

Utilization of Library and Information Services by Physical Education Scholars, Coaches, and Athletes: A Framework For Sports Information Systems

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Abstract

The study explores the utilization of library and information services (LIS) among physical education scholars, coaches, and athletes, and proposes a framework for a smart Sports Information System (SIS). In the current digital era, timely access to academic research, performance data, and digital resources is crucial for sports professionals. Data were collected from six major institutions in Punjab and Haryana using structured questionnaires and interviews. Findings indicate that scholars exhibit the highest awareness of library resources, while coaches and athletes increasingly rely on digital and real-time analytics platforms. The study proposes a SIS framework integrating information access, analytics, training modules, knowledge management, and personalized dashboards, which can enhance research, training, and performance outcomes for all stakeholders.

Keywords: Sports Information System, Library Services, Physical Education, Coaches, Athletes, Knowledge Management, Digital Resources

1. INTRODUCTION

In the evolving landscape of sports sciences and physical education, access to accurate and timely information has become critical for athletes, coaches, and scholars. Libraries and digital information services are now central in supporting evidence-based training methods, research activities, and knowledge dissemination. With the integration of Information and Communication Technology (ICT), traditional libraries have transformed into dynamic sports information systems (SIS) that facilitate real-time data analytics, digital repositories, e-journals, and performance insights for all stakeholders.

Modern sports professionals rely not only on academic research but also on real-time performance data, wearable analytics, and interactive training modules. Consequently, a well-structured SIS can bridge the gap between traditional library services and digital innovations, providing personalized dashboards, knowledge management, and analytical tools for scholars, coaches, and athletes.

2. Review of Literature

The literature highlights the growing importance of library and information services (LIS) in sports education and training. Studies indicate that physical education scholars, sports scientists, and elite athletes rely extensively on libraries for research, skill enhancement, and access to emerging technologies.

Table 1. Summary of Key Studies on LIS Utilization in Sports Sciences

Author(s) & Year	Focus Area	Key Findings
Singh & Kaur (2018)	Use of e-resources in sports libraries	High reliance on e-journals and online sports databases
Sharma (2019)	Role of ICT in sports knowledge dissemination	ICT enhances efficiency in accessing sports research
Verma & Gill (2020)	Digital repositories for sports professionals	Institutional repositories improve scholarly productivity
Patel et al. (2021)	Information-seeking behavior of coaches	Coaches prefer audiovisual content and performance dashboards
Khan & Rani (2023)	Smart sports information systems	Integration of AI and analytics boosts training outcomes

Interpretation: From Table 1, it is evident that digital platforms and ICT integration have enhanced access to research and performance resources. Scholars rely heavily on e-journals and repositories, while coaches

prefer visual and analytical tools. The growing adoption of smart information systems indicates the need for a unified framework to streamline knowledge access and training support.

3. Objectives of the Study

The study was conducted with the following objectives:

1. To examine the utilization of library and information services among physical education scholars, coaches, and athletes.
2. To propose a framework for a smart Sports Information System (SIS) integrating libraries, digital resources, and real-time analytics.

4. RESEARCH METHODOLOGY

A descriptive research design was adopted. Data were collected from six major sports-related institutions in Punjab and Haryana using structured questionnaires and interviews. The study focused on three respondent groups: scholars, coaches, and athletes.

Table 2. Sample Distribution by Institution and Respondent Category

Institution	Scholars	Coaches	Athletes	Total
Guru Nanak Dev University, Amritsar	22	11	20	53
Punjabi University, Patiala	15	18	15	48
Panjab University, Chandigarh	47	8	25	80
Kurukshehra University, Haryana	9	5	10	24
Netaji Subhas National Institute of Sports, Patiala	0	25	25	50
The Maharaja Bhupinder Singh Punjab Sports University, Patiala	0	5	20	25
Total	93	72	115	280

Interpretation: The table shows that athletes form the largest group, followed by scholars and coaches. The sample ensures representation across institutions, enabling a comprehensive analysis of LIS utilization in sports education and training.

5. Data Analysis and Interpretation

The analysis reveals varying levels of awareness and utilization of library and information services among different respondent groups.

Table 3. Awareness of Library and Digital Information Services

Category	High Awareness (%)	Moderate Awareness (%)	Low Awareness (%)
Scholars	78%	18%	4%
Coaches	65%	25%	10%
Athletes	52%	30%	18%

Interpretation: Scholars exhibit the highest awareness of digital resources, primarily using e-journals and institutional repositories. Coaches show moderate adoption of digital information systems, preferring practical, visual content like performance dashboards. Athletes, while increasingly exposed to wearable-based analytics, still demonstrate relatively lower utilization of library-based services.

