

Review

# A systematic review of information literacy models in Yunnan province's physical education faculty

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**Abstract:** This research aimed to explore the concerning characteristics of information literacy in the physical education faculty of higher education institutions in Yunnan Province. This study provides a systematic meta-analysis of 33 peer-reviewed papers from 2019 to 2023. It discusses that information literacy includes basic research skills, critical thinking, and problem-solving, which include their application in the learning process. The paper describes some approaches that can be used to implement information literacy into teaching and learning, including courses with learning objectives, learner-centered approaches, and institutional support. The study also explored technology and its relation to adopting competencies for the growing technologies' evolution within the region's education sector. In addition, the following factors could have enhanced the process: time constraints, differences in discipline, and variations in the usage of information technology. The results indicate the need for context-specific professional learning and policy intervention to facilitate the practice of physical education faculty in Yunnan. The information collected here serves as the framework for effective regional policies regarding education, curriculum, and teacher training, among other related aspects.

**Keywords:** information literacy; physical education; colleges; universities; Yunnan province

## 1. Introduction

The growing appreciation of the centrality of information literacy in the 21st-century learning environment in which teachers play a critical role in forging intellectual talent explains the need to conceptualize physical education teachers' information literacy evaluation model (Spires et al., 2019). Leaning (2019) noted that, due to increased digital literacy, instructors, especially those teaching physical education, should possess many information literacy skills. To fill this gap, this study comprehensively explores the information literacy model, which is valuable for teachers in colleges and universities in Yunnan Province due to the constant changes in education. The specific challenges in this area emphasize the determination of the state and development of PE teachers' information literacy competencies, their preparation for working in the modern academic environment, and their role in further developing students' intellectual leadership potential (Simonton et al., 2022).

The province of Yunnan was selected as the subject of this study because it has a different educational environment that may be affected by cultural, economic, and geographical factors. The ethnic characteristics of the area, when compared to the educational assets of other Chinese provinces, make it challenging to adapt literacy approaches to physical education programs (Culp, 2020). The present factors make for a reasonable explanation of Yunnan and help understand the development of

information regions with analogous characteristics. The results obtained from the study will help enhance educational practices in Yunnan and provide insights into other parts of the world with similar challenges.

### **1.1. Background of the study**

According to the party's 20th report, education, science, technology, and personnel are the fundamental and strategic conditions for building a modern socialist country in all respects. The global social and economic landscape, universal information technology, and precise, life-focused, significant data advancement have been linked to people's studies, lives, and professions. As a strategic and essential place for talent training, university teachers' information awareness and management play a crucial role. In education and teaching reform, teachers' information literacy requirements meet high standards, particularly in the case of physical education teachers' information teaching reform (Richards et al., 2018). This constantly guides teachers to establish the Internet and information thinking and continuously enriches teacher information development. It is essential to integrate information technology into every subject and every link of education in a diversified way, to pose severe challenges to education, and to make full use of information technology to build a new curriculum training mode and system.

Early in 2018, the State Council released a statement that aimed to comprehensively deepen the reform of the construction of the new era ahead of the emergence of the information age. Teachers' opinions in the informatization and artificial intelligence era of change suggest that teachers should take the lead in adapting to these changing times, especially in informatization, artificial intelligence, new skills, and innovative education development (Pedro et al., 2019). Step by step, the traditional education mode and means have transformed, transitioning from application-driven and integrated development to spearheading innovation and ecological reform, boosting teachers' and students' essential information application skills to foster information technology literacy and propelling the advancement of education modernization.

With the development of education informatization, primary school teaching has been helped, requiring education and information technology integration development; physical education is no exception, improving the quality of physical education teaching, promoting the future sports teachers and teachers (physical education students) the promotion of information literacy, adapt to the development of the information age, make sports intelligent, digital, wisdom, meet people yearning for sports to promote healthy life, and university sports professional talent training plan, target top design direction must be clear, university physical education teaching sports teachers more responsibility (Saykili, 2019).

