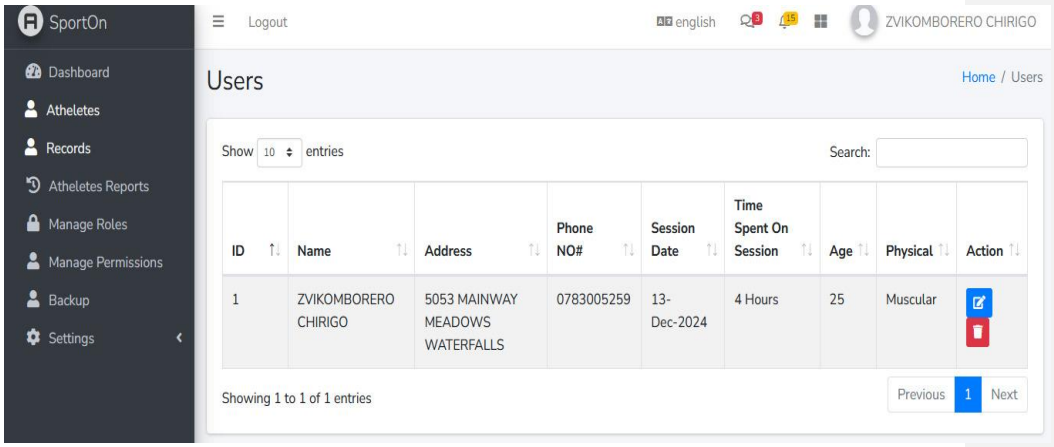
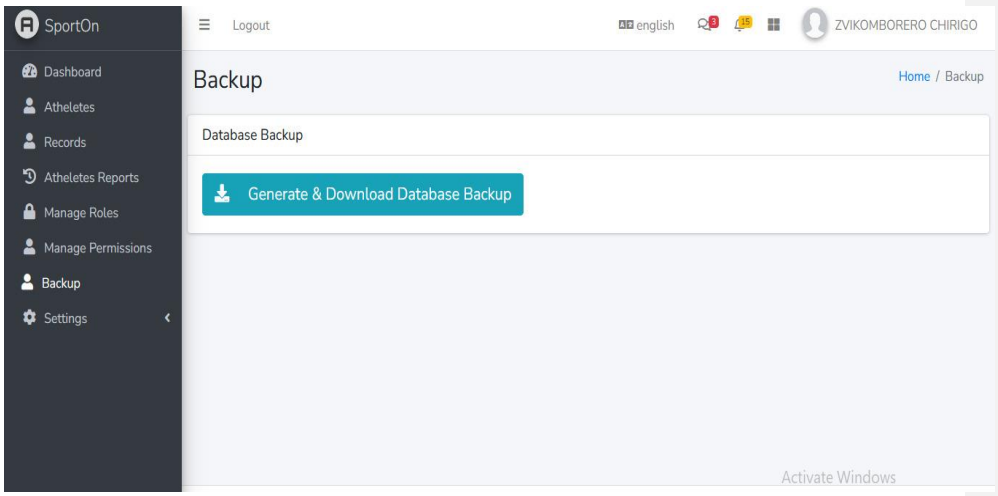


Fig 5.3
Entries



5.4
Back up


SportOn
Logout
english
ZVIKOMBORERO CHIRIGO
Dashboard
Atheletes
Records
Atheletes Reports
Manage Roles
Manage Permissions
Backup
Settings
Backup
Home / Backup
Database Backup
Generate & Download Database Backup
Activate Windows

