THE EFFECT OF TEACHERS' PRESCRIPTIVE TO PHYSICAL EDUCATION AT FITNESS SCHOOLS IN BEIJING, CHINA

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ABSTRACT

The purpose of this research was to study the levels of prescriptive and physical education among teachers at fitness schools in Beijing, China. Additionally, the study aimed to investigate the correlation between teachers' prescriptive and physical education at fitness schools in Beijing, China. The population for this study consisted of physical education teachers from various schools in Beijing Province, China. Data were collected using a questionnaire from a sample of 385 individuals, selected through non-probability sampling and using a convenience sampling method. The data were analyzed using measures such as frequency, percentage, mean, and standard deviation. Hypotheses were tested using Pearson correlation.

The results of the research found that:

most respondents were female, aged 31-40 years, with a higher education level, and an average monthly income of 6,001-8,000 yuan. Overall, respondents expressed high opinions on teachers' prescriptive and physical education at fitness schools in Beijing, China. Hypothesis testing revealed a statistically significant correlation between teachers' prescriptive and physical education at fitness schools in Beijing, China, with two pairs showing correlation. Specifically, without feedback was positively correlated with physical activities at the .000 level, demonstrating a moderate correlation, and integrative was positively correlated with physical activities at the .000 level, demonstrating a moderate correlation.

Keywords: Teachers prescriptive; Physical education; Fitness schools

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1. INTRODUCTION

While physical education is crucial in the twenty-first century and within schools, the primary goal of physical education teachers extends beyond traditional book learning. Their vision for students includes fostering proficiency in practical physical activities to enhance overall learning capabilities and promote physical well-being. Various studies have highlighted a significant positive correlation between teachers' prescriptions and physical education. According to Corbin (2021), the study revealed that the teaching of Physical Education and Sport (PES) is significantly hindered by poorly designed current syllabi, the adverse impact of examinations, teacher incompetency, insufficient resources dedicated to the subject, and negative attitudes of teachers and school administrators towards the discipline. Ivanova and Korostelev's (2019) study is devoted to describing the competitive method as an effective way to enhance the motivation of today's students in higher education physical education classes. The focus of this study is on teachers' prescriptions of physical education in today's schools.

This phenomenological research study explored the indirect impact of the Carol M. White Physical Education Program (PEP) Grant on middle school and high school physical education teachers in a semi-rural school district in Beijing, China. The project was federally funded by the Mainland China Department of Education. The primary aim of the PEP Grant was to support physical education teachers in this school district in implementing a program aimed at improving students' overall physical fitness. Instead of adhering to the traditional sports education model, which emphasizes team sports, this grant aimed to prioritize enhancing students' physical fitness and increasing participation in moderate and vigorous physical activities.

According to Mood, Jackson, and Morrow (2007), children should engage in moderate physical activity for thirty minutes per day, five or more days per week, and vigorous physical activity for twenty minutes per day, three or more days per week. The National Association for Sport and Physical Education (NASPE) (2011) recommends that elementary students participate in 150 minutes of physical activity per week, while middle and high school students should engage in 225 minutes per week (Halpin, 2012). According to The School Health Policies and Programs Study (SHPPS) 2012, only 3.8% of elementary schools, 7.9% of middle schools, and 2.1% of high schools provided daily physical education in the United States. The middle school and high school students involved in this PEP grant had several goals, including improvement in (a) time spent in moderate to vigorous physical activity, (b) nutrition habits, (c) body composition, (d) flexibility, (e) aerobic capacity, and (f) muscular strength and endurance.

Given the information above, it is evident that physical education teachers in fitness schools play a vital role in training and developing the physical potential of students. Therefore, the researcher's focus is on studying teachers' prescriptions related to physical education, including physical activities, team works, personal skills, and boost academic learning. These components are important for several reasons, as follows:

Firstly, physical education transcends the narrow confines of mere participation in physical activities; instead, it exerts a profound influence across multiple dimensions of a student's life (Emerson & Williams,

2015). This holistic perspective encompasses not only the physical aspects but also extends to include elements of team collaboration, personal skill development, and even academic learning (Dyson, 2014). Therefore, the educational landscape significantly benefits from the incorporation of physical education, as it contributes to the well-rounded development of students in various facets.