This study aims to provide evidence-based insights into the creation of targeted interventions by assessing current information literacy models and their applicability to the specific requirements of physical education teachers. The study also sought to investigate the sustainability and adaptability of information literacy models over time, considering the dynamic nature of technology and information sources. This study aims to improve teaching methods in Yunnan and increase academic discourse on

information literacy. This study provided comprehensive knowledge about intellectual literacy in physical education and can guide policy, curriculum development, and teacher preparation initiatives.

## **1.2. Justifications of the study**

This study focuses on Yunnan Province because its educational context is conducive to exploring the issues and benefits of incorporating information literacy into physical education classes. Given the abundance of ethnic minorities and the generally low level of education in Yunnan, this paper aims to select a specific case to illustrate establishing an information literacy model for various groups. The study fills a gap in the literature to develop the information literacy competencies of physical education instructors in this region. Considering the socio-economic and cultural characteristics, it is informative for further research and school intervention in similar areas. This focus allows us to go into critical details of the background context, allowing us to draw more intelligent and potentially actionable conclusions that could benefit Yunnan Province and other international communities focused on presenting educational technologies and information literacies.

## **2. Literature review**

### **2.1. Information literacy competencies in Yunnan Province**

Through 2019 serving as the starting point for the literature search, the research aimed to uncover the latest advancements in education technology and information literacy. This was the year under consideration where the process of formulating new policies and strategies on how information and digital tools could be harnessed in learning within the Chinese context occurred. It is essential to evaluate the information literacy of physical education instructors in Yunnan Province to determine if they possess the skills needed to seek, evaluate, and use information for instructional purposes (Gu et al., 2020). The guidelines of this review included the selection of thirty-three scientific articles published between 2019 and 2023 from peer-reviewed sources and academic databases. Google Scholar and all other Research4Life-related databases used terms such as ‘information literacy’, ‘physical education’, ‘Yunnan Province’ and ‘higher education’. Boolean operators improved searches, and the article input must meet specific requirements, including language and peer review.

Information literacy in education is much more than knowing how to research and find a particular piece of information. It includes assessing, integrating, and applying the findings delineated within the school context. Mitchell et al. (2021) mentioned that information literacy comprises multi-dimensional knowledge of competencies necessary in teaching practices. It goes beyond discrete learning competencies that are perfect for teaching, which optimally suits a simplistic strategy. In the diversity of learning settings in Yunnan Province, it has been established that to facilitate learning, physical education teachers must develop knowledge of identifying accurate sources of information (Guo et al., 2020). The current generation, where all information is available through advanced technologies, can explain the high rate of this occurrence (Wei, 2023). The research has presented the idea of developing content

knowledge in mathematics education but also, in the same process, established the understanding of broader education principles as a factor to be taken into consideration. Integrating physical education is relevant to others as it has unique features for physical education teachers.

## **2.2. Pedagogical integration of information literacy in physical education**

To analyze the approaches and methods used by the teachers of physical education in Yunnan Province regarding incorporating information literacy into the curriculum, it is crucial to review the described strategies and tools in connection with the physical education agenda. The study was designed to identify the level at which information literacy was embedded into the instructional practices of the physical education instructors at Yunnan College and University. Integration will only succeed if the course objectives and learning outcomes align with the information literacy objectives (Philpot et al., 2021). Students should use information literacy skills throughout the learning process rather than storing them as a deposit of knowledge (Falloon, 2020).

According to Pangrazio et al. (2020), problem-solving and group work, as part of active learning strategies, can help higher education institutions in Yunnan Province to integrate information literature into their curriculum. Such proposals are received positively by leveraging solutions that focus on how practical knowledge is gained significantly in the physical education domain in Yunnan Province (Yang, 2022).