5.5
Roles

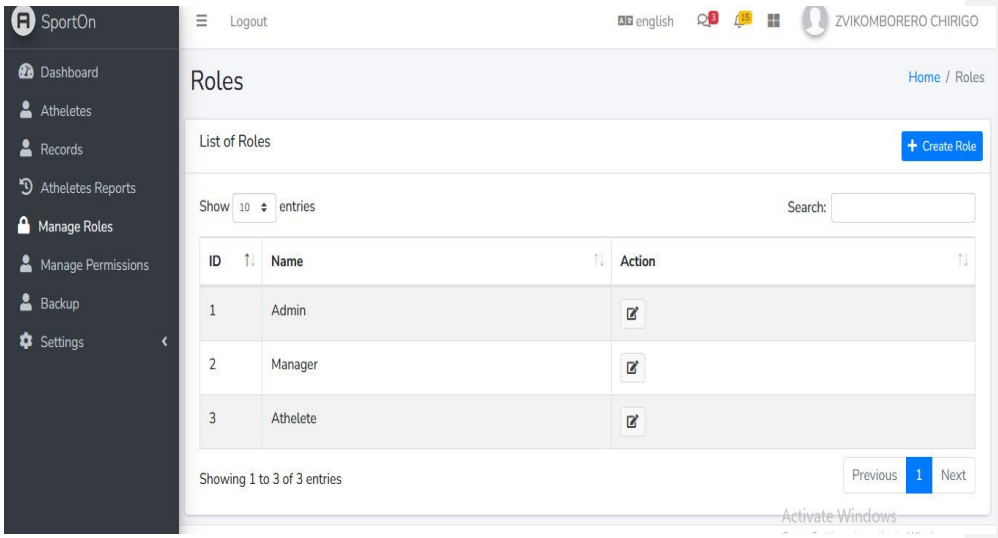
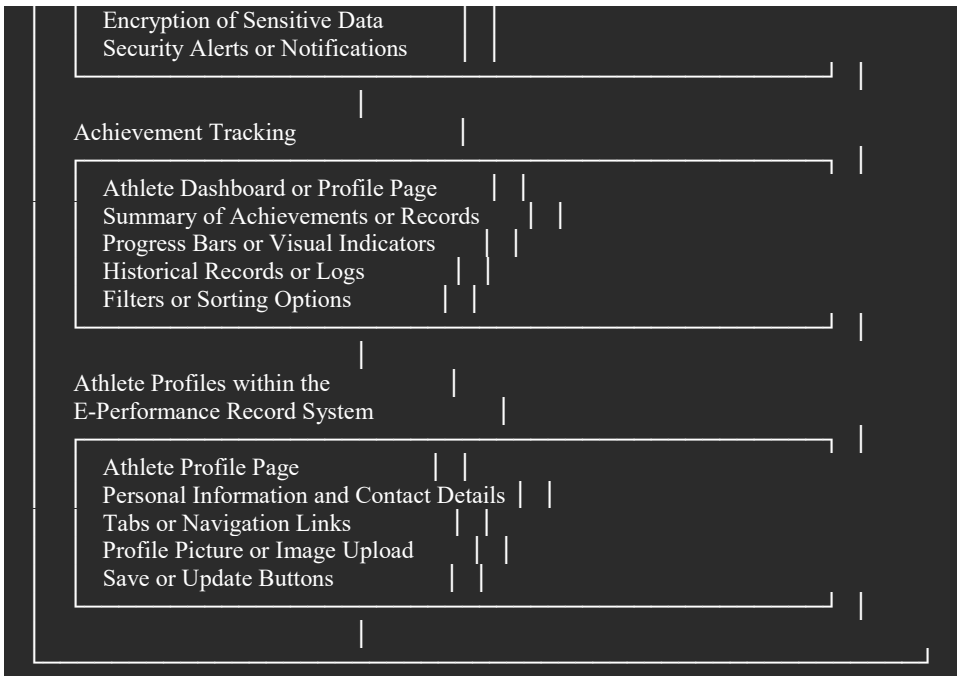

SportOn
Logout
english
ZVIKOMBORERO CHIRIGO
Dashboard
Atheletes
Records
Atheletes Reports
Manage Roles
Manage Permissions
Backup
Settings
Roles
Home / Roles
List of Roles
Create Role
Show 10 entries
Search:
ID
Name
Action
1
Admin
2
Manager
3
Athelete
Showing 1 to 3 of 3 entries
Previous
1
Next
Activate Windows

Figure 5.6
Info-graphic design showing features of the e-performance record keeping for primary schools in Zimbabwe



5.3.1 Significance of the Framework

The significance of an athlete e-performance record-keeping framework for primary schools in Zimbabwe is multi-faceted and can have several benefits. For instance, a systematic e-performance record-keeping framework allows primary schools in Zimbabwe to track and monitor the performance of their athletes over time. Primary schools can identify strengths, weaknesses, and areas for improvement for each athlete. This information can be used to provide targeted training, coaching, and support, ultimately enhancing the overall athletic performance of students. This can contribute to the development of a strong pool of athletes in Zimbabwe. An e-performance record-keeping framework can also provide schools with a data-driven approach to making informed decisions regarding athlete selection, training methodologies, resource allocation, and overall sports program management. By analyzing the performance data stored within the system, schools can identify trends, patterns, and areas of improvement, enabling evidence-based decision-making for the benefit of the athletes and the sports programs. However, introducing a new e-athlete

performance framework requires training athletes, coaches, teachers, and administrators on how to effectively use the system. Resistance to change or lack of technological proficiency among users can hinder the successful adoption and utilization of the framework. Adequate training and ongoing support are necessary to ensure effective implementation and utilization of the system.

