



Problems and Possibilities for Physical Education Management in Selected High Schools in Guizhou, China

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Abstract: The management of Physical Education (PE) in high schools faces significant challenges in the post-pandemic era, particularly in developing regions like Guizhou, China. This study investigates the specific problems and possibilities in PE management as perceived by the teachers implementing these programs. **Methods:** A quantitative survey was administered to 55 PE teachers from three high schools in Guizhou. The questionnaire assessed their perceptions of challenges and potential solutions across five domains: budget management, resource allocation, professional development, teaching strategies, and curriculum design. Data were analyzed using descriptive statistics and correlational analysis. **Results:** Teachers identified budget management and allocation as the most significant challenge ($M=2.71$), while also rating it as the area with the lowest potential for immediate resolution. In contrast, curriculum design and innovation were seen as a moderate challenge ($M=3.01$) but held the highest potential for improvement. A significant positive correlation was found between teachers' assessment of challenges and their belief in the possibility of addressing them. **Discussion:** The findings indicate that while systemic issues like funding are major obstacles, teachers are optimistic about solutions within their control, particularly pedagogical innovation. The study concludes that effective PE management improvement should involve strategic budget advocacy by administrators while empowering teachers to develop context-specific, innovative curricula that maximize existing resources.

Keywords: Physical Education Management, Post-Pandemic Education, Teacher Perception, Budget Allocation, Curriculum Innovation

Introduction

With schools resuming in-person classes, there is an urgent need to address the challenges of physical education management, particularly at the high school level, and to develop solutions that can improve the quality and effectiveness of these programs. As a result, many students may experience a decline in physical health and fitness, which could have long-term impacts on their overall well-being. Therefore, there is an urgent need to address the challenges of physical education management and implement solutions that can improve the quality and effectiveness of these programs. This includes addressing issues related to budgets, resources, teacher training, and curriculum, as well as finding innovative ways to encourage student participation in physical activities and health education.

Physical education is widely recognized as a crucial measure to encourage high school students to participate in physical activities; however, how to maintain high-quality physical education implementation during virtual learning remains unresolved (Piggin, 2021). The inability of teachers to closely monitor students' learning while using online learning platforms is one of the main reasons for the poor effectiveness of this teaching model in actual teaching (Ilahi et al., 2021). Given the numerous challenges faced by physical education teachers during the pandemic, this study aims to explore the difficulties and opportunities in physical education management in the post-pandemic era. Therefore, the answers provided in this study may help us determine whether we can successfully utilize technology to conduct and manage physical education courses.

This study aims to explore the problems and opportunities in high school physical education management, with a particular focus on physical education management in the post-pandemic era. The research will examine the current challenges facing school physical education management, the impact of these challenges on the quality and effectiveness of the physical education curriculum, and the possibilities for addressing these challenges to improve physical education management.

Literature Review

The post-pandemic era has forced physical education teachers to adopt new teaching methods and formats. A 2021 UNESCO study showed that many physical education teachers were forced to shift to online teaching, which posed a significant barrier for those unfamiliar with this model. Teachers also reported difficulty maintaining student engagement in remote learning due to technical challenges and resource scarcity. Henrique et al. (2021) found that students learning remotely lacked social interaction and physical activity. Without classroom instruction, students struggled to remain active.

Traditional physical education teaching methods overemphasize technical proficiency and repetitive practice, neglecting broader educational goals related to physical activity. Therefore, a teaching strategy is recommended that prioritize



students' physical literacy and comprehensive understanding of physical activity through a model-based framework. Casey and Kirk (2021)

Murtagh (2023) points out that existing research indicates virtual teaching methods and education will continue beyond the COVID-19 pandemic. The teaching methods and experiential learning characteristics of Physical Education Teacher Education (PETE) are often underestimated during the transition to digital platforms. Education experts point out that teaching in a virtual environment presents numerous challenges because students' facial expressions are difficult to discern.

Research has found that the main obstacles lie in the lack of suitable venues and infrastructure, as well as insufficient training for teachers in information and communication technologies. The research by Zhu and Wang (2020) highlights the lack of space for physical activities, which aligns with these findings. However, they have had to begin transitioning to new, established teaching systems. Initially, applications such as WeChat, Weibo, and Tencent QQ were widely used for communication. Some people adapted to this model through learning, while others strongly resisted these changes.