## **2.3. Institutional support for information literacy in Yunnan province**

Examining the level of institutional support in developing and promoting information literacy skills among the physical education instructors in Yunnan Province required assessing several elements (Lili and Yingjin, 2020). This investigation entails rules or regulations set by educational institutions concerning the kind of formation of information literacy. These policies form the basis for developing direction and specific targets for information literacy programs in the province. In addition, the examination highlights the materials that colleges and universities disseminate. They are differentiated into financial and tangible support for training programs, teaching aids, information-providing activities, and the establishment of particular settings designed to accommodate information literacy activities (Yu and Mu, 2023). Knowledge about resource management gives a considerable amount of information about the institutional dedication to enhancing information literacy among physical education trainers.

Another critical aspect of the investigation is the possibilities of professional development. This includes examining the various training programs, conferences, and seminars that educational institutions provide to enhance the knowledge competence of physical education instructors. The relevance of these possibilities in responding to specific concerns and situations that teachers experience forms a significant part of evaluating the overall support provided. The institutional commitment feature emphasizes the importance of institutions. This factor defines the commitment component when building information literacy into practice. For a province with such a compressed educational environment as Yunnan Province, it is

evident that such teaching methods call for individual approaches. Embedding information literacy involves embracing activities that support efforts to advance information literacy and other activities in a way that's appropriate for the region, with special considerations given to the peculiarities of the region (Chow-Bing, 2022).

Course-focused professional development programs are valuable in providing instructors with vital competencies. This emphasizes the active participation of colleges and universities in allocating capital and time to enhance the instruction of physical education teachers. These essential factors contribute to the research questions about how well these programs have adapted to satisfy educators' demands and ensure long-term employability and skills acquisition. Moreover, the well-equipped libraries and availability of online databases in Yunnan Province play a role in setting the appropriate climate conducive to information literacy development. Available infrastructure facilitates the integration of information literacy in the teaching and learning process, providing educators with the necessary tools and materials.

#### **2.4. Technology use in physical education instruction in Yunnan province**

According to Meng et al. (2021), technology plays a crucial and primary function in an extended study on an instructional approach to physical education in Yunnan Province, focusing on literacy. The educators who practice in the area now appreciate technology as a shift towards increasing the effectiveness of acquiring and using information. This aligns with the technological advancement drive that Yunnan Province supports in education (Caena and Redecker, 2019). Hicks and Lloyd (2021) explore the role of digital materials, databases, and educational technologies in the Yunnan Province learning context. These resources and technologies offer a perspective with exceptional promise for involving students in information literacy exercises. Yunnan's higher education institutions regard integrating information technology as essential to developing information literacy rather than as a separate event.

Many notable examples demonstrate the successful use of technology in promoting the development of information literacy skills among students in Yunnan Province. The cases above include interactive multimedia resources, which augment the educational process by providing dynamic and captivating content. Online forums facilitate collaborative learning by allowing students to engage in interactive discussions, exchange knowledge, and collectively enhance their information literacy proficiencies. Virtual simulations are educational tools that allow students to apply information literacy in real-world situations, providing a practical and immersive learning experience. The technical efforts mentioned are based on Yunnan Province's technologically oriented educational philosophy. Using technology in educational methods helps to develop information literacy skills. It demonstrates a more comprehensive dedication to equipping students with the challenges of an increasingly digital society (Jing and Panyadee, 2023). In Yunnan Province, technology has significantly developed an information literacy environment for physical education instructors and students.

## **2.5. Perceived challenges in information literacy integration in Yunnan province**

Instructors need help implementing information literacy in physical education teaching in Yunnan Province. All these issues call for specific interventions in a way that they are hard to solve. Awareness of these challenges is essential for providing and strengthening proper intervention mechanisms. According to Kaeophanuek et al. (2019), this system has several challenges, specifically time limitations. Teachers in physical education classes can express concerns about how to incorporate information literacy teaching into the more comprehensive curriculum. The situation where the students require information for subject-specific materials poses a problem regarding the time required to conduct thorough information literacy sessions (Wickens and Parker, 2023). The particular setting of this study in colleges and universities in Yunnan, where students may encounter fluctuations in the level of academic demand, adds to the challenge above. One difficult challenge that often poses a significant problem in society is time management.

