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The effect of fancy rope jumping exercise on creativity of elementary school students

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Purpose: To explore the effects of 6 months of moderate intensity fancy rope jumping exercise on the creativity of elementary school students.

Methodology: One hundred and forty elementary school students were divided into two major groups, namely, the fancy rope jumping group (i.e., the experimental group, which was further divided into a creative tendency experimental group of 38 and a divergent thinking experimental group of 32) and the traditional sports group (i.e., the control group, which was further divided into a creative tendency control group of 38 and a divergent thinking control group of 32). The Williams Creative Tendency Scale (WCTS) and Torrance Creative Thinking Scale (TTCT) were used to measure the changes of creative tendency and divergent thinking of elementary school students before and after

the experiment, and to compare to evaluate the change of creativity of elementary school students by measuring the difference between the experimental group and the control group.

Findings: (1) Six months of moderate intensity fancy rope jumping exercise had a positive effect on elementary school students' creative tendencies and divergent thinking; (2) Six months of moderate fancy rope jumping exercise had a more significant effect on elementary school students' divergent thinking.

Research and practical limitations/implications: This study confirms experimentally that fancy rope jumping helps to enhance the creative tendency and divergent thinking level of elementary school students and promotes the development of their creativity. The results, will make teachers and students clear the importance of this program for cultivating students' physical and mental health, increase the recognition and participation of society in pattern skipping activities, promote the popularity and development of fancy rope jumping, advance the progress of introducing fancy rope jumping into elementary school physical education curriculum, and also make the campus cultural life more colourful. The limitation of this study is that the sample size is relatively small and not representative and convincing enough. In the follow-up study, we can make the research results more convincing by expanding the research sample size and sampling across regions.

Originality: The findings of this study not only support the previous view that sports can positively influence individual creativity, but also refine the previous study, confirming that fancy rope jumping helps to enhance the level of creative tendencies and divergent thinking of elementary school students and promote the development of their creativity, thus broadening the horizon of research on the relationship between sports and students' creativity, and providing a basis for comprehensively revealing the relationship between sports and students' creativity development. This broadens the horizon of research on the relationship between sports and students' creativity, and provides a basis for revealing the relationship between sports and students' creativity development.

Keywords: fancy rope jumping; elementary school students; creativity; motor intervention

1. Introduction

Creativity is an intellectual quality that uses all known information to propose or produce work with novelty (i.e. originality, novelty, etc.) and appropriateness (i.e. useful and suitable for specific needs) according to a certain purpose (Jia & Lin, 2014; Robert, 2005). It plays the role of the driving force in the process of human social development. The development and enhancement of creativity enhances the individual's sense of discovery and other aspects of ability (Fasko, 2001), while the development of creativity in adolescence plays a decisive role in achieving better academic results in school and success in future jobs (Ruiz-Ariza et al., 2017a). In order to improve the creativity of young people, a series of measures have been taken in school curricula in Europe (EU) and Asia (Singapore), but with little success and even a "creativity crisis" (Büning et al., 2020). The phenomenon of insufficient creative problem-solving skills of students is also seen in China (Zang, 2012), especially in the context of Qian Xuesen' s question (Why

do our schools not produce outstanding talents?), which further highlights Chinese deficiency in the cultivation of innovative talents. Therefore, in recent years, China has been paying more and more attention to the education of students' innovative abilities. The adolescent brain has a high degree of plasticity (Ruiz-Ariza et al., 2017b), and the elementary school stage is a critical period for the maturation of thinking and the formation and development of creative skills, which should be given attention. Among the many ways to enhance creativity, physical activity is one that is currently receiving much attention (Piya-Amornphan et al., 2020; Zheng, 2014), but there is still a lack of effective strategies on how to use physical education to serve the creativity development of elementary school students. Fancy rope jumping is a sport that combines fitness, recreation, fun, spectacle and competition (Xian, 2015), which is widely loved by Chinese elementary school students. In this study, elementary school students were selected as the intervention subjects and fancy rope jumping was chosen as the exercise content. In this study, we took elementary school students as the intervention subjects, selected fancy rope jumping as the exercise content, measured the changes of creative tendency and divergent thinking of elementary school students before and after the experiment by Williams Creative Tendency Scale (WCTS) and Torrance Creative Thinking Scale (TTCT) respectively, explored the relationship between fancy rope jumping exercise and the creativity level of elementary school students, and tried to reveal the positive effect of long-term fancy rope jumping exercise on the development of elementary school students' creativity. This study hypothesized that 6 months of moderate intensity fancy rope jumping exercise would significantly increase the creativity level of elementary school students.