Secondly, within the realm of physical education, the inclusion of various physical activities serves as a valuable tool for assessing the immediate impact of teachers' prescriptive techniques on students' engagement in physical exercises (Huang & Chen, 2018). This critical dimension of educational analysis plays a pivotal role in enhancing our comprehension of how diverse teaching methodologies can influence students' active involvement and, consequently, contribute to their holistic physical well-being (Subramaniam, 2009).

Furthermore, it is imperative to emphasize that the integration of team collaboration and personal skill development within the framework of physical education aims to elucidate the intricate interplay of social and personal development dimensions (Teraoka & Kirk, 2022). This multifaceted examination extends its focus toward unveiling the potential influence wielded by teachers' prescriptive methodologies in nurturing essential qualities such as teamwork, effective communication skills, and the holistic personal growth of students (Kelly, Kelly, & Melograno, 2004).

Lastly, it is crucial to underscore the significance of incorporating academic learning as a pivotal dimension within the variable framework. This dimension serves as a critical conduit for unraveling the complex relationship between physical education and students' academic performance (Park & Jung, 2023). By doing so, it facilitates a comprehensive exploration of whether teachers' prescriptive approaches in the realm of physical education wield a beneficial or detrimental influence on students' scholastic achievements. This inquiry addresses a pressing concern within the educational landscape, offering valuable insights into the potential synergy or divergence between physical and intellectual development.

Another goal directly involved the physical education teachers in this school district. The PEP grant provided an opportunity for them to pursue professional development, enabling a better understanding of the necessary changes in curriculum and class management within their classes. More importantly, these professional development opportunities were intended to enhance their instructional capabilities.

2. OBJECTIVES

1. To study the level of teachers' perspectives at fitness schools in Beijing, China.

2. To study the level of physical education at fitness schools in Beijing, China.

3. To investigate the correlation between teachers' prescriptions and physical education at fitness schools in Beijing, China.

3. HYPOTHESIS

The correlation between teachers' prescriptions and physical education at fitness schools in Beijing, China.

4. LITERATURE REVIEW

Physical education provides students with numerous opportunities to enhance their overall lifestyle. Primarily, it offers students the chance to improve their physical fitness, development, and health. According to Nates, Nunnally, Kleinpell, Blosser, Goldner, Birriel, & Sprung (2016), consistent participation in physical activity is linked to a longer and higher quality of life, a reduced risk of disease, and various psychological and emotional benefits. Additionally, Bailey (2006) emphasized that physical education classes teach basic movement skills, providing students with the opportunity to apply these skills in sports or recreational settings. Moreover, physical education fosters the enhancement of students' social and cognitive development.

Martin, McCaughtry, Kulinna, and Cothran (2009) found that social cognitive-based interventions enhance the efficacy of physical education teachers. They specifically investigated an intervention designed to assist physical education teachers in delivering physically active lessons using the Exemplary Physical Education Curriculum (EPEC). The four domains of the EPEC include physical fitness, motor skills, personal and social development, and physical activity and fitness knowledge. The researchers supported physical education teachers with workshops, lessons, and mentoring based on these domains from the EPEC, aiming to enhance their self-efficacy. They describe self-efficacy as one's perceived capability to complete a particular task in a specific setting. Efficacious teachers work harder, employ more problem-solving strategies, develop greater skills, become more competent teachers, and persist more in the face of failure compared with less efficacious teachers. Thus, physical education teachers who feel efficacious about implementing a new curriculum, such as the EPEC, are more likely to do so compared to teachers who lack self-efficacy in using the curriculum.

According to Woods, Karp, Hui, and Perlman (2008), schools are expected to keep up with technological advances to prepare students with the skills needed for effective technology use. These researchers found that physical education teachers perceived themselves as competent or more proficient in using timing devices, aerobic exercise equipment, and activity monitors, such as pedometers. The physical education teachers indicated that they were beginners or less proficient in using databases, handheld PCs and software, heart rate monitors, and body composition analyzers. They acknowledged being less proficient in using this essential technology for their physical education programs. Handheld PCs and available software enable physical education teachers to record assessments of student performance in both behavior and sports skills development. Regarding heart rate monitors, they serve as accurate tools that provide students with individual feedback on appropriate intensity levels of physical activity and function as visual learning aids. Furthermore, heart rate monitors are a valid means for assessing a student's effort during physical activity (Woods, Karp, Hui, & Perlman, 2008).