The discipline's nature entails several barriers, making it harder to introduce information literacy to physical education in Yunnan Province. Incorporating physical education requires applying special assessment measures tailored to a place's cultural and educational specificities. Challenges include integrating information literacy teaching and learning with the practical aspects of offering physical education lessons and ensuring that the resources used are culturally sensitive (Grose, 2019). Another challenge is adapting to new approaches to instruction in information literacy practice. These findings suggest that Yunnan Province physical education instructors who effectively teach information literacy skills to their students may require further training and support in pedagogical approaches to information literacy. This emphasizes the importance of the state's professional development programs, which must meet the needs of physical education teachers in the region.

## **3. Methodology**

The year 2019 was selected to gather the most recent data and findings concerning the given topic and because of improvements in educational technologies and public policies in the past years. More IT applications in education have emerged since 2019 in regions like Yunnan Province, where new initiatives and guidelines aim to enhance teachers' information competence. The technique was developed to investigate the complex features of information literacy within the physical education setting in higher education in Yunnan.

The systematic approach was applied to provide comprehensive data collected via well-defined research methods developed based on the information from previous studies. The primary difference that can be made here is that although this investigation concerns students, it is not like other research activities related to students because it addresses physical education teachers' specific information literacy needs. The research systematically reviewed the available literature to provide a credible and comprehensive analysis.

The present study ensured the proper conduct of a systematic and comprehensive literature review incorporating major scholarly databases like Google Scholar and

Research4Life. The researcher combined the Boolean operators with advanced search terms such as information literacy, physical education, colleges, universities, and Yunnan Province. These criteria were set to ensure that only the most relevant and high-quality items were included in the sample. Emphasis was placed on peer-reviewed publications published in English, with a frequency range between 2019 and 2023. More emphasis was placed on articles that discuss the information literacy model of physical education teachers in the Chinese higher education context.

The researchers maintained rigorous academic practice by excluding papers not meeting the inclusion criteria, such as those published before 2019, non-peer-reviewed works, and studies conducted in learning systems other than the Chinese higher education system. The researchers selected these articles and extracted original data to identify emerging patterns. The chosen articles about the study's design, method, sample size, data analysis, and relevance to the research question were carefully reviewed. The literature review was framed with a particular reference to ethics, such as ensuring the correct source and citation.

However, it is essential to recognize some limitations; some sources in languages other than English were excluded, and the temporal criterion might have overlooked the historical context. This study aimed to gain a greater insight into the current state of information literacy concerning this group of physical education teachers in Chinese higher learning institutions. This was done by emphasizing current research and relying on secondary data from studies in this area.

#### **4. Results and discussion**

Emphasizing Yunnan Province sharpens the focus on the indices and provides contextualized information that can enhance information literacy in physical education. As a result, the study emphasizes the importance of tailoring information literacy strategies to the setting and context of the need in different localities. Therefore, integrating information literacy into physical education in Yunnan necessitates understanding the contextual factors that influence the implementation and sustainability of these practices. With these proposed local considerations, the study advances the discussion on the effectiveness of educational technologies and learning innovations in the world of education, suggesting recommendations that would be helpful for other regions experiencing similar predicaments. That contextual approach emphasizes the need for context-specific solutions to create sustainable and scalable information literacy programs for various educational contexts. Tang (2023) demonstrates the importance of these competencies in education. They go beyond the purview of research skills to include critical evaluation, synthesis, and real-world application in educational contexts.