2. Literature Review

The relationship between physical activity and creativity has been a focus of previous research. Theoretically, exercise can promote creativity by improving the executive function of the exerciser (Bollimbala et al., 2019). Some studies shown that walking stimulates certain cognitive functions and enhances different creative abilities (Fleury et al., 2020). And it has also been shown that Quadrato Motor Training (Quadrato Motor Training is training in which participants stand in one corner of a square and move accurately according to recorded instructions.) can cause anisotropic changes in brain gray matter volume and fraction, suggesting a correlation between creativity and movement (Ben-Soussan et al., 2015). Physical activity can play an active role in enhancing creativity by activating the relevant brain nerves responsible for promoting creative cognition and learning functions (Frith et al., 2019), and by modulating the relationship between creativity and self-confidence (Jin & Kwon, 2013). Nevertheless, the findings are still controversial, and some studies did not observe a positive effect of physical activity (Frith & Loprinzi, 2018). Therefore, more evidence is still needed to support the effect of physical activity on creativity.

Sports have distinctive characteristics in terms of content (Xie, 2001), form and behavior, and are of high value in developing creative thinking and divergent thinking skills (Zhu & Chen, 2004). Numerous evidence suggests that sports such as dancing (Bollimbala et al., 2021), walking (Fleury et al., 2020; Colzato et al., 2013), and basketball (Byeon & Sunhee, 2015) have an improved effect on divergent and convergent thinking. However, the effect of physical activity on creativity can be influenced by the form and intensity of the exercise, as well as by the regulation of the individual characteristics of the participants (Colzato et al., 2013).

For students, creativity and cognitive flexibility may be enhanced through moderate-to-high intensity training or aerobic exercise. Aerobic exercise at school or moderate-to-vigorous training at recess can potentially help students' creativity by increasing their creativity and promoting individual convergent thinking (Blanchette et al., 2005). Learning motor skills in childhood may be critical to the development of creative thinking and motor creativity (Choi et al., 2012). Movement with active and changing movements can better stimulate children's creativity (Marinšek & Lukman, 2022). Team games, chase games and small-area games, which are cognitively demanding sports participation, are more likely to produce desirable results in terms of enhancing creativity than repetitive sports (Fleury et al., 2020). Fancy rope jumping is an exercise program with the above characteristics, which organically combines aerobic and dance to improve the physiological function (Jiao et al., 2016) and athletic performance of elementary school students (Yang et al., 2011). There is no fixed pattern in the movement category of fancy rope jumping itself, which is conducive to cultivating students' sensitive perception, rich imagination and creative ability (Wang & Ma, 2014), and effectively improving the mental health level of primary and secondary school students (Zhong, 2015). In other words, fancy rope jumping has a positive impact on both physical and mental health of primary and secondary school students. However, the research related to the effect of fancy rope jumping on creativity is only at the theoretical level and has not been confirmed experimentally.

3. Research Methodology

3.1. Experimental subjects

One hundred and forty students from Primary School Affiliated to Southwest University third and fourth grade were selected for the study, of which, 57 were male and 83 were female, with a mean age of 10.76 ± 0.75 years. All subjects were excluded from contraindications to exercise, and the parents of the students signed an informed consent form after being informed of the purpose of the experiment before the intervention. Pre-testing the scales and conducting objective tests of their intrinsic reliability and validity to ensure that both reliability and validity meet statistical requirements.

