
A STUDY ON THE CORRELATION BETWEEN PHYSICAL ACTIVITIES AND THE DEVELOPMENT OF LEARNING BEHAVIORS IN LOWER PRIMARY SCHOOL STUDENTS

Gao Yan Qiu^{1*}, Kway Eng Hock²

¹City University of Malaysia, Malaysia

²University Pendidikan Sultan Idris, 35900 Tanjong Malim, Perak, Malaysia

*Corresponding: 1131108652@qq.com

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ABSTRACT

With the continuous development of the society, physical education for junior students has been paid attention to by the state, and physical activity as an important part of physical education has also undoubtedly been paid high attention to. Physical education is an important part of physical education, and as such, it has been given high priority. Lower primary students are at a critical stage in their physical growth, and it is also an important time for them to develop good learning behaviors. From the starting point of sports activities, to explore its impact on the learning behaviour of primary school students, which is worthy of attention and research, this paper takes the lower primary school students as the research object, studies the characteristics of students' sports behaviour and learning behaviour, through the combination of questionnaire surveys and empirical research, to explore the correlation between the lower primary school students' sports activities and their learning behaviors. Through the "Questionnaire on the Basic Situation of Physical Activity for Lower Primary School Students", we understand the current frequency, preferences, concerns and knowledge of physical activity of lower primary school students, and design a scientific and reasonable physical activity teaching plan according to the research results, and prepare the "Questionnaire on the Current Situation of Learning Behaviour of Lower Primary School Students" by combining the existing literature and experts' interviews to measure the learning behaviour of primary school students in five dimensions of classroom attitudes, independent learning, disciplinary performance, learning mentality and cooperation awareness. The questionnaire measures the learning behaviour of primary school students in five dimensions: attitude to class, independent learning, disciplinary performance, learning mindset and cooperation awareness. The learning behaviors of the lower primary students in the experimental and control groups were measured before and after the 3-month intervention period, and the changes in students' behaviors under the conditions of the physical education practice activities were counted. It was found that the intervention content had

a significant effect on the development of learning behaviour in the experimental group, especially in the areas of independent learning, discipline and cooperation. It was found that the students in the experimental group basically developed good learning behaviors.

Keywords: Physical Activity, Learning Behaviour, Lower Primary School Pupils

INTRODUCTION

In order to strengthen the quality of education for students, promote the quality of learning and healthy growth, the Chinese Ministry of Education has conducted six surveys on the physical fitness of students. The results of the surveys show that the physical fitness of young Chinese students has been declining steadily for 20 years. In response to this phenomenon, the Ministry of Education has issued a number of documents on the physical health of young people to address this issue, such as the Physical Activity Guidelines for Children and Youth in China, Document No. 7 of the Central Government (Zhongfa [2007] No. 7), and Document No. 53 (Guoban Fa [2012] No. 53), No. 27 (Guo Ban Fa [2016] No. 27), etc., which refer to such things as: 'To provide a healthy lifestyle for children at the growth and development stage, to develop lifelong habits of physical exercise for students, and to strengthen students' physical activity'. The Healthy China 2030 Programme of Action also reflects the strong advocacy by the Party Central Committee and State Council for young people to participate in sports activities, especially outdoor exercise. Educators hope that this will relieve students' learning pressure, regulate their mindset, and correct bad learning habits. According to the "Healthy China 2030" programme, which stresses the implementation of a programme to promote physical activity among young people, educators are required to ensure that students participate in physical activity at school at a moderate intensity, for no less than 1 hour/day and no less than 3 times/week. The State Council made an important deployment of the issue of strengthening physical education in schools at the Third Plenary Session of the 18th Central Committee of the Communist Party of China (CPC), for physical education and extracurricular exercise (General Office of the State Council, 2016): it is far from enough to rely solely on physical education to strengthen the body and keep it healthy (Liu & Han, 2013) and to activate the enthusiasm of the family, the community and social organizations (Li, 2016). Therefore, it is necessary to improve extracurricular sports activities, through extracurricular activities to consolidate the content of the class and achieve the goals of sports.

