

A Study on the Impacts and Strategies of Physical Education Teaching on Student Physical Fitness Health in China—Exploring with Content Analysis Method

Zheng Guan^{a,*}, Chao-Chin Liu^b

Guangdong Vocational and Technical University of Business and Technology, Zhaoqing, 526020, China
^a945170965@qq.com, ^b399245279@qq.com

*Corresponding author

Abstract: This study is to explore the overview of relevant research about the impact and the factors of physical education teaching on students' physical fitness and health in China, the effectiveness of physical education teaching in improving students' physical fitness health, and corresponding strategies. The study adopts the content analysis method and the results are analysed by objective quantitative statistics as follows: (1) The number of relevant studies is growing rapidly. The most of the journal papers are about college students, expositional (logical) analysis, students' physical fitness and health, and physical education teaching. (2) The main factors affecting students' physical fitness health are physical exercise time, teacher quality, and teachers' professionalism. (3) The studies about that physical teaching improve students' physical fitness health has a high proportion. (4) The main strategies for improving students' physical fitness and health include optimizing the quality and content of teaching and sports clubs and school sports competitions. It is recommended that: (1) The relevant research should cover a wider range of educational stages and provide more empirical data. (2) It is advisable for school to increase student participation in exercise time, improve teacher quality and professionalism, regulate students' regular lifestyle patterns; (3) More empirical scientific evidence is needed to validate the effectiveness of improving students' physical fitness and even more physical education teaching conditions; (4) The strategies for physical education teaching to improve students' physical fitness, mainly are focusing on the quality and content of physical education teaching and encouraging students to participate in clubs and sports activities. (5) Education authorities should prioritize monitoring and evaluation system for students' physical fitness health.

Keywords: physical education teaching, physical fitness health, monitoring physical fitness health, content analysis method

1. Introduction

With the rapid development of social and economic development, great changes have taken place in the ideological concepts and the way of life of Chinese. Due to the impact of the target of long-life sports, traditional mode of physical education teaching has not been able to adapt the development of modern society or meet people's demand. Since 1985, the continuous research students' the physical fitness are reflected a continuous decline in 30 years [1], especially the decline in the physical fitness of youth groups is more worrying [2]. Therefore, improving the physical fitness health of domestic school students is emergent.

The Outline of the National Medium- and Long-Term Educational Reform and Development Plan (2010-2020) points out that the idea of health should be firmly established, the time for students' physical education courses and after-school activities should be ensured, the quality of physical education teaching should be improved, mental health education should be strengthened, and students' physical and mental health, physique and will should be strengthened and promoted [3]. Therefore, school physical education teaching plays a great role in promoting the physical fitness health of students during school [4][5]. School physical education teaching as a formal teaching program in schools can enhance students' physical fitness health and awareness through formal teaching content, complete sports facilities.

As young students are the pillars of the future nation, their physical fitness health is closely related to

the prosperity or decline of the country. Physical fitness health has become important topic around the world. There are numerous scholars studying the impact of physical education teaching and students' physical fitness health in China. However, due to different perspectives among scholars, different results and conclusions are obtained. This study aims to explore the current situation of physical education teaching and students' physical fitness health research in China, summarize relevant factors influencing students' physical fitness health and strategies, finally integrate the above arguments to present overall picture of physical education teaching and students' physical fitness health research in China.

2. Purpose of the study

The purpose of the study is specifically as following:

(1) To explore the overview of research which are about the impact of physical education teaching on students' physical fitness and health in China.

(2) To analyze the factors affecting students' physical fitness and health in physical education teaching in China.

(3) To analyze the research inference on the promotion effect of physical education teaching on students' physical fitness and health in China.

(4) To summarize the main strategies of physical education teaching in relevant research.

3. Research Methods

This study adopts content analysis, also known as information analysis or document analysis, which mainly explain the state of a particular phenomenon at a particular time, or the development of the phenomenon during a certain period of time [6]. As for the literature review, taking the qualitative and quantitative orientation and the variety of statistical methods used in the relevant studies into the consideration, the "systematic review" method, which is relatively more suitable for the content of this study, is adopted [7]. In conclusion, the study aims to review the research orientations, methods used in the relevant studies and to analyze the academic themes and research profiles that the researchers' concerns, the influencing factors, and the enhancement effects and strategies for enhancement.

3.1 Literature Review

The literature review in the study is collected on the "China National Knowledge Infrastructure" (www.cnki.net) system from August 1st to August 20th, 2023. The papers are searched in the database by using the combination of "physical education teaching (topic)" and "student physical fitness health (keyword)". A total of 805 articles are retrieved before July 30th, 2023. After deleting duplicates or irrelevant articles, 783 articles are obtained, which serve as the basis for analysis.