3.2. Experimental grouping

Grouping: One hundred and forty elementary school students were divided into two major groups, namely, the fancy rope jumping group (i.e., the experimental group, which was further divided into a creative tendency experimental group of 38 and a divergent thinking experimental group of 32) and the traditional sports group (i.e., the control group, which was further divided into a creative tendency control group of 38 and a divergent thinking control group of 32).

Pre-assessment: Prior to the intervention, both the creative tendencies and divergent thinking levels of the two groups were pre-tested and assessed separately, and it was determined that there were no significant differences between the two groups at the level of the base level of the dependent variable before the follow-up survey experiment was conducted to exclude the interference caused by the differences in the base level of the experiment.

3.3. Monitoring indicators

3.3.1. Williams Creativity Tendency Scale

The Williams Creativity Tendency Scale (WCTS) is used as a questionnaire to measure students' creative tendencies by adjusting the questions involved. The scale is an internationally recognized, mature and authoritative scale with high reliability and validity, and has been revised by Taiwanese scholars to be more consistent with Chinese culture (Li & Chen, 2021; Zhang & Xun, 2011).

3.3.2. Torrance Creative Thinking Inventory

The Torrance Test of Creative Thinking (TTCT) is an important indicator of creativity. The study chose a graphical test, Torrance's creative thinking test is known worldwide (Li & Chen, 2021), and graphical tests are more suitable for use with younger elementary school students.

3.4. Experimental methods

3.4.1. Training arrangement

The first survey data test is for all the students of fancy rope jumping group and traditional sports group, the main content of which includes the basic quality, daily activities, participation in the project and other specific circumstances, and it shows that there was no significant difference in all indicators between the students in fancy rope jumping group and traditional sports group. The second survey data test was administered six months later for the corresponding post-test of the previous items. Data from the two groups of students tested were collected and further analysed.

Table 1. Content classification of fancy rope jumping.

No.	Classification	Projects	Structure	Features
1	Basic Fancy	30 seconds single shake	Single	Low difficulty
2		30 seconds double shake		Low difficulty
3		Single swing cross at 30 second intervals		Low difficulty
4		45 seconds interactive single shake		Low difficulty
5		Jump rope while running in the shape of 8		Medium difficulty
6		2 minutes single swing jump		Medium difficulty
7	Technique Fancy	Personal Fancy	Diversification	Medium difficulty
8		Wheel pattern (multiplayer)		High difficulty
9		Synchronized fancy (multiplayer)		High difficulty
10		Interaction fancy (multiplayer)		High difficulty

Fancy rope jumping group: Participating in a 6-month fancy rope jumping exercise intervention, which included individual single rope, interactive rope, wheel hopping, and

net rope patterns, three to four times per week for about 60 minutes each time, with a moderate exercise load set at 60%-69% of the subject's maximum heart rate, maximum heart rate = 220 – age (Chen et al., 2015), mostly in the form of group exercises, cooperative exercises, and group competitions, advocating teamwork among students during exercise, enhancing the fun of the entire program, and ensuring variety of formats. The sport of fancy rope jumping is mainly composed of two movements: jumping and shaking. Shaking is generally an upper limb movement, and the diversity of the jumping is mainly reflected in the pace of the foot and the change of body rotation. Fancy rope jumping can be designed and evolved into more fancy forms on the basis of jumping and shaking. For example, the usual more common cartwheel, release rope and other personal tricks. A summary of the basic pattern jump rope is shown in Table 1.

Traditional sports group: Participating in 6 months of traditional physical education classes, whose main teaching content including simple running and jumping exercises, fun physical education games, etc. The number of classes, time and exercise intensity are the same as the fancy rope jumping group.