5.4 LIMITATIONS OF THE STUDY

Despite the limited literature available in the context of Zimbabwe, the researcher thoroughly reviewed existing literature on record-keeping systems in sports, and other relevant contexts. This provided a broader understanding of record-keeping practices and principles that can be applied to the development of the e-athlete record-keeping system for primary schools in Zimbabwe. The researcher explored record-keeping systems used in similar contexts or sports organizations and adapted them to fit the specific needs and requirements of primary schools in Zimbabwe. This involved modifying and customizing existing frameworks to align with the unique characteristics and challenges of the Zimbabwean primary school system.

The researcher discovered inconsistent responses from a few questionnaire participants. This has been so since the questionnaire was subjected to peer review and refined to ensure clarity, simplicity, and consistency in the questions. Pilot testing the questionnaire with a small sample of participants helped identify any ambiguities or issues that need to be addressed before administering it to the larger participant group. Moreover, the researcher communicated the purpose and importance of answering the questionnaire accurately and consistently to participants.

The limited time frame for validation of the current framework was another limiting factor. Nevertheless, the researcher conducted a pilot test of the e-athlete record-keeping system with a smaller group of primary schools or athletes. This allowed for initial feedback and identification of any flaws or areas for improvement in the system. The pilot test provided insights into the system's usability, functionality, and effectiveness. However, a plan for a follow-up study that extends beyond the initial time frame to evaluate the long-term effectiveness and sustainability of the e-athlete record-keeping system is needed.

5.5 CHAPTER SUMMARY

This chapter has provided a comprehensive exploration of qualitative and quantitative data in research, highlighting their respective strengths and limitations. It has also presented the development of an e-record-keeping framework tailored specifically for primary schools in Zimbabwe. The utilization of qualitative data, such as interviews offered valuable insights into the subjective experiences, perceptions, and contextual factors surrounding record-keeping practices in primary schools. This qualitative understanding provides a deeper understanding of the complexities and nuances of the record-keeping process, helping to identify specific needs, challenges, and opportunities for improvement. On the other hand, quantitative data, such as statistical analysis, and data visualization, offers objective and measurable information.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This research chapter builds upon the foundations laid in Chapter One, where the research objectives were identified and outlined. The current chapter aims to provide a comprehensive analysis of the research findings, concluding each research objective, addressing identified gaps, and offering recommendations for future research studies.

6.2 CONCLUSIONS

6.2.1 Research objectives 1: To establish athlete e-performance record-keeping systems that are currently being used for primary schools in Zimbabwe.

In conclusion, the first research objective aimed to establish athlete e-performance record-keeping systems currently being used in primary schools in Zimbabwe. Through an examination of the existing practices, it has been observed that primary schools employ a combination of traditional and computer-based methods for capturing and storing athlete performance data. Traditional methods, such as grade books, rosters, and sports achievement progress records, have long been utilized in primary schools for record-keeping purposes. These methods offer tangible and familiar means of documenting athlete performance and progress. However, the research findings have revealed certain limitations associated with these traditional methods, particularly in terms of data consistency and tracking over time. On the other hand, primary schools have also embraced computer-based tools such as Excel and Word for data capturing and storage. These digital platforms provide flexibility, efficiency, and the potential for enhanced data management. However, despite the advantages offered by computer-based systems, the research has identified challenges in maintaining consistent and reliable records. Difficulties in tracking data over time have emerged as a significant issue, potentially leading to inaccuracies and gaps in athlete performance documentation**.**

6.2.2 Research Objectives 2: To ascertain the current levels of athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.

6.2.3 The current level of athlete e-performance

In conclusion, the second research objective aimed to ascertain the current levels of athlete e-performance record-keeping systems being used in primary schools in Zimbabwe. The findings have consistently revealed a significant reliance on non-digital methods for recording and capturing sports data. Primary schools in Zimbabwe predominantly employ conventional record-keeping and communication techniques, such as pen and paper, in-person communication, letters, and phone conversations, for athlete performance documentation. This indicates a notable gap in the utilization and integration of digital technology in the record-keeping process. The research findings underscore the need for primary schools to embrace digital solutions that offer more efficient and effective methods for recording, tracking, and sharing athlete data. By transitioning from traditional, non-digital methods to e-performance record-keeping systems, schools can streamline their processes, enhance data accuracy, and facilitate easier access to athlete information.

6.2.4 Research Objectives 3: To assess the effectiveness of the current athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.

In conclusion, the third research objective aimed to assess the effectiveness of the current athlete e-performance record-keeping systems being used in primary schools in Zimbabwe. The findings consistently indicate that the techniques employed by elementary schools, which mostly rely on pen and paper, are unsuccessful in meeting the desired outcomes. The present e-performance record-keeping structure in Zimbabwe's primary schools may not provide proper access to information for intended users. The reliance on printed paper documents poses significant challenges. The lack of durability of these documents makes them unsuitable for long-term reference, and the difficulties associated with storing and preserving paper records further contribute to the ineffectiveness of this strategy.