School sports, as a relatively weak link in the whole educational endeavour, has made significant reforms in recent years, with one hour of exercise a day, sunshine sports, etc., all incorporated into the teaching content of school sports, but the institutional level of students is still an obvious shortcoming in the quality of students. Under the education system of the new era, the cultural learning performance of lower primary school students remains the primary objective of schools, and enrolment is still one of the important indicators of school teaching. As a result of traditional prejudices, the phenomenon of "culture over sport" has gradually emerged. This is mainly reflected in the fact that some people believe that there is a contradiction between sports and cultural studies, that sports results have no impact on the rate of progression to higher education, and that it is impossible to improve learning behaviour through sports activities. Parents also have a biased understanding of physical education, believing that physical education does not play much of a role in students' learning stages and future development, and that it is not important to their studies; instead, they believe that primary school students' ability to learn and their good behaviour are reflected in their cultural achievements. Parents pay close attention to the cultural

achievements of primary school students, even in the case of school burden reduction, will give primary school students to increase language, mathematics, foreign tutorial classes, intensive classes, sprint classes, cultural courses on the teaching priorities.

Physical education is to guide students through the use of limited learning resources, by virtue of the participation of physical activity projects, through personal experience to produce the process of thinking, feeling and thinking, which is the accumulation of knowledge and the expansion of experience, learning is in a sense a kind of student experience, experience of interest, good results, accompanied by the emotions of joyful learning is the development of deep concepts and cognitive attitudes of the students an important process.

The Sports Act mentions that the mental health education of students through various forms of extracurricular sports activities is practical and effective, which can enable students to experience and deepen their understanding of physical education, promote the students' view of lifelong sports, health, and the concept of comprehensive development of the inner, and require the students to experience, experience, and feel for themselves, to build a good activity space in interaction with others, and to carry out appropriate psychological adjustment, gradually adapt to the environment and life, cultivate students' good psychological quality, and promote their comprehensive and harmonious development of body and mind (Ma, 2020).

Under the general trend of education, major colleges and universities across the country have begun to incorporate physical fitness tests into their admission requirements, and the requirements for physical fitness scores have been progressively raised. On 28 July 2014, Minister Yuan Guiren (Yuan, 2014) of the Ministry of Education, in his speech on the in-depth study and implementation of the spirit of General Secretary Xi Jinping's series of important speeches, pointed out: "Sports scores will be an important reference for graduation and further education". "Physical education will be taken as a compulsory examination class", "students' physical condition will be recorded in students' comprehensive quality evaluation file", "sports speciality will be recorded truthfully" and other views (Fu, 2021).

Schools tend to focus on high promotion rates as the main teaching goal, teachers and parents tend to assess a student by his or her examination results, and as a result, they neglect the ability of students to perform behavioral performance, as well as the cultivation of learning behaviors. So every end of term cultural classes quietly occupy a lot of physical education teaching time. Physical activities are missing a systematic teaching schedule, opportunities for physical exercise are decreasing, and students' physical training is not met. Primary students are at a critical stage of growth and development, and it has become a difficult task for parents to decide which skills are most important to develop.

Attaching importance to physical education helps students form correct values of sports, and has a practical and effective impact on students' quality education work. At the present stage, schools are dominated by exam-oriented education, and the whole educational work has high requirements for the rate of advancement. Schools give teachers of cultural subjects teaching task indicators, creating an invisible learning pressure on students, while the proportion of physical education in the examination for higher education is lighter and less difficult, so that the main task of school education is directed to the language, maths, foreign language test scores, students in order to get good grades, can only be forced to spend most of the time to learn the textbook knowledge, to participate in all kinds of test counselling, while ignoring the health of the students. Schools due to physical education assessment content is not difficult, the assessment project is not complex, the lack of attention to physical education, affecting some physical education teachers also lack the spirit of physical education teaching drilling, affecting

the participation of family sports activities, so that students did not achieve the appropriate physical learning results, long-term caused the physical status of physical education in the school curriculum is getting weaker and weaker. This thesis hopes to demonstrate through research that physical education has a facilitating effect on students' learning behaviors, and that it is important for learning behaviors as it improves students' concentration and self-control. Thus, improving the status of school physical education in our school education.

Schools tend to focus on high promotion rates as the main teaching goal, teachers and parents tend to assess a student by his or her examination results, and as a result, they neglect the ability of students to perform behavioral performance, as well as the cultivation of learning behaviors. So every end of term cultural classes quietly occupy a lot of physical education teaching time. Physical activities are missing a systematic teaching schedule, opportunities for physical exercise are decreasing, and students' physical training is not met. Primary students are at a critical stage of growth and development, and it has become a difficult task for parents to decide which skills are most important to develop.