3.2 Coding

The study review systematically of relevant research using content analysis method, thus it is necessary to confirm the coding framework for analyzing the content of the literature at first. The coding process involves two parts. The coding process involves two parts. The first part is about basic information of research about students' physical fitness health in domestic physical education teaching, such as author name, title, year, data category (journal or thesis), etc. The second part are the main tools for analyzing the literature content, which determines what content should be extracted from the literature for analysis. After preliminary coding, feedback, and later assistance from two experts, a final version is completed which includes research objects, methods, areas, influencing factors, improvement effects, and strategies, etc. The formal coding system is set up to a table directly by the researchers. To ensure the accuracy of research coding, two coders separately code each article and enter into table one by one. Any discrepancies are discussed and confirmed by using the same coding standards.

3.3 Data Processing and Statistical Analysis

After inputting the data, the researcher checks the articles and discusses the inconsistent. Then, the data is converted into a SPSS data file, by the statistical software SPSS version 23.0, and analyzed by frequency distribution, cross-table, and other statistical analyses. Additionally, interpretations and

inferences regarding the assumptions of these hypothesis are presented [8].

4. The Results and Discussions

The study employs content analysis method based on the research objective, and use SPSS.26.0 statistical software to allocate counts and perform quantitative analysis on the effective sample data. The results are as follows.

4.1 The Analysis for the Overview of the Studies about the Impact of Physical education teaching on Students Physical Fitness Health

As shown in Table 1, the relevant published studies, there were 2 papers (accounting for 0.04%) before 1999. But from 2021 to 2023, there are 352 papers (accounting for 44.96%). And there are 134 papers (accounting for 17.11%) from 2021 to 2023. It shows that there is a tendency for the related studies to increase rapidly year by year. The categories of research are dominated by journal papers (accounting for 77.91%), dissertations (accounting for 14.18%), and conference papers (accounting for 5.36%). The research objects are dominated by college students (50.32%), middle school students (17.50%), all students (14.18%), and elementary school students (10.60%). The research methods are mainly expository (logical) analysis (44.96%), survey research method (24.65%), literature research method (15.96%), and experimental research method (10.34%). The research fields are mainly students' physical fitness health (49.04%), physical education teaching (41.51%), physical education policies and regulations (10.34%), teaching competitions and sports games (4.09%). The above analysis shows that the number of studies on the impact of physical education teaching on students' physical fitness and health in China has been growing rapidly year by year, with journal articles as the main category of research, college students as the largest number of research subjects, expository (logical) analysis as the main research method, and students' physical fitness and physical education teaching as the main research fields.

Table 1 The Summary of the Impact of Physical Education Teaching on Students' Physical Fitness Health

Published Years	Category	Objectives	Research Method	Research Filed					
Before1999	2	Journal	610	College students	394	Experiment	81	Physical education regulation	325
2001-2005	12	Dissertation	111	High school students	137	Documentary method	125		21
2006-2010	90	Conference	42	Junior students	52	Survey method	193	Sports administrations	5
2011-2015	193	Newspaper	5	Elementary school students	83	Analytical method	352	Racing game	32
2016-2020	352	Years book	15	All students	111	Interviewing method	27	Physical fitness health	384
After 2021	134	books	0	Others	6	others	5	Others	16
Totals	783		783		783		783		783

Note: The data were collected from (www.cnki.net) related research data on physical education teaching and students' physical fitness health

4.2 The Analysis for the Main Factors of the Studies about the Impact of Physical Education Teaching on Students' Physical Fitness Health

Since the implementation of the National Student Physical fitness health Standard, the decline in students' physical condition has still not been effectively improved, especially in the aspect of physical fitness indicators, which are still decreasing year by year [9]. The deterioration of students' physical fitness health in China is affected by various factors. According to comprehensive data analysis (see Table 2), the main factors that affect students' physical fitness health in physical education teaching are: students' lack of active participation in physical exercise (45.21%), teachers' teaching quality not meeting requirements (38.83%), teachers' lack of comprehensive professional literacy (36.27%), students' unhealthy lifestyle and irregular schedule (32.69%), the lack of implementation of students' physical fitness health monitoring and evaluation system (28.48%), schools' lack of emphasis on physical education teaching management (27.33%), students' or parents' lack of awareness of physical fitness health (26.26%), heavy academic workload affecting physical fitness health (16.48%), and the unsatisfactory school facilities and equipment (9.96%). Based on the above analysis, the main factors

that affect students' physical fitness health in physical education teaching are participation time in physical exercise, teachers' teaching quality, teachers' professional literacy, students' lifestyle and schedule, the monitoring and evaluation system for students' physical fitness health, schools' management of physical education teaching, students or parents' lack of awareness of physical fitness health, and other factors.