6.2.5 Objective 4: To design an athlete e-performance record-keeping system for primary schools in Zimbabwe

In conclusion, the fourth research objective aimed to design an athlete e-performance record-keeping system specifically tailored for primary schools in Zimbabwe. The designed system incorporates several key features to enhance the efficiency and effectiveness of record-keeping practices. The proposed e-performance record-keeping system encompasses automated

registration, event registration functionality, feedback options, real-time monitoring and analysis of athlete performance, robust security measures, achievement tracking, and athlete profiles. By implementing such a system, primary schools can streamline their record-keeping processes, enhance communication and collaboration, make data-driven decisions, and ensure comprehensive and secure documentation of athlete performance. This contributes to improved athlete development, program evaluation, and overall sports management in primary schools in Zimbabwe.

6.3 RECOMMENDATIONS

To bridge the gaps hindering the adoption of e-performance record-keeping systems :

- Zimbabwe Primary schools should consider implementing dedicated e-performance record-keeping software or platforms designed specifically for athlete data management.
- Comprehensive training and support should be provided to ensure that teachers, coaches, and administrators are proficient in utilizing the e-performance record-keeping system effectively.
- Furthermore, it is recommended that primary schools establish clear protocols and guidelines for data entry, validation, and data quality control.
- Regular audits and reviews of the records should be conducted to identify and rectify any inconsistencies or inaccuracies promptly. This will help maintain the integrity and reliability of the athlete performance data
- Implementation of digital technologies, such as dedicated software or platforms, can provide numerous advantages. These include real-time data entry, automated calculations, centralized data storage, data visualization, and improved data security.
- This requires investment in appropriate hardware and software, as well as providing training and support to educators and staff members to ensure their proficiency in utilizing digital tools effectively.
- primary schools must create a culture that promotes the integration of digital technology in record-keeping practices. This involves raising awareness about the benefits and importance of e-performance record-keeping systems, fostering a mindset of innovation

and adaptability, and establishing clear policies and guidelines for their implementation and usage.

6.3.1 Recommendations for future study

Future studies can investigate the process of implementing and adopting the designed e-performance record-keeping system in primary schools. This can include evaluating the challenges, barriers, and facilitators encountered during the implementation phase, as well as assessing the acceptance and usability of the system among teachers, coaches, administrators, and other relevant stakeholders. Understanding the factors that influence successful system implementation can provide valuable insights for future implementation efforts. It would be beneficial to conduct longitudinal studies to assess the long-term impact and sustainability of the current framework produced in this study. This can involve evaluating the system's effectiveness in improving athlete development, performance tracking, and program evaluation over an extended period. Assessing the system's sustainability factors, such as maintenance, updates, and scalability, can also contribute to ensuring its continued success.

6.4 CHAPTER SUMMARY

In summary, this chapter has addressed the research objectives related to athlete e-performance record-keeping systems in primary schools in Zimbabwe. The findings have highlighted the reliance on non-digital methods, the ineffectiveness of current systems, and the design of a comprehensive e-performance record-keeping system. To close the identified gaps, it is recommended that primary schools in Zimbabwe embrace digital technology and invest in robust e-performance record-keeping systems. This includes providing training and support to educators, ensuring data security, and promoting a culture of innovation.

References

Abdolkhani, R., Halabchi, F., Safdari, R., Dargahi, H. and Shadanfar, K. (2014). Designing an electronic personal health record for professional Iranian athletes. *Asian J Sports Med*. 2014;5 (4):e23809.

Ahmed, I., Musarrat Nawaz, M., Bowra, Z., Zafar, A., Zeeshan Shaukat, M., Usman, A., UlRehman, W. and Ahmed, N. (2010). Does service quality affect students' performance? Evidence from institutes of higher learning. *African Journal of Business Management*, *4*(12), 2527–2533.

Arpaci, I. (2019). A hybrid modelling approach for predicting the educational use of mobile cloud computing services in higher education. *Computers in Human Behavior* 90: 181–187.

Barr, G. (2016). *How artificial intelligence plays into the future of sports technology*. *Sport Techie*, 30, 477-486.

Bless, C., Higson-Smith, C. & Kagee, A.(2019) *Fundamentals of social research Methods*: An African Perspective. Juta and Company Ltd., Cape Town

Coutinho, D., Gonçalves, B., Wong, D. P., Travassos, B., Coutts, A. J. and Sampaio, J. (2018). Exploring the effects of mental and muscular fatigue in football players performance. *Hum Mov Sci*. 2018; 58:287–96.