Regarding integrating information literacy into pedagogy, the study's findings show that Yunnan Province's physical education teachers use several strategies to integrate information literacy into their teaching methods successfully. Integrating information literacy objectives with specific course goals and content is necessary. Yang (2022) claims that research has shown how to successfully support the integration of information literacy into the curriculum via active learning strategies, including problem-based learning and group projects. This may be partially observed

in Yunnan Province, especially in physical education, where practical knowledge is emphasized. Kim et al.'s (2022) investigations reveal a clear preference among such learners for approaches to developing practical knowledge in this particular region.

The study demonstrates that colleges and universities in Yunnan Province have increased in developing and improving the information literacy competencies related to institutional support among physical education teachers. Information literacy integration needs institutional support. Institutional support is crucial for information literacy integration to become effective in a higher learning institution. The complexity of the educational environment in Yunnan Province makes it relevant to tackle the problem. To promote information literacy, the environment should be established through professional development programs and the provision of materials, including books with good stocks and database systems (Lacy and Hamlett, 2021). In addition, it provides insight into how technology influences the effective teaching practices of Yunnan Province's physical education teachers. However, the regional focus on technological developments in education has positioned technology as the means of enhancing knowledge processing and utilization. People in Yunnan Province understand technology as instrumental in building information literacy rather than as a one-time process. Techniques corresponding to the dominant philosophy of education and incorporating technology into the learning process include virtual simulations and interactive multimedia resources.

The practical strategies described in the framework include aligning information literacy with course objectives, adopting an active learning model, and utilizing relevant resources across different educational settings. The framework's analysis of information literacy relates to different educational settings, making these approaches useful in settings where physical education is included as instruction and students may face issues with resource deficiency or student variance. Through this approach of developing a framework based on the localized information literacy problem, this study seeks to inform the international community, scholars, governments, policymakers, and institutions on the possible ways of minimizing information literacy issues in various contexts.

This research reveals the perceived challenges that Physical Education Teachers in Yunnan Province have in incorporating Information Literacy (Hou, 2021). Teachers have also complained about the load of teaching information literacy and, at the same time, the broader curriculum. Discipline-specific challenges, end users' cultural barriers, and the lack of systematic instruction in information literacy exacerbate these problems (Head et al., 2020). This underscores the importance of developing physical education teachers' expertise through capacity-building programs geared toward teachers in Yunnan Province. The amount of academic stress students experience could differ depending on the colleges and institutions in Yunnan. Managing time is getting more critical (Li et al., 2022).

## **5. Direction for future studies**

The results of the research point to future research, which will be oriented as follows: The exciting line of future research is a focus on general and specific pedagogical activities increasing information literacy of physical education teachers



in different contexts. New studies may focus on evidence-based approaches for enhancing information literacy performance, such as problem-based and project-based learning methods. However, further research is needed on institutional support that includes the development of long-term information literacy skills. Future research could also be conducted on the influence of new technologies on the growth of information literacy in physical education, considering that technology is growing quickly. A last area where future research may need greater focus is a cross-national study to examine how context impacts the generalizability of information literacy interventions more broadly.

The findings of this study underscore the importance of instruction in infusing information literacy. Further research questions could examine the intricacies of how PE teachers in Yunnan Province adopt the methods and assess the effectiveness of more active approaches like problem-based learning and collaborative projects. Understanding these complexities, especially against Yunnan Province's focus on practical knowledge, contributes much to the valuable lessons that could be gained for enriching instructional methodologies and curriculum construction in both countries. Future studies will also examine the impacts of newer technologies on PE information literacy growth, as this technology is fast developing.

Future research has to shift more focus to cross-national studies that tease out aspects of context influencing the general applicability of information literacy interventions. The results reflect the need for information literacy to be embedded into the curriculum and instruction. Further research questions could be asked about the complexities of the physical education teachers' approaches in Yunnan Province to determine the value of active learning strategies such as problem-based learning and collaborative projects. Understanding the complexities of these techniques within the framework of 'knowing how,' which is grounded in experiences inside Yunnan Province, has many lessons to improve instructional methodologies and curriculum-making processes.