This study applies the behavioral developmental characteristics of physical activity in the process of learning behavioral development education, which provides the feasibility and necessity of promoting the development of students' learning behaviors, and at the same time is of great practical significance for the improvement of physical fitness and the formation, development and consolidation of good learning behaviors among primary school students in lower grades.

LITERATURE REVIEW

Learning behaviour has not yet formed a unified conclusion in the theoretical community, with different theoretical schools having different interpretations and different professions having different ways of saying things. It is generally believed that "learning behaviour" is the observable and measurable outward action or reaction shown by students in the learning process, which is the result of a series of thoughts and behaviors made by students to achieve the learning objectives, and it has a certain frequency and degree of continuity. Some scholars also talk about the learning behaviour is to the actual thing or the subject of the action of their own muscles as the object, through the physical action operation, in the mind of the students in the action of the representation, the formation of habits of behaviour in a sustained manner. Reber summarized the meaning of learning about behavioral habits into four: first, it generally refers to a learned action. Second, it refers to a habit of repeating a fixed action or pattern that becomes automatic. Third, a drug addiction, commonly termed drug dependence. Fourth, it refers to the characteristic behavioral patterns of a particular animal species (Zhang, Sun & Shi, 2022). Domestic scholars Jifang's explanation of learning behaviour defines learning behaviour as the methods and behaviors adopted by learners in learning activities (Jifang, 2020), which is the specification and reality of the learners' thoughts, motives, emotions, abilities, and operating procedures in a certain scenario. The physical education behavioral habit in this paper is a relatively stable and automated tendency to behave in a way that is formed by an individual during the process of teaching or exercising in physical education.

Comprehensive psychologists explain that learned behaviour has the following characteristics: behavioral patterns are automated; they are acquired; they have a thinking and emotional content; and they satisfy a certain human need (Zhao, 2021). The experience of the learner in the process of learning or producing a more permanent change in behaviour is individual, plastic, relevant and developmental.

China has been focusing on the influence of behavioral habits on people since thousands of years ago. The British educationalist John believed that promoting good behaviour in young children behavioral habits play a vital role in a child's development. Good habits are the key to a person's growth and success. John Locke believed that children's behavioral habits need to be observed, felt and experienced on the ground by themselves (Locke, 1999), and he stated in "Educational Rambles" (Locke, 2011) that "To promote children's growth and development, it is necessary to combine theory with practice, pay attention to reflect children's own characteristics, and purposefully inspire children to explore habit formation." The French educator Jean-Jacques Rousseau believed that allowing children to live and develop in free activity facilitates the acquisition of a range of behavioral habits in a happy state of mind. He wrote in the text of *Emile* (Lu Jun, 1978), "the best way to educate is to live and practice, The good behaviour habit is to lay in the life practice own experience foundation." The American educator Dewey believed that the general environment of society and the educational context is an important basis for the formation of habits, and that education is designed to develop a variety of useful habits in students (Dewey, 2001). Educational theorist Anton Semenovich Makarenko suggested that it is necessary to develop correct behavioral habits of students in education, as well as to enable students to correctly understand behavioral problems to make a reasonable attitude to behaviour. The development of correct behavioral habits in children requires teachers and parents need to take a strict approach to training. Russian pedagogue Konstantin's definition of behavioral habits begins with the individual's physiological characteristics, through internal rational thinking, bring to bear the characteristics of personal strengths, and get comprehensive development in practice (Ushinsky, 2007). Therefore, for the development of students' behavioral habits in the primary education stage, it is necessary to explore and feel by themselves, and also need the organic cooperation of school, family and society to establish an all-round and effective response to guide students to establish good behavioral habits.

Physical activity helps children's overall physical development, reduces the pressure of learning, eases the tension brought about by learning, allows primary school students to return to a relaxed and happy learning state, and maintains the balanced development of children's mental state. Through the teaching of physical education, students can develop learning initiative, organization and discipline, and form a sense of goals and tasks for learning. It is hoped that China's school physical education research attaches importance to content innovation and enrichment, Liu Ya in the "Jiangsu Province, the relationship between physical fitness, physical activity behaviour and academic performance of sophomore students," proposed that today's society exists in the prejudice of physical activity, wrongly determined that physical activity will affect the students' learning situation (Liu, 2022), through the study proved that physical activity behaviour has a positive migration effect on the academic performance of students, in order to further promote China's new round of physical education curriculum reform to contribute a little power. Wang Xiao mentioned in his study "Reflections on the education of students' behavioral habits in lower primary school" that primary school students are dependent, malleable and imitative, and lower primary school is an important period for students to form good habits (Wang, 2021). Zhao Man, in the study "Research on the education of good behavioral habits of primary school students - taking the example of lower grade students at a primary school in Tianjin", aims at the fact that the formation of habits of lower grade primary school students cannot be separated from factors such as school, family and society. Yu Xiaomin pointed out that students themselves, their families, and their academic situation have an important influence on their behaviour in "Research on Behavioral Problems and Influencing Factors of Primary School Students" (Yu, 2020).