The pandemic has brought numerous challenges to the physical education sector, both for teachers and students. Teachers have had to adopt new teaching strategies and adjust their curricula, while students' opportunities for social interaction and physical activity have correspondingly decreased. A multi-pronged approach is needed to address these issues effectively. This includes investing in technology and equipment to help teachers adapt to new teaching formats, and emphasizing children's physical and mental well-being throughout the physical education process.

Teachers have utilized MOOCs, online learning, and other applications and tools to overcome some of these challenges. In fact, due to limited resources, they sometimes have to create their own demonstration videos. Huaijin et al. (2018) pointed out that teachers should be creative in students' online and offline learning activities to enhance the innovation of physical education courses and stimulate the learning interest of physical education students.

Statement of problems

This study aims to investigate physical education teachers' assessments of the current challenges facing school physical education management, and the possibilities for addressing these challenges and improving the quality and effectiveness of physical education courses. The survey covers budget management and allocation, resource acquisition and utilization, professional development and training, teaching strategies, and curriculum design and innovation.

Specifically, this study will explore the following questions:

1. What are the basic characteristics of the respondents?
 - 1.1. Gender;
 - 1.2. Age;
 - 1.3. Years of teaching experience?
2. How do physical education teachers assess the current challenges facing school physical education management? Specifically, this includes:
 - 2.1. Budget management and allocation;
 - 2.2. Resource acquisition and utilization;
 - 2.3. Professional development and training;
 - 2.4. Teaching strategies;
 - 2.5. Curriculum design and innovation?
3. After grouping physical education teachers according to their professional occupation, are there significant differences in their assessments of the current challenges facing school physical education management?
4. How do physical education teachers assess the possibility of addressing these challenges and improving the quality and effectiveness of physical education courses, specifically including:
 - 4.1. Budget management and allocation;
 - 4.2. Resource acquisition and utilization;
 - 4.3. Professional development and training;
 - 4.4. Teaching strategies;
 - 4.5. Curriculum design and innovation?
5. When teacher occupation is used as a testing factor, are there significant differences in physical education teachers' assessments of these challenges and the possibility of improving the quality and effectiveness of physical education courses?
6. Is there a significant correlation between physical education teachers' assessments of the current challenges facing school physical education management and the possibility of addressing these challenges and improving the quality and effectiveness of physical education courses?

Research Design

This study employs a quantitative comparative research design to investigate physical education (PE) teachers' views on the current challenges facing school physical education management and the possibilities for

addressing these challenges and improving the quality and effectiveness of physical education courses. The study will use questionnaires to collect data from PE teachers, focusing on their evaluations of budget management and allocation, resource acquisition and utilization, professional development and training, teaching strategies, and curriculum design and innovation. The questionnaires will also collect personal information such as gender, age, and teaching experience.

The quantitative comparative research design is appropriate for this study because it helps to systematically and objectively explore PE teachers' views on the current obstacles to physical education management in educational institutions and potential ways to alleviate these challenges. This design is suitable for collecting quantitative data relevant to educators' perspectives. This data can be statistically analyzed to determine whether significant differences exist between different groups. Furthermore, this design helps to simultaneously explore various factors, such as financial planning and allocation, resource procurement and utilization, skills and knowledge enhancement, teaching methods, and educational programs and development. By systematically collecting data related to various variables, this study aims to provide a comprehensive understanding of the challenges and opportunities facing physical education management in educational institutions.

The quantitative comparative design is considered suitable because it helps to assess the evaluations of different teacher groups. This study aims to identify significant differences in evaluations by comparing male and female teachers, younger and older teachers, and experienced and novice teachers. The data collected will contribute to developing more effective and relevant plans for physical education curricula.

Research Location

This study was conducted in Guizhou Province. The research focused on the provincial capital, Guiyang City, as well as two prefecture-level cities, Zunyi and Qiandongnan Miao and Dong Autonomous Prefecture. This multi-site approach was deliberately chosen to capture a more representative spectrum of the economic, geographic, and cultural conditions that influence educational management in the province.