6. Proposed Framework for Sports Information Systems

The proposed Sports Information System (SIS) integrates traditional libraries with modern AI-driven, analytics-enabled platforms, enabling personalized dashboards, knowledge management, and training modules for scholars, coaches, and athletes.

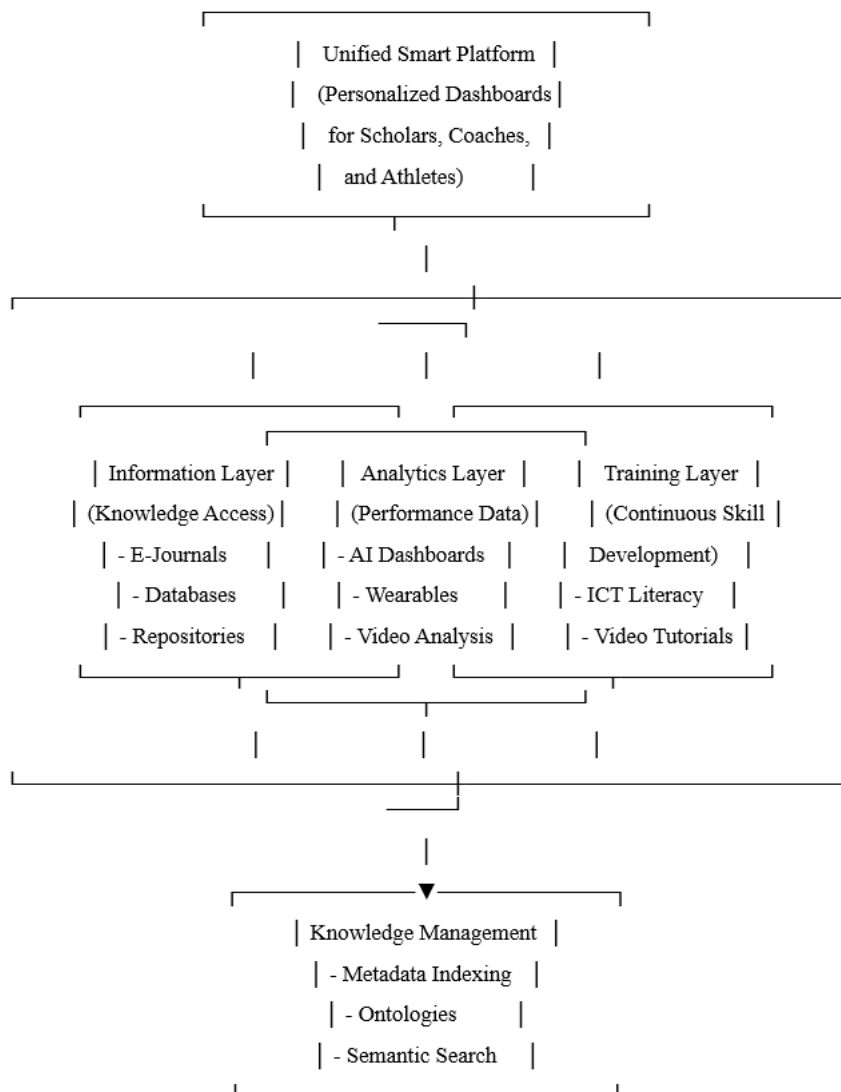
Table 4. Components of the Smart Sports Information System

Layer	Description	Key Tools/Features
Information Layer	Access to academic and sports data resources	E-journals, databases, repositories
Analytics Layer	Real-time performance insights	AI dashboards, wearable integration

Training Layer	Upskilling stakeholders	ICT literacy workshops, video-based learning
Knowledge Management Layer	Organizing and indexing sports science data	Metadata, ontologies, semantic search
Unified Smart Platform	Centralized, personalized access	Dashboards for scholars, coaches, athletes

Interpretation: A multi-layered SIS can cater to the diverse needs of sports professionals, integrating information access, analytics, training, and knowledge management. The unified platform ensures all stakeholders have personalized, real-time access to critical resources.

SIS Conceptual Diagram



7. Findings

- Libraries are transforming from physical repositories to smart, hybrid information systems.
- Digital literacy levels significantly impact the utilization of library services.
- There is a strong demand for integrated sports information systems that combine academic content, real-time analytics, and training resources.

8. CONCLUSION

Integrating traditional libraries with modern digital and analytical tools is crucial to meet the evolving information needs of physical education scholars, coaches, and athletes. A smart Sports Information System (SIS) can facilitate knowledge management, performance enhancement, and personalized learning experiences. Future research can focus on implementing SIS in universities and training centers,

evaluating its effectiveness in research, coaching, and athlete development, and integrating emerging technologies such as AI, cloud platforms, and IoT-based analytics.

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