Fredericks et al. (2006) showed a complete positive correlation between classroom physical activity and classroom behaviors and academic achievement, suggesting that first grade elementary school students develop physical abilities and mobility skills during daily exercise, which is good for cognitive, mathematical, reading, and spatial perceptual skills (An & Liu, 2018). In a study by Maeda & Randall (2003), they showed that second-grade elementary school students who engaged in brief, approximately 5-minute bursts of high-intensity physical activity one hour after lunch demonstrated greater levels of concentration and better mathematical shorthand. Caterino & Polak et al. (2004) conducted a correlation study between physical activity in the classroom and students' behaviour in the behavioral performance in the classroom and found a positive correlation (McNeal, 1995). John Reidy believed that sensible exercise is beneficial in transforming the human brain, adjusting the oxygen supply to the brain, preventing cognitive deficits, regulating emotions, and maintaining attitudes and behaviors in an optimal state (Reddy, 2013). Jarrett (1998) studied the moods and attitudes of children after whole-class activities, compared to children who did not have whole-class activities, and were more focused, task-aware, and goal-aware than they had been previously of being overwhelmed, restless, and impatient.

In summary, there are more studies focusing on the effects of physical activities on academic performance and cognitive ability, but what is the association between physical activities and learning behaviors, and what is the effect of physical activities on the learning behaviors of lower primary school students? The present study builds on the insufficiency of the previous studies to investigate the basic situation of physical activities and learning behaviors of lower primary school students as well as the relationship between the two and to The study further examines the feasibility of intervening in learning behaviors by means of physical practice activities, and promotes the formation of learning behaviors of lower primary students in five dimensions: performance in class, independent learning, disciplinary performance, sense of cooperation, and learning mindset.

RESEARCH METHODOLOGY

This study was conducted to examine the correlation between physical activity and the development of learning behaviors in lower primary school students.

Due to the instability, variability, subjectivity and other characteristics of individual primary students, it is difficult to get effective evidence and a comprehensive understanding of the actual situation of primary students with a single survey research method. Therefore, this paper combines the multi-angle investigation method, through the interview method of teachers and parents and the questionnaire survey method of students, to understand the basic situation of physical activity and learning behaviour performance of lower primary school students, and then take the experimental method to give targeted physical activity interventions to the experimental class and the reference class, and then analyse the changes and development of students' learning behaviors and arrive at the research results.

Literature for this study was mainly found through the China Outstanding Master's Degree Thesis Database, the China Knowledge Network Database, and the Wanfang Data Knowledge Service Platform Database, which focuses on news reports of school physical education and sports and students' physical education and learning in daily life, with emphasis on references to research on the performance of physical activity and learning behaviors in primary school students' stages and the correlation between the two. Using literature search, read, download, collect and collate relevant articles to form the research direction of this study and establish the theoretical framework and research content. Literature on the key

role and guiding role played by physical education in the growth and development of primary school students was consulted, and the ideas of domestic and foreign educators were referred to in order to form basic research hypotheses on the cultivation and enhancement of physical activity in learning ability and learning behaviour, and to make sufficient preparations for verifying that participation in effective physical education activities has a crucial role in the learning behaviour of primary school students.

This thesis has developed a relevant questionnaire with all the scales based on the principle assumptions and the actual situation under the premise of the more perfect scales in the reference to the previous research. In order to study the correlation between physical activities and the learning behaviour of students in the lower primary grades, and to scientifically and reasonably design the teaching plan of physical activities, we have designed two questionnaires. The questionnaires were distributed by means of paper questionnaires to explore the correlation between physical activities and learning behaviour development of lower primary students.

Based on the Code of Conduct for Elementary School Students and the theory of education on the development of learning behaviors of elementary school students, combined with the results of expert interviews and the questionnaire survey method, this study used the revised Learning Behaviors of Elementary School Students Scale to conduct a three-month teaching experiment using physical education practice teaching activities as an intervention tool, comparing the changes in the learning behaviors of the five dimensions of the lower elementary school students before and after the intervention of physical education activities.