Table 2 The Analysis for the main factors of the studies about the Impact of Physical education teaching on Students' Physical Fitness Health

Dimensions	Times	Percentage
1.Students or parents' lack of awareness of physical fitness health	208	26.56
2.The lack of implementation of students' physical fitness health monitoring and evaluation system	223	28.48
3.Schools' lack of emphasis on physical education teaching management	214	27.33
4. Teachers' lack of comprehensive professional literacy	284	36.27
5. Teachers' teaching quality not meeting requirements	304	38.83
6. Students' lack of active participation in physical exercise	354	45.21
7. Unsatisfactory school facilities and equipment	178	9.96
8. Heavy academic workload affecting physical fitness health	129	16.48
9. Students' unhealthy lifestyle and irregular schedule	256	32.69
10. Other factors	64	8.17

Note: The data are from (www.cnki.net) about the influence of physical education teaching on students' physical fitness health

4.3 The Inference Analysis of the Studies about the Effect of Physical education teaching on Students' Physical Fitness Health

The improvement of students' physical fitness is an important goal of physical education teaching [10]. The study analyzes the collected the relevant studies about "physical education teaching on students' physical fitness". Because some of them do not have the purpose of exploring the improvement effect of physical fitness, the studies which are qualitative discussions are not counted in the analysis of 203 articles (accounting for 25.93%). On the other hand, there are 580 articles with clear results, as shown in the table 3, 187 (23.88%) of which are found to be completely effective, 237 (30.27%) of which are found to be mostly effective, 144 (18.39%) of which are found to be effective but with some prerequisites, 10 (1.28%) of which were found to be partially effective, and 2 (0.25%) of which are found to be ineffective. In the light of the above analysis, the results of the studies about the effect of physical education teaching on the improvement of students' physical fitness are not entirely consistent. But the relevant studies think that physical education teaching is effective are in the majority, and the relevant studies think that physical education teaching is less effective or insignificant are in the minority.

Table 3 The Studies about Effect of Physical education teaching on Students' Physical Fitness Health

Effect	Time	Percentage
Completely valid	187	23.88
Mostly valid	237	30.27
Valid with preconditions	144	18.39
Few valid	10	1.28
Effects are not evident	2	0.25
Effects are not the research aims	203	25.93
Total	783	100.00

Note: The data are from (www.cnki.net) about relevant research on physical education teaching for m on students' physical health

4.4 An Analysis of Effective Strategies for Improving Students' Physical Fitness Health in Physical Education Teaching in China

The study analyzes relevant studies, as shown in the table 4, and summarizes the effective strategies for improving students' physical fitness, the results are as follow:

The strategies for optimizing the teaching quality and teaching content of physical education teaching account for 87.61% among the studies; The strategies for setting up school sports clubs and enriching sports competitions on campus account for 50.19%; The strategies for implementation of the monitoring and evaluation system of physical fitness and health account for 49.94%; The strategies for promoting students' self-exercise and cultivation of exercise habits account for 49.17%; The strategies for

enhancement of the policy on physical fitness and health and implementation of the regulations account for 34.10%; The strategies for the construction of teachers' literacy account for 31.67%. The strategies for enriching sports venues and equipment account for 25.16%; The strategies for integrating sports competitions and games into physical education teaching account for 23.88%; The strategies for improving the evaluation system of students' core physical education teaching qualities account for 21.33%. The strategies for strengthening the social linkage mechanism between families, schools and communities account for 21.07%; The strategies for integration of students' physical fitness and physical education teaching 18.77%, and other strategies account for 18.65%.

In light of the above analysis, the most important strategies for improving students' physical fitness are improving the quality of physical education teaching, developing sports clubs and activities, physical fitness monitoring, the cultivation of sports habits, the implementation of policies and regulations, and the quality of teachers.

Since students' physical fitness health affects the future development of the country, the government has issued many policies and documents, including the National Students Physical Fitness Standard (Ministry of Education, 2007) in 2007 [11], the National Students' Physical Fitness and Health Research Results in 2014 [12], the National Quality Monitoring of Compulsory Education in 2018, Physical education teaching and Health Monitoring Results Report (Ministry of Education, 2019) in 2018 [2], which show that the state attaches importance to students' physical fitness and health. So school physical education teaching departments are required to look for concrete measures to improve the level of students' physical fitness and health.