De Fremery, R. (2018). *How the personalized mobile fan experience has changed the game for NBA fans*. Available from: https://mobilebusinessinsights.com/2018/01/how-the-personalized-mobile-fan-experience-has-changed-thegame-for-nba-fans/. [Accessed on 23 September 2023].

Doldor, E., Silvester, J., & Atewologu. D. (2017). Qualitative methods in organizational psychology. In C. Willig and W. Stainton-Rogers (Eds). The Sage Handbook of qualitative research in Psychology, 2nd ed. (pp.522-542). *Thousand Oaks, CA: Sage*

Dollah,S., Abduh,.A. & Rosmaladew i.,R.(2017*) Benefits and drawbacks of NVivo QSR Application,* Accessed 4 November 2022, 22992/icest-17.2017.21.corpus ID 67379971.

Dikstra, H. P., Pollock, N., Chakraverty, R. and Alonso, J. M. (2014). Managing the health of the elite athlete: a new integrated performance health management and coaching model. *Br J Sports Med* 2014;48:523–531.

Fragidis, L. L. and Chatzoglou, P. D. (2018). Implementation of a nationwide electronic health record (EHR) in the international experience in 13 countries. *International Journal of Health Care Quality Assurance* 31(2): 116–130.

Gesmundo, J. L., Glorioso, R. B., Raviz, K. and Apat, E. C. (2022). Records management strategies and professional performance of administrative staff. *International Journal of Academe and Industry Research*, Volume 3 Issue 1, pp. 70 - 92.

Harris, H., Brison, N, T. and Dixon, M. A. (2021). Hidden consequences: Examining the impact of NIL on athlete well-being. *Journal of Applied Sport Management*: Vol. 13: Iss. 2.

Haugen, T., Seiler, S., Sandbakk, O. and Tonnessen, E. (2019). The training and development of elite sprint performance: An integration of scientific and best practice literature. *Sports Medicine - Open* (2019) 5:44.

Kasale, L.L, Winand, M., and Robinson, (2018) Performance management of National Sports Organizations: *A holistic Theoretical Model. Sport Business and Management: An International Journal*,8(5)

Khodayari, F. and Khodayari, B. (2011). Service quality in higher education. *Interdisciplinary Journal of Research in Business*, *1*(9), 40–43.

Martin, D., Donoghue, P. G. O., Bradley, J. and McGrath, D. (2021). Developing a framework for professional practice in applied performance analysis. *International Journal of Performance Analysis in Sport*, 2021.1951490.

Matina, S. S. and Ngulube, P. (2019). Records management practices in primary schools in support of good governance and organisational accountability. *Library Philosophy and Practice*, 3590.

Montellano, J. M. (2017). Development of athlete's registration management and monitoring system. *Eur. Sport Manag*, 34, 15.

Mukred, M., Yusof, Z. M., Al-Moallemi, W. A., Mokhtar, U. M. and Hawash, B. (2021). Electronic records management systems and the competency of educational institutions: Evidence from Yemen. *Information Development* 38(1).

Mukred, M., Yusof, Z., Mokhtar, U. M. and Fauzi, F. (2019). Management system adoption in the higher professional education: Individual, technological and environmental factors. *Springer Nature Switzerland AG* 2019.

O'Neill, M. M., Calder, A. A. and Hinz, B. (2017). Student-athletes in my classroom: Australian teachers' perspectives of the problems faced by student-athletes balancing school and sport. *Australian Journal of Teacher Education*, *42*(9).

Pallewatte, P. C. K. D., Vidanagama, D. U. and Wijekoon, W. W. (2019). E-Performance management process for athletics in Sri Lanka. *Int. Sports Eng. Assoc*.

Pfeffer, J. and Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective.* Stanford University Press.

Riatti, P. and Thiel, A. (2023). The role of the body in electronic sport: a scoping review. *Ger J Exerc Sport Res*.

Sotiriadou, P. and Wicker, P. (2013). Community sports clubs' responses to institutional and resource dependence pressures for government grants. *Annals of Leisure Research*, *16*(4), 297-314.

Wicker, P., Vos, S., Scheerder, J. and Breuer, C. (2013). The link between resource problems and inter-organisational relationships: S quantitative study of Western European sport clubs. *Managing Leisure*, *18*(1), 31-45.

Winand, M., Steen, A. and Kasale, L. L. (2021). Performance management practices in the sport sector: An examination of 32 Scottish national sport organizations. *Journal of Global Sport Management*, 1-24.

Yuee, Y. (2020). *The importance of data recovery & backup when dealing with sensitive data*. Retrieved from https://swiftsystems.com/guides-tips/the-importance-of-data-recovery-backup-whendealing-with-sensitive-data/. [Accessed on 10 October 2023].