RESULTS

Questionnaires were designed in order to study the impact of physical activity on the learning behaviour of lower primary school students and to design a scientifically sound teaching plan for physical activity.

Questionnaire is the "Basic Physical Activity Survey Questionnaire for Lower Primary School Students", which focuses on lower primary school students (grades 1-3), and investigates the frequency, preferences, concerns, and perceptions of their daily physical activity, in order to understand the activity and learning attitudes of primary school students, as well as to understand the guiding ideology of parental and teachers' education and attitudes towards physical activity. The results of the questionnaire survey will be used to design the teaching and learning of physical activities in the experimental method. The specific questions are shown in Appendix I.

A sampling method was used to answer the questionnaires for students in some classes of grades 1 to 3 in Fuzimiao Primary School, Wulao Village Primary School, and Experimental Primary School attached to Nanjing University of Science and Technology. In the class meeting class, the teacher instructed to fill in the questionnaire. A total of 200 questionnaires were distributed and 186 questionnaires were returned, a recovery rate of 93%. Excluding the cases of missing answers, regular answers, single-choice questions incorrectly answered as multiple-choice questions, 164 valid questionnaires were obtained, with a recovery rate of 82%, of which 52 were from Grade 1, 63 from Grade 2, and 49 from Grade 3. The demographic characteristics of the valid questionnaires are shown in Table 1.

Table 1 Demographic characteristics of valid questionnaires

	Total number of people	Male student	Female student	Percentage of male students (%)	Percentage of female students (%)
Questionnaire 1	164	80	84	48.8%	51.2%

Reliability testing

In this paper, the reliability of the questionnaire was re-tested to examine the degree of internal consistency of the measurement scales. To measure the reliability of the questionnaire, we calculated it through Cronbach's alpha coefficient. In this paper, Cronbach's alpha coefficient was calculated using SPSS 22.0 software to detect the consistency of respondents' answers to the entries in the scale in each component scale. Content of the entries in the scale. (The value of α is generally between 0 and 1, the larger the value of α , the higher the reliability of the scale used, usually requiring α values greater than 0.6.) If the coefficient of α is between 0.6 and 0.7, the reliability of the scale is acceptable. If the alpha coefficient is less than 0.6, the reliability of the scale needs to be considered for redesign. Regarding the calculation method of reliability, there are generally two types of reliability: semi-reliability and re-test reliability. Since Questionnaire 1 mainly examines the frequency, preferences, concerns and perceptions of lower grades (grades 1-3) primary school students' daily physical activity, which involves more subjective and multiple-choice questions, and is mainly analyzed by content analysis and descriptive statistics, the re-testing method was chosen in order to ensure the credibility of the data obtained from the questionnaire designed. reliability, the retesting method was chosen to test the reliability of the questionnaire, i.e. retesting reliability.

Validity check

Validity tests of questionnaires generally include content validity and structural validity. Similarly, since Questionnaire 1 is a self-administered questionnaire focusing on the frequency, preferences, concerns, and perceptions of the lower grades (grades 1-3) of primary school students who reported their daily physical activity and has a high number of subjective and open-ended questions, the questionnaire will be focused on the content validity of the questionnaire. In order to measure the degree of validity of the questionnaire, after the basic design of the questionnaire was completed, five expert teachers who have long been engaged in physical education teaching activities for lower primary students were invited to evaluate whether the content of each question in the questionnaire was in line with the actual situation of physical education activities carried out in primary schools and whether it was valid in terms of content. The questionnaire was rated on a 5-point Richter scale, with 1 indicating that the question was not at all related to physical education activities, and 5 indicating that the question was very related to physical education activities.

The results of the expert review are shown in Table 2. In general, the experts thought that the questionnaire had good validity and was able to reflect and outline the basic situation of lower primary school students in terms of frequency, preferences, concerns and perceptions of physical activities. The

majority of the questions had a mean score of 4 or above, indicating that they were able to reflect the physical activity situation of the lower primary students and provide suggestions for the teaching and learning of physical education activities.