3.4.2. Other interfering factors

All the preparatory work is ready, including to learn more about the school's fancy rope jumping teaching activities, to understand the experimental group's teaching and the control group's activities in advance and to make effective records. In order to avoid other interfering factors that may lead to changes in the psychology of the final respondents, the research in this paper was conducted without the knowledge of the student, thus ensuring the scientific and accurate final results. This survey does not interfere with students' extracurricular physical activity, and the following elements were controlled for during the survey: (1) Students participating in the sport were taught by a single teacher (excluding the effects of different teachers' teaching methods and techniques on the dependent variable). (2) During this period, there were no significant differences in any of the sports except for the synchronized jump rope program (excluding the effect of these uncertain programs on the dependent variable when the experimental and control groups participated in other sports). (3) No significant differences existed between the students in the experimental and control groups in terms of their creative tendencies and thinking levels before the survey. (4) The same scale was used before and after the study and the scoring criteria were the same.

3.5. Monitoring methods

3.5.1. Creativity tendency monitoring

Before the experiment, both the experimental group of creative tendencies (38 individuals) and the control group of creative tendencies (32 individuals) filled out the Williams Creativity Tendency Scale, and then filled out the Williams Creativity Tendency Scale again 6 months later. The WCTS involves a total of 50 entries, and a 3-point rating system further measures four traits: adventurousness, curiosity, imagination and challenge, with higher scores predicting a student's creative tendencies.

3.5.2. Divergent thinking monitoring

Before the experiment, both the divergent thinking experimental group (38 individuals) and the divergent thinking control group (32 individuals) filled out the Torrance divergent thinking scale, and then filled out the Torrance divergent thinking scale again 6 months later. The TTCT focuses on objective scoring of the five dimensions of fluency,

originality, caption abstraction, delicacy, and resistance to premature closure, in turn, based on the drawings drawn by the students against the criteria. A higher score also predicts that the student's divergent thinking is also higher.

3.6. Data processing

The data were statistically analysed using SPSS 26.0 software, in which the Cronbach alpha coefficient was used to test the reliability of the scale, and normally distributed measures were expressed as mean±standard deviation. The data of the same group before and after the intervention were analysed for significance by paired-sample t-test; the differences between the experimental and control groups were tested by independent-sample t-test; the significance level of all indicators was set at $P=0.05$.

According to the research needs, the creative tendencies and divergent thinking of elementary school students were investigated after practicing the pattern jumping rope activity. Pre-survey and post-survey tests were administered through the Williams Creativity Tendency Scale and the Torrance Creative Thinking Inventory as mentioned in the previous content. The reliability test was implemented by selecting some of the items in creative tendency and the line items in divergent thinking. The resulting reliability coefficients of the questionnaire are shown in Table 2, and ultimately it seems that the data reliability of the research has met the relevant requirements.

Table 2. Questionnaire Reliability Test

No.		Creative tendencies	Dispersed thinking
1	First test reliability	0.826	0.819
2	Second test reliability	0.833	0.825

4. Research results

4.1. The effect of fancy rope jumping exercise on students' creative tendencies

There was a significant overall increase in creative tendencies in the experimental group compared to the pre- and post-intervention ($p<0.01$). The mean score increased from 96.63 before the intervention to 99.55. Among the students in the experimental group, there was a significant increase in risk-taking ($p<0.01$), imagination ($p<0.01$), curiosity ($p<0.01$), and challenge ($p<0.01$).

There was no significant overall change in creative tendencies in the control group compared to the pre- and post-intervention ($p=0.522>0.05$). The mean score increased from 94.50 before the intervention to 94.63. There was no significant difference in the control group students' risk-taking ($p=0.571$), curiosity ($p=0.800$), imagination ($p=0.163$) and challenge ($p=0.487$).