Colleges and universities can lead in promoting the development of information literacy skills. This could also be a future research enterprise, the distinct elements of institutional support that make a meaningful difference in integrating information literacy. An institutional strategy, policy wording, and professional development concerns enacted to further information literacy development in Yunnan Province would likely provide insights valuable for educational institutions seeking to adopt best practices in such an area.

Another area that requires further investigation is the influence of technology on instructional methods. The scope needs to be reduced to precisely those categories of technology currently used by physical education instructors in Yunnan Province and their effect on information retrieval and its use. A better understanding of the complexities of integration and its confluence with the local emphasis on educational and technological innovation will provide a platform for developing innovative pedagogical practices.

Potential sources of perceived constraints felt by physical education teachers present an excellent avenue for a concentrated study. Future research studies may examine the complexities of time management challenges, including the variation in the level of academic stress within higher education institutions and its impact on

tutors' ability to incorporate information literacy into their teaching practice. Moreover, exploring individual solutions for dealing with discipline-related challenges and cultural differences may improve the development of effective therapies and assistance programs.

## **6. Limitations**

It is essential to outline specific limitations in this study, even if it integrates numerous sources and approaches into the analysis. Limiting the sources to English has caused the disregard of potentially valuable sources discussing information literacy in the Yunnan Province of China and publishing their articles in Chinese. Furthermore, it is crucial to acknowledge that the research focuses on a specific area of interest, which may only partially translate to diverse cultures, economic conditions, and global educational systems (Fainshmidt et al., 2018). Moreover, given that the current study is a secondary analysis design, the number of data sources available and the existing research limitations hinder the study design. The subsequent studies should implement the following suggestions to bridge the gaps above. First, expanding the list of sources involved in the research and potentially using questionnaires to ensure the results are consistent in other settings are needed.

## **7. Policy recommendations**

The study's implications include policy recommendations from multiple perspectives to improve physical education teachers' information literacy in Yunnan Province. Education policymakers should provide details on PD interventions to enhance curriculum and information literacy teaching during physical education lessons. The development of such programs should sufficiently meet the factors explained in the study, such as time factors and discipline problems. Physical education teachers and instructors must adopt specific measures that promote information literacy and the utilization of IT and teaching aids in order to achieve the following goals: Lastly, to ensure that the support is sustainable, there is a need to encourage the institutionalization of support, principally through making available enumerated resources for the integration and funding of ongoing professional development, directions, interferences, and skills grounded in information literacy education.

## **8. Conclusion**

The results regarding the information literacy competencies of the physical education instructors from the Yunnan Province represent relevant information about the variabilities of experience and the teaching approaches in this rather specific educational context. The findings assert that information literacy goes beyond locating information and knowledge but also involves the appraisal, integration, and application of information. This broad view of information literacy is critical given the tasks that physical education teachers in Yunnan face, such as the speedy introduction of new technologies into education and the varying learners' needs. These strategies and techniques encompass various methods of integrating information literacy into the

teaching practices that the study proposes. Such include developing specificity in response to course outcomes, increasing techniques that reframe students' perceptions and thoughts, and excellent support from the institution. The use of technology in curricula has a crucial role in the educational process, improving teaching strategies and developing critical thinking skills related to information.

Several questions related to information literacy and its application in teaching PE arise from the conducted research, and all of them must be addressed to enhance the result. Challenges include limited time and discipline-specific concerns, such as integrating information literacy when the program is mainly practical and graphic. Such challenges imply a need to find a solution that addresses physical education needs. In addition, seminars and workshops related to professional development for the instructors should be conducted as they should be cognizant of and ready with the competencies and approaches in Integrating information literacy in teaching-learning processes. While the study links the information with the Yunnan Province in China, such findings apply to other provinces. Such challenges and strategies may be helpful in future studies on the information literacy of PE students in other settings and levels.

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