Table 2 Expert content validity evaluation

Entry (in a dictionary)	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Divide equally
Q1	5	5	4	5	5	4.8
Q2	5	3	5	5	5	4.6
Q3	4	4	5	5	4	4.4
Q4	5	4	4	4	4	4.2
Q5	5	4	4	5	4	4.4
Q6	5	4	4	4	3	4
Q7	5	5	3	5	3	4.2
Q8	5	5	3	5	5	4.6
Q9	3	4	4	5	4	4
Q10	1	2	2	3	3	2.2
Q11	5	4	4	3	5	4.2
Q12	5	5	4	4	5	4.6

In the questionnaire "Basic Physical Activity of Lower Primary School Students", we asked the following questions: item 1 "How long do you participate in physical activity every day during school?", item 2 "Do you actively participate in physical activity after school?", item 11 "Do you talk to your parents about physical activity? , item 2 "Do you take the initiative to participate in physical activities after school", and item 11 "How often do you talk about physical activities with your parents" to understand the current situation of the frequency of physical activities of lower primary school students, which can help us in the subsequent design of the physical activity teaching programme. This can help us determine the appropriate intensity and frequency of physical activity in the design of the subsequent physical activity teaching programme, which is more in line with the current physical condition of the lower primary students.

Table 3 Issue 1: Hours of physical activity in school (n=164)

Classifications	Percentage of male choices	Percentage of female choices
	(%)	(%)
Less than 1 hour	2.5	20.2
About 1 hour	21.3	72.6
More than 1 hour	76.2	7.2

The results of the questionnaire survey in Table 3 show that there is a significant difference in the length of physical activity among students of different genders. 76.2 per cent of the male students participate in physical activity for more than one hour a day during school, and the male students are

passionate about the physical activities they are interested in, but do not participate in the physical activities they are not interested in, and 2.5 per cent of the students are not interested in the physical activities they are interested in, indicating that there is a single physical activity programme in the physical education class of the school. The 2.5 per cent of boys who participated in less than one hour of physical education showed that the physical education programme in the school had a single programme and there were not many choices, which affected the boys' participation in physical education. Only 7.2 per cent of female students take part in sports for more than one hour a day, which shows that girls are not very athletic and do not have enough physical endurance, and highlights the need to increase the intensity of girls' sports activities.

Table 4 Question 2: Initiative to participate in sports activities (n=164)

Classifications	Percentage of male choices	Percentage of female choices
	(%)	(%)
Active physical activity	35.7	27.5
Occasional physical activity	52.6	56.5
Little to no physical activity	11.7	16

Overall, the number of primary school students voluntarily participating in sports activities is low, and motivation and participation in sports is low. There is no real interest, no perception of lifelong sport. Active physical activity is defined as students voluntarily participating in physical activity on a daily basis and staying committed to the sport for 1-2 hours or more. As can be seen from Table 4, the proportion of primary school students who actively engage in physical activities in their spare time at home is not high, and the proportion of boys who actively engage in physical activities is 35.7 per cent, which is 1.3 times higher than that of girls. Occasional physical activity is defined as students participating in physical activity 3-5 times per week, either voluntarily or passively. The proportion of boys in the option of occasional physical activity is similar to that of girls. The percentage of students who hardly do any physical activity at home is more than half of the students who have a negative attitude towards physical activity, do not exercise actively and are used to a static lifestyle.

Table 5 Question 11: Frequency of talking about sports with family members (n=164)

Frequency of talking about sports topics	Male students (%)	Female students (%)
More than once a week	48.3	31.4
Fortnightly	17.2	26.9
Once a month	20.5	16.8
Few times a year	10.9	14.6
Not have	3.1	10.3

As shown in Table 5, 10.9% of primary school boys and 14.6% of primary school girls talk about sports with their families a few times a year, and more than 10% of primary school girls have not talked about sports with their families. Less awareness of communicating about sports topics causes girls to

lose more and more interest in sports-related news and activities, as well as opportunities for participation, which results in the phenomenon of seeing boys in group activities more often than girls in the playground, activity areas and other areas. This has resulted in more boys than girls being seen in group activities in sports grounds, activity areas, etc. Sports as a strong path for the development of our country, family sports should also be valued to develop the motivation of every family member to participate in sports activities. In addition, parents are their children's teachers, and their perception of the importance of sports and their level of interest in it affects their children's development. This result also reflects the fact that even if lower primary school students are not actually involved in sports activities, they are less receptive to sports information.