Mildred L. Patten & Michelle Newhart (2018). *Research Methodology* Tenth edition published by Routledge 711 Third Avenue, New York, NY 10017 and by Routledge 2 Park Square, Milton Park, Abingdon, Oxon,

Miles M.B .,Huberman M.A,. and Saldana. J.,(2019) *Qualitative Data Analysis*. A Methods Sourcebook. Sage Publications

Montellano, J.M.,(2017).*Development of Athlete's Registration Management and Monitoring Systems.*

Nagahara, R., Morin., J. B. and Koido, M. (2016). Impairment of sprint mechanical properties in an actual football match: A pilot study. *Int J Sports Physiol Perform*. 2016;11 (7):893–8.

Newhart, M., & Patten, M. L. (2018). Understanding research methods: *An overview of the essentials.*

Omorege, P. O. (2016). The impact of technology on sport performance. *Proceedings of INCEDI 2016 Conference* 29th-31st August 2016, Accra, Ghana.

Popi, S and Veerle D.B.,(2017).*Managing High-Performance Sport. Introduction to past present and future considerations*. Eur. Sport Manag.

Rathonyi, G., Bacsne, B. E., Muller, A. and Rathonyi-Odor, K. (2018). How digital technologies are changing sport? *ABSTRACT* Vol.12. Number 3-4. 2018 Pages 89-96.

Ric, A., Torrents, C., Goncalves, B., Torres-Ronda, L., Sampaio, J. and Hristovski, R. (2017).Dynamics of tactical behaviour in association football when manipulating players' space of interaction. *PLoS One* 2017;12 (7):0180773

Saunders, M.N.K., Lewis, P. & Thornhill, A. (2023) *Research Methods for Business Students*. 8th Edition, Pearson, London

Saunders, M. N., & Townsend, K. (2018). Choosing participants. *The Sage Handbook of qualitative business and management research methods (pp. 480â€“494). SAGE Publications Inc*.

Sekaran U and Bogie R (2020) *Research Methods for Business:* A Skill-building Approach.8th Edition. Wiley.

Tobi, H, & Kampen, J. K. (2018). "*Research design*: the methodology for interdisciplinary Research framework". Quality & Quantity. OX14

APPENDICES

List of Appendices

Appendix 1. Study authorization letter from Bindura University of Science Education

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF
SCIENCE AND ENGINEERING

P. Bag 1020
BINDURA, Zimbabwe

Tel: 263 -0662106134
Fax: 263 -0662107552/6007
Cell: 263-77291671

9 November 2022

TO WHOM IT MAY CONCERN.

RE: MASTER OF SCIENCE IN SPORTS MANAGEMENT DISSERTATION STUDY ACCESS REQUEST.

This is to certify that (MSc 2414) is a bona fide Master of Science in Sports Science student in the Department of Sports Science at the Bindura University of Science Education. She is conducting an action research study entitled: "**Designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe**."

We are kindly requesting your organization to partner with him in the study by participating in the data collection and intervention strategy development process. Participation in this research is completely voluntary and you may choose to withdraw from the research at any time. The information from your organization will only be used for academic purposes and be kept private and confidential. Codes will be used to identify participant organizations. This is meant to ensure that information would not be linked to the providers. Password-protected computers will be used to store any identifiable information that may be obtained from your organization. Data will also be analyzed at the group level, to ensure anonymity. Your support will be pivotal to the success of the study.

If you have any queries regarding this project, please phone me at 0772916712, or lysiastapiwacharumbira1968@gmail.com or lcharumbira@buse.ac.zw.We would like to thank you in advance for the support.

Yours Sincerely

Lysias Tapiwanashe Charumbira (Dr.)**Chairperson.**

Appenice 2.

All communications should be addressed to the
Secretary for Primary and
Secondary Education
Telephone: +263 242 794 509
Toll Free: 317

ZIMBABWE

Ministry of Primary and Secondary Education
88 Kwame Nkrumah Avenue
Queen Lozikeyi House
P O Box 121
Causeway, Harare

Reference : C/426/3

28 March 2024

P O
Causeway
Harare

RE: PERMISSION TO CARRY OUT A RESEARCH IN HARARE METROPOLITAN PROVINCE : NORTHERN CENTRAL DISTRICT: BLAKISTON JUNIOR, AVONDALE, GEREY PARK, DAVID LIVINGSTONE ADMIRAL TAIT ,VAINONA AND LOUIS MT. BATTEN PRIMARY SCHOOLS

Reference is made to your application to carry a research from the above mentioned district schools on the research title:

"DESIGNING AN ATHLETE E- PERFORMANCE RECORD-KEEPING FRAME WORK FOR PRIMARY SCHOOLS IN ZIMBABWE."