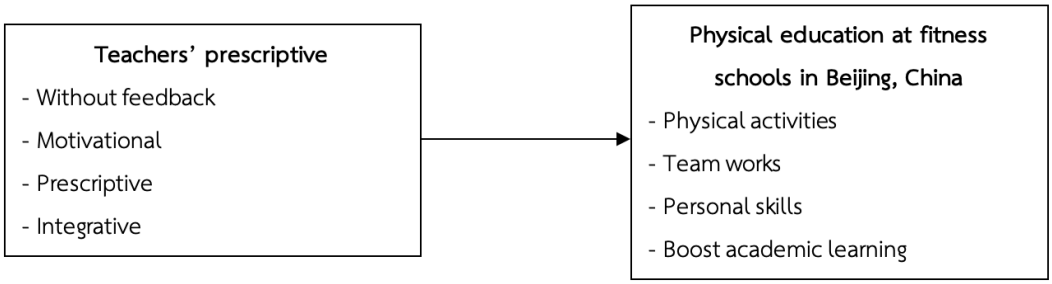
An area physical education teachers need to review is the effectiveness of their school district's physical education curricula. Since physical education is the dominant curriculum model in many schools, the question still exists: Are physical education teachers providing opportunities for students to be physically active not only through the sports education model but also through physical fitness and health-related activities? It appears that many physical education programs are not adequately promoting physical activity and health-related fitness among young people (Bulger, Mohr, Carson, & Wiegand, 2004). It appears that the role of physical education is more important than ever in meeting important public health goals for the future (Mohr, Townsend, & Pritchard, 2006). In terms of physical education curricula, teachers need to focus on gender and students' attitudes toward physical education. Generally speaking, students have favorable attitudes toward their physical education teachers and classes (Ryan, Fleming, & Maina, 2003). Furthermore, in their study, these researchers found that middle school students enjoyed a variety of activities, liked their teachers, had fun in their physical education classes, and disliked brief class periods and dressing out. Qualities middle school students appreciated in their physical education teachers included having good physical skills and being friendly. The middle school students disliked physical education teachers who could not relate to students and were partial to skilled students. Physical education teachers may want to explore a more multi-activity model or models that relate to gender differences and preferences. Future research is needed to investigate different curriculum models and teaching methods to improve student attitudes toward physical education teachers and classes (Ryan, Fleming, & Maina, 2003).

High school physical education teachers and supervisors also need to consider the curriculum design of the physical education program. The reality is that many high school physical education programs are failing their students (Kinchin & O'Sullivan, 2003). Rikard and Banville (2006) found that high school students expressed a much greater preference for playing games compared to fitness activities. A majority of the students also noted that they enjoyed physical education due to the fun factor. Finally, high school students mentioned that their primary reason for disliking fitness activities was the limited and dull choices of running activities. Physical education teachers not only need to focus on differences in physical skills but also on the distinct needs of females compared to males to create an effective physical education curriculum and program. This notion is further supported by a study done by Couturier, Chepko, & Coughlin (2007), in which girls indicated a greater interest in cooperative activities, fitness, and dance than boys. Teachers need to consider the differing needs of girls and boys when planning and implementing the physical education curriculum to successfully attract and retain the interest and participation of all students.

5. CONCEPTUAL FRAMEWORK

Figure 1

Conceptual framework



6. RESEARCH METHODOLOGY

1. Population and sample

The population used in this study comprised physical education teachers from various schools in Beijing Province, China, which has a large population. Data revealed that in Beijing Province, there are over 2,142 small, medium, and large schools with more than 1.09 million students and over 100,000 teachers, resulting in a per capita ratio of 10:1. However, the exact number of physical education teachers is unknown. Therefore, the sample size was determined using Cochran's (1977) formula, which is designed for cases where the exact population is not known. According to the calculation formula, the total sample size was determined to be 385 people. The sample selection method employed was non-probability sampling, specifically Convenience Sampling. In this approach, the researcher visited various schools to inquire about their willingness to participate in the research until the specified sample size was reached.