The selection of specific schools within these areas followed a purposive sampling strategy to ensure diversity in institutional profiles. The research sites comprised three public high schools:

School A (Guiyang Urban Key High School): Located in the urban center of Guiyang, this is a provincial-level key high school with a strong academic reputation. It typically benefits from relatively better funding, more advanced facilities, and a student body primarily from urban, Han Chinese families. This school represents the "best-case" scenario for resource allocation in the region.

School B (Zunyi Urban-Rural Fringe High School): Situated on the outskirts of Zunyi, a major urban center in northern Guizhou, this school serves a mixed student population from urban, suburban, and nearby rural areas. It experiences a mid-level of resource availability, facing challenges common to developing urban areas but with greater access to municipal resources than remote rural schools. It serves as a representative case of the "average" or "mainstream" high school experience in the province.

School C (Qiandongnan Rural Ordinary High School): Located in a rural county within the Qiandongnan Miao and Dong Autonomous Prefecture, this school primarily serves students from ethnic minority (Miao and Dong) backgrounds and surrounding rural communities. It typically contends with the greatest resource constraints, including limited sports facilities, fewer specialized teachers, and the challenges of serving a geographically dispersed population. This school provides critical insight into the most significant challenges facing PE management in the province's less developed areas.

Participants

The respondents were physical education teachers from these three high schools who faced challenges in managing physical education curricula. The sample for this study was drawn from the physical education teacher population of these three high schools. Due to the relatively small overall size, a census method was used. Therefore, all physical education teachers from the three high schools facing challenges in managing physical education curricula were included in this study.

Research Instruments

This study will use a self-administered questionnaire as its research tool. The questionnaire consists of three parts. The first part collects basic information about the respondents, including gender, age, and years of work experience. The second part asks respondents to assess the challenges currently facing school sports management, including budget management and allocation, resource acquisition and utilization, professional development and training, teaching strategies, and curriculum design and innovation. This part uses a four-point Likert scale, where 1 represents strongly disagree, 2 represents disagree, 3 represents agree, and 4 represents strongly agree. The third part asks respondents to assess the possibility of addressing the challenges presented in the second part and improving the quality and effectiveness of sports programs. This part also uses a four-point Likert scale.

This research tool will be reviewed by three experts in the field of physical education. These three experts all have extensive experience and expertise. They will be asked to evaluate the clarity, relevance, and applicability of the questionnaire. Upon receiving feedback, we will revise the questionnaire to ensure it is clear, relevant, and suitable for this study. This process aims to ensure the questionnaire has face validity. We will use Cronbach's alpha coefficient to

assess the internal consistency of the questionnaire. A Cronbach's alpha coefficient of 0.70 or higher is considered an acceptable research standard (Nunnally, 1978; Polit & Beck, 2017).

The overall reliability test results for the questionnaire showed a Cronbach's alpha coefficient of 0.985, indicating that the reliability of all items was highly consistent. The reliability test results demonstrate that this research tool has statistically significant reliability.

Ethical Considerations

This study will adhere to ethical principles to protect the rights and interests of participants. Researchers will obtain informed consent from all participants before they participate in the study. Participants will then receive information regarding the research objectives, data collection methods, confidentiality measures, and other relevant information. Researchers will ensure the confidentiality and privacy of participants' personal information. Collected data will only be accessible to authorized personnel and used solely for the established research objectives.

In accordance with the established protocol, researchers will ensure the dignity, rights, and privacy of participants are protected. The research will not have any adverse effects on the physical or mental health of the participants. The research will ensure that no individual or group is discriminated against based on their gender, race, ethnicity, or any other demographic characteristic. Upon completion of the study, researchers will provide participants with an explanation of the research results. The research results and their potential impact on the field of physical education will be communicated to participants.