DISCUSSIONS

China has the background of the era of a strong sports country, and the Ministry of Education attaches importance to the teaching of physical education. Teachers are now better qualified than before, and teaching facilities are more advanced, comprehensive and scientific. As the saying goes, "when the youth is strong, the country is strong", physical education has become an indispensable means of teaching and learning, and sports performance will become a graduation goal that should not be underestimated, and physical activity will inevitably be a behavioral manifestation of people's strength. "Physical activity will become a symbol of a person's action, ability and practice. However, through the questionnaire "Basic Physical Activity of Lower Primary School Students", we found that:

Specifically, through the preparation of the Basic Physical Activity Questionnaire for Lower Primary School Students, we investigated the frequency, preferences, concerns, and perceptions of lower primary school students (grades 1-3) about their daily physical activities, in order to understand their activities and attitudes towards learning, and also to learn about the guiding ideology of parents' and teachers' education, as well as their attitudes towards physical activities. The results of the questionnaire found that at present, the physical activities carried out by lower primary school students are subject to the constraints of school, family and society, and are featured by low density and weak intensity. Physical activities play an important role in the growth process of lower primary students, but they are always on the periphery and do not receive due attention. At the school level, it is possible to organize physical education activities for students during the school day to meet the one hour target, but it is difficult to manage the time spent on physical education outside the school, with fewer and less frequent activities; in addition, the content of physical education classrooms has certain limitations, and space and time do not allow for the intensity of physical education activities to be met by each student within 45 minutes of the classroom, which usually affects the quality of the teaching and learning process. As a result of the reduction in the amount of exercise and insufficient exercise intensity, directly or indirectly lead to poor physical health of our primary school students, lack of athletic ability, manifested in poor eyesight, obesity, learning mood, poor concentration, excessive psychological pressure, physical disharmony, "not fast enough to run", "not high enough to jump", and failure to meet standards in sports. Physical education teaching activities at the primary school level are basically planned in accordance with the requirements of the syllabus, the content is single and the form is boring, which is easy to make primary school students tedious and even rebellious, and is not conducive to the implementation of the quality education programme. Lower primary school students would like to have more ball games, throwing and rope skipping activities in physical education classes, the length of which should be 30 minutes. As for the

students themselves, we further found that girls are the underprivileged group in primary school physical education activities, and their participation in physical education activities is relatively low, and that although boys' intensity of exercise is greater than that of girls', and their attitudes towards physical education are positive, there are cases in which they are interfered with by other recreational activities. Therefore, the physical fitness management of lower primary students should not be slackened. It is indispensable to educate parents about physical education in order to eliminate their doubts or resistance to physical education, and it is also very important to consolidate the contents of lessons through extracurricular activities to achieve the goals of physical education. Based on the analysis of the above survey, we have to pay attention to the following aspects in designing the programme of practical physical activity intervention:

1. Regarding the frequency of physical activities for lower primary school students: the current lower primary school students do not have enough density and intensity of physical activities, and there is a big difference between men and women. Therefore, we should determine the appropriate intensity and frequency of sports activities in the teaching design of sports activities, and ensure the quality of sports activities on the premise of meeting the current physical condition of lower primary students.
2. Lower primary students' preferences for physical activity: In terms of the type of physical activity, lower primary students preferred ball games, throwing and rope skipping, and were mainly recreational. There were gender differences, with boys preferring competitive sports and girls preferring physical education; in terms of the duration of physical education, lower primary students preferred classroom physical education, with each session lasting about 30 minutes.
3. With regard to the concerns of lower primary students about physical activity: school workload, lack of parental support and inability to find peers are the three biggest factors affecting lower primary students' physical activity. In order to pursue teaching performance and teaching advantages, the school schedule does not match with the actual class schedule. The schedule does not match with the actual classes. Physical education classes in the schedule are replaced by other subjects, reducing the number of hours of extracurricular physical education classes; parents place more emphasis on cultural achievements in students' education and have less awareness of physical education. Therefore, participation in physical education extracurricular activities is necessary and beneficial to the physical and mental development of children. Therefore, when we design the teaching and learning of physical education activities, we also need to take into account the obvious factors such as other subjects and parents, try to conduct a school level and social level on the burden of schoolwork and parents' cognitive relief of science and technology, and give meaningful physical education programme for parents to choose and refer to, in order to create a good space and atmosphere for students' physical education activities.
4. The functionality of physical activities is specifically manifested in walking and running: promoting the concentration of oxygen in the blood, so that the brain is supplied with sufficient oxygen, which helps students to focus their attention and maintain their motivation to learn; rope skipping: developing the students' brain, developing their coordination and flexibility, and strengthening the executive function; throwing: cultivating the students' power of observation, fixation, and developing the awareness of goals; ball games: in the

case of improving the students' technical and tactical skills, it is also to improve the students' collective co-operation skills and develops a sense of the big picture. In the design of practical physical education interventions, we will make use of the functions of physical education in order to promote the development of different physical education behavioral habits.