2. Research instrumental

Part 1 is a questionnaire on demographic information for teachers. It is a checklist format with questions about gender, age, education level, and average monthly income.

Part 2 focuses on the four essential physical educational skills in today's schools, specifically at fitness schools in Beijing, China. The questionnaire employs a rating scale, asking respondents to select their opinion on five levels of Likert scale: Highest, high, medium, low and lowest. The nature of the questions is closed-ended.

Part 3 involves gathering comments on physical education in today's schools, specifically at fitness schools in Beijing, China. The questionnaire employs a rating scale, asking respondents to select their opinion on five levels of Likert scale: Highest, high, medium, low and lowest. The nature of the questions is closed-ended.

3. Data analysis

The data will be analyzed using descriptive statistics, which includes frequency, percentage, mean, and standard deviation. Additionally, hypothesis testing will be conducted using Pearson correlation, with statistical significance set at the .05 level.

7. RESULTS

1. The results of the general data analysis of the respondents

Table 1

shows the number and percentage of demographic factors data

Demographic factors	Amount	Percentage
Gender		
- Male	145	37.66
- Female	240	62.34
Age		
- Not over 20 years old	23	5.97
- 21 – 30 years old	168	43.64
- 31 – 40 years old	147	38.18
- 41 – 50 years old	39	10.13
- 51 – 60 years old	8	2.08
Education level		
- Under bachelor's degree	170	44.16
- Bachelor's degree	141	36.62
- Postgraduate	74	19.22
Average monthly income		
- Not more than 4,000 yuan	100	25.97
- 4,001 – 6,000 yuan	101	26.23
- 6,001 – 8,000 yuan	70	18.18
- 8,001-10000 yuan	47	12.21
- 10000or more	67	17.40
Total	385	100.00

According to Table 1, the majority of respondents were female, accounting for 240 (62.34%), while males constituted 145 people (37.66%). In terms of age distribution, 168 people (43.64%) were in the 31–40 age group, followed by 147 people (38.18%) in the 21–30 age group, and 8 people (2.08%) were in the 51–60 years old. Regarding education levels, 170 (44.16%) had completed at under bachelor's degree, and 141 (36.62%) held a bachelor's degree. Additionally, 74 (19.22%) respondents had a postgraduate degree. In terms of monthly income, 101 (26.23%) reported an income in the range of 4,001–6,000 yuan, followed by 100 people (25.97%) with an income not more than 4,000 yuan, and 47 (12.21%) earning between 8,001 and 10,000 yuan.

2. The results of the data analysis pertaining to respondents' opinions.

Table 2

shows the mean, and standard deviations of teachers' prescriptive and physical educatio

Teachers' prescriptive	$\bar{X}$	SD	Opinion level
Without feedback	4.16	0.58	High
Motivational	4.36	0.54	Highest
Prescriptive	4.40	0.52	Highest
Interactive	4.28	0.68	Highest
Total	4.30	0.51	Highest
Physical education	$\bar{X}$	SD	Opinion level
Physical activities	4.36	0.62	High
Team works	4.49	0.52	High
Personal skills	4.44	0.53	High
Boost academic learning	4.39	0.61	High
Total	4.42	0.52	High

According to Table 2, the majority of respondents expressed the highest level of teachers' prescriptive overall opinions ($\bar{X}$ = 4.30, SD = 0.51), with most respondents holding the highest opinions on 'Prescriptive' ($\bar{X}$= 4.40, SD = 0.52), followed by 'Motivational' ($\bar{X}$= 4.36, SD = 0.54), and the least opinions for 'Without feedback' ($\bar{X}$= 4.16, SD = 0.58). In terms of physical education, the majority of respondents held a high overall opinion ($\bar{X}$= 4.42, SD = 0.52), with the highest opinions for 'Team works' ($\bar{X}$= 4.49, SD = 0.52), followed by 'Personal skills' ($\bar{X}$= 4.44, SD = 0.53), and the least for 'Physical activities' ($\bar{X}$= 4.36, SD = 0.62).