Permission is hereby granted. However, you must liaise with the Provincial Education Director of Harare Metropolitan Province, who is responsible for the schools which you want to involve in your research. You should ensure that your research work does not disrupt the normal operations of the schools. Where students are involved, parental consent is required.

You are also required to provide a copy of your final report to the Secretary for Primary and Secondary Education.

M.Pedzisai : **A/Deputy Director:Research,Innovation and Development**
For SECRETARY FOR PRIMARY AND SECONDARY EDUCATION

THE DIRECTOR
Ministry of Primary and Secondary Education
Strategic Policy Planning, Research & Statistics
28 MAR 2024
P.O. BOX CY 121, CAUSEWAY, HARARE
ZIMBABWE

Appendix 3

DATA COLLECTION TOOLS

QUESTIONNAIRE FOR PE TEACHERS, COACHES, SCHOOL ADMINISTRATORS

My name is MSC 2414 I am a student at Bindura University of Science Education pursuing a Masters of Science Degree in Sports Management (MScSM). I am researching **designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe.** You are kindly asked to respond to the questionnaire items below. Your contributions will be used solely for scholarly purposes and will be kept completely confidential.

SECTION A: SOCIO-DEMOGRAPHIC DATA (TICK WHERE APPROPRIATE)

1. Gender: Male ☐ ☐ Female

2. 21-30 ☐ 31-40 ☐ 41-50 ☐ OVER 50 ☐

3. Please indicate your professional qualifications: No formal education ☐ Primary ☐ Secondary ☐ Certification ☐ Diploma ☐ Degree ☐ Postgraduate ☐

4. Date……..

SECTION B

Instructions: The charts below list some of the operational practices emphasized by organizations concerning athlete e performance record-keeping practices. Indicate the extent to which your primary schools have implemented these practices using the following scales.

The questionnaire will make use of a 5-point Likert scale listed below

SD-strongly Disagree	**D – Disagree**	**N-Neutral**	**A-Agree**	**SA-Strongly Agree**

1. **RECORD KEEPING SYSTEMS AVAILABLE.**

How far do you agree with the following statements?

Practices	**SD**	**D**	**N**	**A**	**SA**
Zimbabwe primary schools have adopted digital Sport Registration Systems to register students for different sports					
Zimbabwe primary schools use grade books and sport achievement records to keep athletes sports progress.					
Zimbabwe primary schools use team roasters to record athletes personal information					
Coaches in primary schools use match and game score sheets to record scores, statistics and other relevant details during matches.					
Zimbabwe primary schools conduct physical fitness assessments to evaluate athletes' overall fitness levels and medical records					
Zimbabwe primary schools track, and record the behaviour and discipline of athletes.					

Current levels of e -performance record keeping practices schools.	**SD**	**D**	**N**	**A**	**SA**

There is availability and reliability of technology infrastructure, such as internet connectivity and computer hardware					
There is availability of funds and resources to play a crucial role in the adoption of e-performance record systems.					
Supportive government policies, initiatives, and funding that can encourage schools to adopt e-performance record systems.					
There is a readiness of teachers and staff to embrace technology and their capacity to effectively use e-performance record systems					
Schools are prioritizing technology integration, data-driven decision-making, and personalized record system					
The level of support and engagement from parents can also impact the adoption of e-performance record systems.					
There are concerns regarding data security and student privacy that can influence the adoption of e-performance record systems.					

Effectiveness of the current athlete e-performance record-keeping systems being used for primary schools in Zimbabwe.

Current levels of e -performance record keeping practices schools.	**SD**	**D**	**N**	**A**	**SA**
There is reliable technology infrastructure, such as internet connectivity and computer hardware					
The record-keeping is easily accessible to athletes, coaches, and other authorized personnel					
The system integrates with other relevant systems, such as training management software, athlete monitoring tools, and competition databases.					
There is data security and student privacy in record-keeping					

The system supports the analysis of performance data, enabling coaches and athletes to identify strengths, weaknesses, and areas for improvement					
The record-keeping system facilitates communication and feedback between athletes, coaches, and support staff in primary schools					
Key features of e performance record-keeping system	**SD**	**D**	**N**	**A**	**SA**
e-performance record-keeping system for primary schools Should include Individual performance tracking					
The e-performance record-keeping system for primary schools Should provide comprehensive metrics to track various performance aspects such as flexibility, strength, speed, and skill level.					
e-performance record-keeping system for primary schools Should generate regular progress reports that can be shared with stakeholders					
E-performance record keeping system for primary schools Should present visual formats including charts, and graphs.					
E-performance record keeping system for primary schools Should enhance communication and collaboration					
E-performance record keeping system for primary schools can integrate with other school management platforms					
E-performance record keeping system for primary schools Should have robust security measures					

Thank you!