CONCLUSIONS

We used the "Basic Physical Activity Questionnaire for Lower Primary School Students" to understand the current frequency, preferences, concerns and perceptions of physical activity among lower primary school students, and based on the findings, we designed a scientific and reasonable physical activity teaching programme. The conclusions are as follows:

It is difficult to guarantee the time, space, intensity and quality of basic physical activities for primary students in the lower grades, and they need extracurricular activities to consolidate the contents of lessons and achieve the goals of physical education. Lower primary students have learning behaviour problems and need intervention to improve them. The application of the behavioral developmental characteristics of physical activity in the process of learning behavioral development education provides the feasibility and necessity of promoting the development of students' learning behaviors.

When designing the content of sports activities for primary school students, it is necessary to take full account of the physiological and psychological characteristics of students to organize teaching, arrange opportunities for the display and performance of actions, stimulate the reinforcement of learning behaviors, effectively cultivate their sense of purpose and task awareness, and exercise the ability of behavioral performance of primary school students in lower grades. Teachers should correctly judge and grasp the law of the formation of students' learning behaviors, and overcome students' undesirable learning behaviors by means of repetitive and persistent physical behavioral practices. Schools make use of the opportunity of parent-teacher conferences or campus activities to actively guide the cooperation and support of parents, and to ensure that students receive the benefits of learning behaviour development in physical education by assigning parent-child outdoor activity assignments to ensure that they have the time for, and the amount and intensity of, physical activity on a daily basis. Physical activity teaching can be directly applied to the practice of students' physical education behavioral habit formation education, which can help to lead the change of the relationship between "teaching" and "learning", conduct scientific research and optimal guidance on students' learning behaviors, and establish a learning classroom that is interesting, motivating, and able to persist for the primary students. It can help to lead the change of the relationship between "teaching" and "learning", conduct scientific research and optimize the guidance of students' learning behaviour, establish a learning classroom in which primary school students are interested in, motivated to learn, and able to persevere in learning, and form the ability to manage their learning behaviors, so as to solve the problem of the excessive burden of learning faced by students, and to achieve the fundamental transformation of teaching.

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ADDENDUM

Questionnaire on Basic Physical Activity for Lower Primary School Students

Questionnaire for lower primary students:

Hello, dear classmate!

This is a questionnaire about the basic situation of physical activities of primary school students, the purpose is to have a further understanding of your daily participation in physical activities and other aspects. I hope you can truthfully fill in this questionnaire, this survey will not disclose any personal information, so please rest assured, thank you for your co-operation!

Name: _____ Sex: _____ Grade: _____ Age: _____

1. How long do you take part in physical activities every day at school?
A: less than 1 hour B: about 1 hour C: more than 1 hour
2. Do you take the initiative to participate in sports activities after school?
A: Active physical activity B: Occasional physical activity C: Little physical activity
3. Why do you want to participate in sports? (Multiple choice questions)
A: I think it's fun
B: I will make good friends
C: It will make the body great
D: In order to pass the exam of physical education
E: I am interested
F: It's not clear
4. How do you think physical activity can benefit a person? (Multiple choice question)
A: Become happy
B: Being healthy
C: More focused
D: More agile
E: Improve learning efficiency
F: Other: _____
5. What kind of physical activity programme do you like?
A: Walking and running B: Jumping rope C: Balls D: Throwing
6. Please list some of your favourite sports activities (subjective fill-in-the-blank questions)
7. What time of day do you prefer to participate in physical activity? (Multiple choice questions)
A. classroom physical education B. recess C. after school D. weekends

8. What nature of physical activity do you prefer? (Multiple choice questions)
A. Recreational nature B. Competitive nature C. Physical fitness nature D. Other _____
9. What is the attitude of your parents when you participate in sports activities?
A: Support
B: Support when it doesn't affect your studies
C: Sometimes supportive sometimes not
D: No matter
E: Oppose
10. Do your parents accompany you in physical activities?
A: All the time B: Occasionally C: No time at all
11. How often do you talk about sports with your parents?
A: More than once a week
B: once in two weeks
C: once a month
D: a few times a year
12. How long do you think it is appropriate for physical activity to last at one time?
A. 15 minutes
B. 30 minutes
C. 45 minutes
D. 1 hour
E. Other: _____