3. Hypothesis test results

Table 3

shows the correlation between teachers' prescriptive and physical education

	Physical activities	Team works	Personal skills	Boost academic learning
Without feedback	**0.403*** **	-0.226	-0.247	-0.218
Motivational	0.128	-0.264	-0.111	0.163
Prescriptive	0.225	-0.075	-0.153	0.198
Integrative	**0.492*** **	-0.092	-0.151	0.048

*** Statistically significant at the .001 level

According to Table 3, it was found that two pairs of teachers' prescriptive had a statistically significant correlation with physical education at fitness schools in Beijing, China. Specifically, without feedback was positively correlated with physical activities, showing a moderate correlation at the .000 level (r = 0.403), and the integrative was positively correlated with physical activities at the statistically significant .000 level (r = 0.492).

8. DISCUSSIONS

1. In accordance with the findings related to objective 1 of our research, it was observed that the level of prescriptiveness exhibited by teachers within the educational context was notably high. Specifically, upon examining various dimensions of prescriptive teaching, it became evident that the aspect with the highest mean score was prescriptive. This prominence can be attributed to the inherent necessity of delineating structured learning experiences over time, as well as the imperative need to address individual learning objectives independently. On the contrary, the dimension of motivational scored relatively lower, signifying its limited role in shaping students' cognitive development. Furthermore, the dimension of without feedback exhibited the lowest mean score, highlighting its minimal influence on enhancing students' physical engagement in the learning process. In support of our findings, Lambert (2020) expounds upon the concept of prescriptive teaching, underscoring its historical presence within the realm of education. According to Lambert, this pedagogical approach has been in existence for decades and entails a meticulous process in which teachers begin by diagnosing their students' academic competencies and limitations. Subsequently, they proceed to prescribe a tailored course of action aimed at rectifying areas of weakness. This methodological approach aligns with our research, substantiating the prevalence and significance of prescriptive teaching as identified in our study.

2. In accordance with the findings related to objective 2 of our research, it was observed that physical education within the context of fitness schools in Beijing, China, holds a notably high level of prominence. Among the various aspects assessed, it became apparent that team works emerged as the area with the highest average, underscoring its paramount significance in the curriculum. This prominence can be highlighted as another vital dimension, given its role in facilitating both improvement in and comprehension of fitness-related activities. Conversely, personal skills, attributed to the fact that learning personal fitness skills serves as a foundational element, especially in light of the challenges posed by fitness education, also garnered a considerable average score. Furthermore, physical activities exhibited the lowest average score, possibly owing to the focus on learning new fitness concepts rather than engaging in physical activities themselves. Whittle and MacPhail's study (2020) echoes the significance of physical education, emphasizing its role in imparting cognitive content and instructional strategies aimed at fostering the development of motor skills, knowledge, and behaviors pertinent to physical activity and physical fitness. The study underscores the importance of schools in Beijing, China, and elsewhere, supporting the incorporation of daily physical education into their curriculum. By doing so, students can acquire the necessary skills and confidence to engage in physical activities throughout their lifetime.

3. In accordance with the findings related to objective 3 of our research, it was observed that there is a statistically significant relationship between teachers' prescriptive and physical education within the framework of Fitness Schools in Beijing, China. This correlation manifests itself in two distinct pairs, each offering unique insights into the relationship between these variables. Firstly, the dimension of without feedback exhibited a positive correlation with physical activities, establishing a statistically significant connection. This correlation, while moderate in magnitude, underscores the role of feedback in enhancing physical activities. It suggests that when teachers provide feedback to students, it contributes to a better understanding and learning of fitness-related concepts. This finding aligns with the observations of Oh and Graber (2019), who assert that quality physical education is intertwined with improved mental health outcomes. Increased physical activity, facilitated by effective feedback, yields psychological benefits such as stress reduction, anxiety alleviation, and depression mitigation. Additionally, it equips students with emotional management strategies and bolsters their self-esteem.