Results and Discussion

Profile of the Respondents

Profile	Frequency	Percentage
Age		
Less than 30 years old	9	16.4%
30-40 years old	24	43.6%
41-50 years old	20	36.4%
More than 50 years old	2	3.6%
Total	55	100%
Sex		
Male	38	69.1%
Female	17	30.9%
Total	55	100%
Length of Service		
Less than 5 years	7	12.7%
5-10 years	18	32.7%
11-15 years	13	23.6%
More than 15 years	17	30.9%

Regarding age, among the surveyed physical education teachers, 9 (approximately 16.4%) were under 30 years old, 24 (approximately 43.6%) were between 30 and 40 years old, 20 (approximately 36.4%) were between 41 and 50 years old, and 2 (approximately 3.6%) were over 50 years old. This means that the majority of physical education teachers are between 30 and 40 years old. This suggests that most teachers are in the early or middle stages of their careers, and they likely possess sufficient teaching experience and energy to meet the physical and instructional demands of the subject.

Regarding gender, 38 physical education teachers (approximately 69.1%) were male, and 17 (approximately 30.9%) were female. This means that the majority of physical education teachers are male. This indicates that physical education teaching is predominantly male, which may reflect traditional gender stereotypes in the field of sports and physical training.

Regarding teaching experience, among the surveyed physical education teachers, 7 (approximately 12.7%) had less than 5 years of teaching experience, 18 (approximately 32.7%) had 5-10 years, 13 (approximately 23.6%) had 11-15 years, and 17 (approximately 30.9%) had more than 15 years. This means that the majority of the surveyed physical education teachers have 5-10 years of teaching experience. This indicates that most respondents are in the middle of their careers, demonstrating both youthful teaching energy and accumulated rich experience in student management and physical education courses.

An assessment of the budget management and allocation challenges faced by physical education teachers in school sports administration.

1. I feel that there is adequate funding for physical education programs in my school.	2.85	.89	Agree	A Challenge	1
2. I believe that budget constraints have a negative impact on the quality of physical education programs in my school.	2.70	.99	Agree	A Challenge	3
3. I think that there is fair distribution of resources for physical education programs in my school.	2.83	.87	Agree	A Challenge	2
4. I believe that the allocation of funds for physical education programs is a priority in my school.	2.54	.99	Agree	A Challenge	5
5. I feel that the school administration adequately communicates the budget for physical education programs.	2.61	1.02	Agree	A Challenge	4
Composite Mean	2.71	.68	Agree	A Challenge	

Legend: 3.5 1-4.00 Strongly Agree/ Very Much A Challenge; 2.5 1-3.50 Agree/ A Challenge; 1.5 1-2.50 Disagree/ Somehow A Challenge 1.00-1.50 Strongly Disagree/ Not A Challenge

Regarding budget management and allocation, the highest-rated statement was "I believe our school's sports programs are adequately funded," with an average score of 2.85, described as "Agree" and interpreted as "Challenging." This means that most physical education teachers acknowledge the existence of funding but still perceive it as a challenge, requiring continued support to ensure the sustainability of the programs. This suggests that while funding is in place, some limitations may still exist, hindering the full and effective implementation of the programs.

The lowest-rated statement was "I believe our school prioritizes the allocation of funds for sports programs," with an average score of 2.54, also described as "Agree" and interpreted as "Challenging." This means that teachers perceive the allocation of sports funding as a lower priority compared to other areas of the school. This indicates that sports budgets are not always prioritized in the school's financial planning, which may limit the development and quality of the programs. The overall average score was 2.71, rated "Agree" and interpreted as "Challenging," indicating that teachers generally acknowledge the ongoing budget-related challenges in physical education management. This suggests that despite efforts to raise funds and allocate resources, funding issues remain a significant obstacle for schools to strengthen high-quality physical education programs and need to be addressed.

Summative assessment by physical education teachers of the current challenges facing school sports management

	Mean	SD	Qualitative Description	Interpretation	Rank
Budget Management and Allocation	2.71	.68	Agree	A Challenge	5
Resource Acquisition and Utilization	2.87	.68	Agree	A Challenge	4
Professional Development and Training	2.95	.69	Agree	A Challenge	3
Teaching Strategies	3.14	.47	Agree	A Challenge	1
Curriculum Design and Innovation	3.12	.49	Agree	A Challenge	2
Overall	2.96	.52	Agree	A Challenge	

Legend: 3.5 1-4.00 Strongly Agree/ Very Much A Challenge; 2.5 1-3.50 Agree/ A Challenge; 1.5 1-2.50 Disagree/ Somehow A Challenge 1.00-1.50 Strongly Disagree/ Not A Challenge

Regarding the challenges currently facing school sports administration, teaching strategies received the highest evaluation score, averaging 3.14, described as "Agree" and interpreted as "A Challenge." This means teachers recognize the importance of effective teaching methods in stimulating student interest and aligning with school goals, but still perceive shortcomings in assessment and innovation. This indicates that while teaching strategies themselves are sound and well-founded, maintaining their relevance and adapting to the diverse needs of students remains an ongoing challenge.