Appendix 4

INTERVIEW GUIDE FOR, COACHES, SCHOOL ADMINISTRATORS, AND PE TEACHERS

Instructions

Each participant will be identified using codes. Interviewers and interviewees must not identify themselves by name, job title, or company during the interviews. It is not permitted to use personal information or examples that may be used to identify you or other people present. The conversations will be taped and transcribed afterwards. There are no compulsory questions, and your contributions are strictly confidential.

1. How do you currently track and maintain athlete records in your primary school?

2. What challenges or difficulties do you encounter in managing athlete records?

3. What specific information do you consider important to include in athlete records?

4. How do you currently assess and evaluate the performance and progress of your athletes?

5. What types of data or metrics do you collect and analyze to monitor the development of athletes?

6. Do you have any existing systems or tools in place to assist with athlete record keeping? If so, what are their limitations?

7. Are there any specific requirements or features you would like to see in an athlete record-keeping framework?

8. How do you currently communicate and share athlete records with coaches, parents, or other relevant stakeholders?

9. What level of accessibility and security do you expect from an athlete record-keeping system?

10. What athlete e-performance record-keeping system can be designed for primary schools in Zimbabwe?

Appendix 5. **Informed Consent Form**

INFORMED CONSENT FORM

Purpose of study:

You are being asked to participate in a study that seeks to '**Design an athlete e-performance record-keeping framework for primary schools in Zimbabwe'**

Conditions for Participation:

1. I volunteered to participate in a research project conducted by the Sports Science Department at Bindura University of Science Education.
2. I understand that I will not be paid for my participation.
3. I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
4. I understand that all information I provide for this study will be treated confidentially.
5. I understand that in any report on the results of this research, my identity will remain anonymous.
6. I understand that disguised extracts from my interview may be quoted in the research report and subsequent publications.
7. I agree to my interview being audio-recorded.
8. I understand that original audio recordings and data transcripts will be retained at the Bindura University of Science Education for six months, thereafter, the material will be deleted.
9. I understand that signed consent forms will be retained at the Bindura University of Science Education.
10. I understand that I can withdraw permission to use data from my interview within two weeks after the interview, in which case the material will be deleted.
11. I understand that my identity will be protected and I will be assigned a code name or number
12. By signing this form I am attesting that I have had the purpose and nature of the study explained to me and I have had the opportunity to ask questions about the study and fully understand the nature and character of my involvement in this research and I freely give my consent to participate in the study.
13. 1 have been given a copy of this consent form.

Name of Research Participant: ……Signature:……. Date:……

Name of Principal Investigator: ……Signature:…… Date:……

Appendix 6

CONFIDENTIALITY AGREEMENT

This agreement is between:

Individuals Receiving the Information: MSC 2414

and

Name of Individual Disclosing the Information:

……

for

A Research Project Entitled:

"Designing an athlete e-performance record-keeping framework for primary schools in Zimbabwe "

AGREEMENT

1. For purposes of this Agreement, the term "**Confidential Information**" means any of the following:

(i) nonpublic information relating to the Parties' technical or non-technical data, know-how, algorithms, formulas, patterns, compilations, programs, devices, methods, research and development data, computer source and object code, trade secrets, recipes, techniques, drawings, processes, products, services, or lists of actual or potential customers or suppliers, technology, business plans and methods, promotional and marketing activities, finances and other business affairs;

(ii) third-party information that the Parties are obligated to keep confidential; and (Personal information is under the custody or control of the Parties.

2. The Discloser intends to disclose confidential information to the Recipient for the study.

3. The Recipient undertakes not to use the confidential information for any purpose except

the purpose of the study, without first obtaining the written agreement of the Discloser.

4. Strong password-protected computers will be used to store identifiable information.

5. Only two members of the research team who are signatories to this agreement shall have access to the two computers.

6. Identifiable information will also be used in a manner that would not be linked to the providers.

7. Confidential Information shall be returned to the Disclosing Party at the request of the Disclosing Party or shall be destroyed within thirty days after the completion of the study.

8. In cases of breach of this agreement by the Receiving Parties, the Disclosing Party shall be entitled as a matter of right, to injunctive relief, including specific performance.

SIGNED:

a. Individuals Receiving the Information:

1. Name……Signature ……Date……. 2. Name……Signature ……Date…….

b. Individuals Disclosing the Information:

1. Name……Signature ……Date…….

c. Witness:

1. Name……Signature ……Date…….