Secondly, the integrative dimension exhibited a positive correlation with physical activities, reaching statistical significance at the $p < 0.000$ level. This moderate correlation emphasizes the importance of an integrative approach to physical education in promoting physical activities. An integrative approach facilitates the active engagement of students in learning new methods for a lifetime. Ward (2020) echoes this sentiment, emphasizing the significance of cognitive content and instructional strategies for the development of motor skills, knowledge, and behaviors related to physical activity and fitness. Advocating for the implementation of daily physical education in schools, Ward asserts that this approach equips students with the competence and confidence necessary to sustain a physically active lifestyle throughout their lifetime.

9. ORIGINALITY AND BODY OF KNOWLEDGE

The research on the effect of teachers' prescriptive approach to physical education at fitness schools in Beijing, China, has revealed the relationship between teachers' prescriptive methods and physical education. The research findings indicate that without feedback and an integrative approach, there is a positive correlation with physical activities. A novel discovery from this research is that teachers' prescriptive approach, specifically in terms of "without feedback," involves an instructional method that emphasizes student participation in physical activities and exercise without providing continuous or immediate performance feedback. Instead, instructors often offer suggestions and guidance related to techniques, skills, and overall effectiveness rather than specifying what is right or wrong. This approach has several advantages, such as encouraging students to engage in activities independently, fostering self-directed learning, and promoting creativity. Furthermore, the research highlights the importance of integrative strategies and teaching techniques employed by educators in the field of physical education. These strategies aim to create programs that promote diverse, integrated approaches to physical activity and enhance overall health. This insight is beneficial for educators to develop their teaching skills and emphasizes the significance of incorporating integrative approaches and various health promotion techniques in the future.

10. RESEARCH RECOMMENDATIONS

1. Implication of the Study

1. Educators can prescribe tailored courses of action to address areas of weakness. This methodological approach can lead to more targeted and impactful teaching practices.

2. The observation that the 'Motivational' dimension indicates room for improvement in fostering students' physical engagement in the learning process. Educators may explore strategies to enhance motivation and engagement, such as incorporating interactive and experiential learning activities into their teaching.

3. The low mean score in the 'Without feedback' dimension highlights the importance of providing constructive feedback to students. Educators should consider incorporating feedback mechanisms into their teaching strategies to support students' cognitive development.

4. Promoting teamwork through collaborative activities can improve both fitness comprehension and teamwork skills. Integrating academic content into physical education can address knowledge gaps related to fitness. Striking a balance between conceptual learning and physical activities is essential to ensure that students gain practical experience. Additionally, supporting daily physical education is important.

5. Educators and schools should prioritize providing constructive feedback in physical education, utilizing various feedback mechanisms such as assessments, peer evaluations, and self-assessment tools to enhance students' physical performance and understanding of fitness concepts.

6. Promoting mental health through physical activity is vital. This involves incorporating mindfulness exercises, stress reduction techniques, and discussions on mental well-being into physical education programs. These efforts can help students manage stress, anxiety, and depression while boosting self-esteem.

7. Adopting an integrative approach to physical education, which involves integrating different facets of fitness and physical activity, ensures that students not only learn about fitness but actively engage in lifelong health-promoting activities.

8. Schools should consider implementing daily physical education sessions, allocating dedicated time for students to develop motor skills, fitness knowledge, and positive physical behaviors. This helps instill a habit of regular physical activity from a young age.

2. Recommendations for Future Research

1. Future research should conduct longitudinal studies to assess the long-term impact of teachers' prescriptive methods on students' physical activity levels and overall health. This will help determine whether the positive correlation observed in the short term is sustained over time.

2. Future research should compare the effectiveness of teachers' prescriptive approaches in fitness schools with other teaching methods employed in traditional physical education settings. Investigate which methods yield better results in terms of physical activity engagement, skill development, and health outcomes.

3. Future research should conduct a comprehensive mixed methods study that combines quantitative analysis to measure physical activity levels and qualitative inquiry to explore students' experiences and perceptions of teachers' prescriptive methods. This approach can provide a holistic understanding of the impact.

4. Future research should Conduct qualitative research to track changes in students' attitudes and behaviors over time in response to teachers' prescriptive methods. Explore how these changes relate to their overall well-being.

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