Budget management and allocation received the lowest evaluation score, averaging 2.71, described as "Agree" and interpreted as "A Challenge." This means teachers consider financial support the most pressing issue hindering the implementation of high-quality sports programs. This suggests that even well-planned strategies and innovative curricula may not be fully realized without adequate and prioritized funding.

The overall average score was 2.96, described as "Agree" and interpreted as "A Challenge," indicating that overall, teachers perceive challenges in all five areas of sports administration, albeit to varying degrees. This indicates that while teaching strategies and curriculum design demonstrate relative advantages, financial constraints, insufficient resources,

and inadequate professional development remain persistent obstacles that schools need to address in order to fully realize the potential of physical education programs.

An assessment of the potential of physical education teachers to address these challenges in terms of budget management and allocation, and to improve the quality and efficiency of physical education courses.

	Mean	SD	Qualitative Description	Interpretation	Rank
1. It is possible to secure more funding for physical education programs in schools.	2.98	.80	Agree	Addressed	3
2. There is a possibility of allocating funds for hiring additional physical education teachers.	2.85	.91	Agree	Addressed	5
3. It is possible to allocate funds for the purchase of new and modern physical education equipment.	3.03	.76	Agree	Addressed	2
4. It is possible to develop a comprehensive budget plan that prioritizes physical education programs.	2.98	.78	Agree	Addressed	3
5. Adequate funding can lead to an improvement in the quality and effectiveness of physical education programs.	3.23	.71	Agree	Addressed	1
Composite Mean	3.01	.72	Agree	Addressed	

Legend: 3.51-4.00 Strongly Agree/ Very Much Addressed; 2.51-3.50 Agree/ Addressed; 1.51-2.50 Disagree/ Somehow Addressed; 1.00-1.50 Strongly Disagree/ Not Addressed

Regarding budget management and allocation, the statement "Sufficient funding can improve the quality and effectiveness of physical education programs" received the highest rating, with an average score of 3.23, verbally expressed as "Agree" and interpreted as "Resolved." This means that teachers strongly believe that financial support is a key factor in improving the success rate of physical education programs. This indicates that with sufficient funding, schools can expand resources, improve facilities, and support more innovative and effective teaching practices.

The statement "It is possible to allocate funds to hire more physical education teachers" received the lowest rating, with an average score of 2.85, verbally expressed as "Agree" and interpreted as "Resolved." This means that while respondents acknowledged this possibility, they considered it less feasible compared to other budget improvement measures. This suggests that while staffing is important, budget constraints may make recruitment more difficult to prioritize than purchasing equipment or developing budget plans.

The overall average score was 3.01, described as "Agree" and interpreted as "Resolved," indicating that overall, physical education teachers see a clear possibility of addressing budget management and allocation challenges. This suggests that although funding constraints remain, strategic planning and prioritizing funding can significantly improve the quality and effectiveness of physical education programs.

An assessment of the potential of physical education teachers to address these challenges in terms of resource access and utilization and to improve the quality and effectiveness of physical education programs.