Before the intervention, there was no significant difference in overall creative tendencies in the experimental group compared to the control group ($p=0.492>0.05$). The mean score of creative tendencies was 94.50 in the control group and 96.63 in the experimental group, with no significant differences in risk-taking ($p=0.653$), curiosity ($p=0.811$), imagination ($p=0.486$), and challenge ($p=0.455$). After the intervention, there was no significant difference in creative tendencies overall in the experimental group compared to the control group ($p=0.151>0.05$). The mean score of creative disposition in the control group was 95.26 and the mean score of creative disposition in the experimental group was 99.55. There were no significant differences in risk-taking ($p=0.200$), curiosity ($p=0.473$), imagination ($p=0.505$), and challenge ($p=0.63$). (See Table 3).

Table3. Comparison of the results of creative tendencies before and after the intervention between the experimental group and the control group

No.	Dimensionality	Period	n	Control group	Experimental group
1	Creative tendencies	Before the intervention	38	94.50 ± 10.835	96.63 ± 15.616
2		After the intervention	38	95.26 ± 10.907	99.55 ± 14.599 ^{△△}
3	Adventurousness	Before the intervention	38	19.63 ± 3.498	20.00 ± 3.609
4		After the intervention	38	19.55 ± 3.261	20.55 ± 3.477 ^{△△}
5	Curiosity	Before the intervention	38	27.13 ± 3.371	27.37 ± 5.870
6		After the intervention	38	27.39 ± 3.529	28.16 ± 5.745 ^{△△}
7	Imagination	Before the intervention	38	25.24 ± 4.181	26.05 ± 5.840
8		After the intervention	38	25.82 ± 4.286	26.61 ± 5.857 ^{△△}
9	Challenge	Before the intervention	38	22.50 ± 2.597	23.18 ± 4.975
10		After the intervention	38	22.53 ± 2.768	24.24 ± 4.840 ^{△△}

Note: Δ for own pre-post comparison: Δ for $p < 0.05$, $\Delta\Delta$ for $p < 0.01$; \ast for control and experimental groups compared with each other: \ast for $p < 0.05$, $\ast\ast$ for $p < 0.01$.

4.2. The effect of fancy rope jumping exercise on students' divergent thinking

There was a significant overall increase in divergent thinking in the experimental group when comparing before and after the intervention ($p < 0.01$). The mean score increased from 33.94 before the intervention to 44.69. There was a significant increase in fluency ($p < 0.01$), originality ($p < 0.01$), title abstraction ($p < 0.01$) and delicacy ($p < 0.01$), with no significant difference in resistance to premature closure ($p = 0.414 > 0.05$).

There was a significant overall increase in divergent thinking in the control group ($p < 0.01$) when comparing before and after the intervention. The mean score increased from 33.81 before the intervention to 35.97. There were no differences in fluency ($p = 0.051$), originality ($p = 0.118$), title abstraction ($p = 0.46$), and resistance to premature closure ($p = 1$), but there was a significant increase in refinement ($p = 0.008$).

Before the intervention, there was no significant difference in overall divergent thinking in the experimental group compared to the control group ($p = 0.959$). The mean score of divergent thinking was 33.81 in the control group and 33.94 in the experimental group, with no significant differences in fluency ($p = 0.229$), originality ($p = 0.916$), title abstraction ($p = 0.295$), delicacy ($p = 0.229$), and resistance to premature closure ($p = 0.312$). After the intervention, there was an overall significant increase in the level of divergent thinking in the experimental group compared to the control group ($p < 0.01$). The mean score for the control group was 36.19 and the mean score for divergent thinking in the experimental group was 44.69. There was a significant increase in fluency ($p < 0.01$), originality ($p < 0.05$) and delicacy ($p < 0.01$), and no significant difference in headline abstraction ($p = 0.825$) and resistance to premature closure ($p = 0.265$). (See Table 4)

Table 4. Comparison of divergent thinking results between the experimental and control groups before and after the intervention