Table 4 Summary of the Analysis of Effective Strategies to Improve Students' Physical Fitness in Physical Education Teaching

Dimensions	Time	Percentage
1. Improve the construction of teachers' literacy	248	31.67
2. Reform and optimize physical education teaching quality and content	686	87.61
3. Implement a physical fitness health monitoring and evaluation system	391	49.94
4. Help students grow self-exercise habit	385	49.17
5. Integrate sports competition and sports game into physical education teaching	187	23.88
6. Set up school sports clubs and enrich sports competitions on campus	393	50.19
7. Enrich sports venues and equipment	197	25.16
8. Improve the evaluation system of students' core physical education teaching qualities	167	21.33
9. Integrate of students' physical fitness and physical education teaching	147	18.77
10. Strengthen the social linkage mechanism between families, schools and communities	165	21.07
11. Enhance the policy on physical fitness and health and implementation of the regulations	267	34.10
12. Other strategies	146	18.65

Note: The data are from (www.cnki.net) about the relevant studies of the effective strategies on students' physical health

5. Conclusions and Suggestions

The study collects and explores the literature related to physical education teaching and students' physical fitness health in China, adopts the content analysis method, categorizes and statistically analyzes the results of related studies in a systematic, objective and quantitative manner, and summarizes the factors affecting students' physical fitness health in China and the strategies to improve students' physical fitness health. The following conclusions are obtained through the analysis and summarization, and further suggestions are made for reference.

5.1 Conclusions

The study is based on relevant research to explore the overview of the impact of physical education teaching on students' physical fitness and health in China, to analyze the factors affecting students' physical fitness and health in physical education teaching and the research inference and corresponding strategies to improve the effect. The studies get the results in a systematic, objective and quantitative

way, as follows:

(1) The number of studies on the impact of physical education teaching on students' physical fitness and health in China has shown a trend of rapid growth year by year, and the types of literature are mainly journal articles, college students as the main target, expository (logical) analysis as the main research methods.

(2) The main factors affecting students' physical fitness in physical education teaching in China are the amount of time they spend on physical activity, the quality of teachers' teaching, teachers' professionalism, students' lifestyle and routine, students' physical fitness monitoring and evaluation system, schools' management of physical education teaching, and students' or parents' knowledge of physical fitness.

(3) The results of studies about the effects of physical education teaching on students' physical fitness and health are not entirely consistent, but the majority of the studies think that physical education teaching is effective.

(4) The effective strategies for improving students' physical fitness and health are mainly the reform and optimization of the quality and content of physical education teaching, the consolidation of school sports clubs and the enrichment of campus sports competitions, the implementation of the physical fitness and health monitoring and evaluation system, the form of students' self-exercise and exercise habits, the enhancement of the implementation of physical fitness and health policies and regulations, and the building of teachers' teams and qualities, and so on.

5.2 Suggestions

(1) It is advisable to expand the study objects across all stages of education to gain a deeper understanding of the physical fitness health status of students at different stages of education. The research methods should be empirical research (such as experimental research methods) to collect more in-depth scientific data.

(2) It is essential to increase the amount of time students to exercise, improve the quality and professionalism of teachers in physical education teaching, suggest students a healthy lifestyle and regular schedule, strengthen the system of monitoring and evaluating of students' physical health and management of physical education in schools, improve professionalism of teachers and students' or parents' understanding of physical fitness health to eliminate the negative factors that affect students' physical health.

(3) More empirical scientific evidence is needed to support and verify the effectiveness of students' physical fitness health, and even more support from the conditions of physical education teaching, such as students' participation in physical exercise, teachers' teaching quality, teachers' professional literacy, students' lifestyle and schedule' physical health.

(4) The strategies of improving students' physical fitness health mainly are improving the quality of physical education teaching, establishing the school sports clubs and hosting activities, improving the physical fitness health monitoring system, developing students' sports habits, enforcing of policies and regulations, building up of the rank teachers and other strategies.

(5) In accordance with the requirements of the new national standards for assessing students' physical fitness health, the requirement of the Ministry of Education's publication of the Basic Standards for Physical Education in Higher Education Institutions and the National Standards for Students' Physical Fitness and Health, the education authorities are supposed to make the monitoring and evaluation system for students' physical fitness health a priority at all levels of schooling, so that it can meet the real-life requirements of the legalization of the country's governance and construction.

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