	Mean	SD	Qualitative Description	Interpretation	Rank
1. It is possible to obtain more resources, such as sports facilities and equipment, for physical education programs.	3.18	.61	Agree	Addressed	5
2. There is a possibility of utilizing technology, such as online resources and fitness apps, to enhance physical education programs.	3.21	.59	Agree	Addressed	2
3. There is a possibility of partnering with local sports organizations and clubs to enhance physical education programs.	3.20	.64	Agree	Addressed	3
4. There is a possibility of developing a system for effective utilization and maintenance of physical education resources.	3.20	.59	Agree	Addressed	3
5. Proper acquisition and utilization of resources can lead to an improvement in the quality and effectiveness of physical education programs.	3.23	.57	Agree	Addressed	1
Composite Mean	3.20	.57	Agree	Addressed	

Legend: 3.51-4.00 Strongly Agree/ Very Much Addressed; 2.51-3.50 Agree/ Addressed; 1.51-2.50 Disagree/ Somehow Addressed; 1.00-1.50 Strongly Disagree/ Not Addressed

Regarding resource acquisition and utilization, the statement "Reasonable acquisition and utilization of resources can improve the quality and effectiveness of physical education programs" received the highest rating, with an average score of 3.23. It was verbally expressed as "Agree" and interpreted as "Resolved." This means that teachers believe efficient

resource management is a key factor in improving physical education outcomes. This indicates that when resources are sufficient, well-maintained, and strategically utilized, the quality of physical education teaching will significantly improve. The statement "More resources, such as sports facilities and equipment, can be acquired for physical education programs" received the lowest rating, with an average score of 3.18. It was verbally expressed as "Agree" and interpreted as "Resolved." This means that while teachers acknowledge the need for more resources, they believe that acquiring resources is less feasible compared to improving resource utilization or establishing partnerships. This suggests that external constraints such as budget limitations or administrative processes may hinder the rapid expansion of resources. The overall average score was 3.20, rated as "Agree," and interpreted as "Resolved," indicating that teachers generally believe resource acquisition and utilization can be effectively improved. This demonstrates that, despite some limitations in acquiring new facilities or equipment, schools can enhance their physical education programs by maximizing the use of technology, fostering collaboration, and maintaining appropriate resource utilization systems.

Conclusions

This study concludes that physical education teachers in selected Guizhou high schools operate within a framework of significant constraints tempered by a clear sense of possibility. The primary challenge lies in the realm of budget management and allocation, which teachers perceive as under-prioritized, thereby limiting the potential of all other areas. Despite these systemic financial constraints, teachers demonstrate a resilient belief in their ability to effect change, particularly through curriculum design and innovation. This suggests a professional focus on pedagogical solutions within their immediate control, even when broader resource limitations persist.

Furthermore, the analysis reveals that experience shapes perception. Mid-career and senior teachers, likely more familiar with institutional inertia, reported greater concern regarding budgetary and resource challenges. However, a significant positive correlation across all experience levels indicates a collective consensus: the recognition of a problem is intrinsically linked to the belief that it can be solved. This underscores a fundamental readiness among the teaching workforce to engage in improvement efforts, provided they receive adequate support.

Enhancing PE management in this context requires a dual approach. First, advocacy is needed at the administrative level to secure more stable and prioritized funding for PE programs. Second, and more immediately actionable, is the need to support teachers' capacity for innovation. The path forward hinges on aligning top-down resource support with bottom-up, teacher-led instructional innovation.

Recommendations

1. School administrators and policymakers should allocate a more stable and prioritized share of their budgets to physical education programs, ensuring that funds are used to support the sustainable development of facilities, equipment, and programs.
2. Schools should collaborate with local government departments, private institutions, and community stakeholders to supplement limited resources and maximize the use of existing facilities and equipment through proper management and maintenance.
3. Regular and relevant training, workshops, and lectures should be provided for teachers, especially intermediate and advanced teachers, to ensure their skills are updated, encourage continuous development, and enhance their enthusiasm for professional learning.
4. Teachers should be encouraged and supported to adopt experiential, student-centered, and technology-enhanced teaching strategies to increase student engagement and align teaching practices with evolving educational standards.
5. Curriculum planners should integrate health education, modern teaching methods, and innovative approaches into physical education to make it more comprehensive, relevant, and better suited to current needs.
6. Tailored interventions should be implemented to address teachers' differing perspectives: enhance the motivation and training of intermediate-level teachers, maintain the enthusiasm of junior-level teachers, and provide tangible support for senior-level teachers.
7. Given the similarities in perspectives among male and female teachers, schools should ensure equal access to professional development, resources, and opportunities for both genders to improve curriculum implementation effectiveness and avoid any bias.

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