No.	Dimensionality	Period	n	Control group	Experimental group
1	Dispersed thinking	Before the intervention	32	33.81 ± 9.226	33.94 ± 10.077
2		After the intervention	32	36.19 ± 8.291 ^{△△}	44.69 ± 7.847 ^{△△※※}
3	Fluency	Before the intervention	32	3.41 ± 1.932	4.13 ± 2.733
4		After the intervention	32	3.72 ± 1.800	7.13 ± 1.601 ^{△△※※}
5	Originality	Before the intervention	32	11.94 ± 5.645	11.78 ± 6.194
6		After the intervention	32	12.28 ± 5.287	15.34 ± 4.674 ^{△△※}
7	Title abstractness	Before the intervention	32	13.19 ± 5.755	11.72 ± 5.360
8		After the intervention	32	14.47 ± 5.352	14.16 ± 5.876 ^{△△}
9	Refinement	Before the intervention	32	3.41 ± 1.932	4.13 ± 2.733
10		After the intervention	32	3.84 ± 1.780 ^{△△}	5.78 ± 2.106 ^{△△※※}
11	Resistance to premature closure	Before the intervention	32	1.91 ± 1.118	2.19 ± 1.091
12		After the intervention	32	1.88 ± 0.942	2.13 ± 0.833

Note: [△] for own pre-post comparison: [△] for $p < 0.05$, ^{△△} for $p < 0.01$; [※] for control and experimental groups compared with each other: [※] for $p < 0.05$, ^{※※} for $p < 0.01$.

5. Discussion

Creativity is one of the most complex human behaviors, and when it occurs, all functions of the human brain's thinking system are operating at a high level and are involved. Creativity is a worldwide topic and a perennial issue, and it is also a hot issue of concern in the education field. In such a context, it is self-evident to discuss the significance of fancy rope jumping to the creativity development of elementary school students.

The present study found that 6 months of moderate intensity pattern fancy rope jumping had a positive effect on the creativity of elementary school students, consistent with the study hypothesis. This finding is in agreement with Wang and Ma (2014), and also with Ruiz-Ariza Alberto et al (2019), Büning Christian et al (2021), Piya-Amornphan N et al (2020), Ashish et al (2019), and Sylvain et al (2020) regarding the effect of exercise (cooperative movement, dance, aerobic walking, quadripartite movement training, etc.) on creativity, there is some similarity in the results of the studies.

The creative dispositions results showed a significant increase in the students' creative dispositions, where risk-taking, imagination, curiosity and challenge were all significantly increased. These results may be related to the characteristics of the

movement itself. Risk-taking means having the courage to guess, try, experiment or face criticism, it includes the ability to insist on one's own opinion and cope with unknown situations. For elementary school students, each jump rope process is a risk, an experiment or an attempt, accompanied by the risk of failure, and risk-taking is enhanced in the process of repeated attempts; imagination means to conceptualize and concretize various imagery in the brain, which enables us to transcend the limits of reality and enter a world of omnipotence. Many movements of fancy rope jumping require elementary school students to create new movements through their own brain play, and imagination is further developed in the process of choreography. Curiosity is a state of mind that likes to investigate things that are not understood, and a kind of ability formed through doubt, thinking, confusion. It is also the key to start to ask questions, think and try, and is often accompanied by the idea of being able to meet to know how the future. By the rich content, a variety of forms of jump rope exercise mobilized. Challenge is the ability to deal with complex issues and confusing opinions in search of a solution. It brings inherent logic into the situation and provides insight into the factors that influence change, and each jump is a challenge for itself. Both ballet (Seung-Soon, 2004) and aerobics innovative teaching (Chen, 2009) also have positive effects on students' creativity, because these physical activities are similar to fancy rope skipping in that they can be freely played and independently choreographed, and the whole process is the process of creativity development, and students are happy to explore and innovate on their own, which makes the creative ability improve. Zheng's studies (2014) used the Williams Propensity to Innovate Scale to test the creativity of college students. But the results showed that different special factors (aerobics, volleyball, table tennis, basketball, Wushu, and sparring) did not have much effect on college students' propensity to creativity. The author believes that this result is mainly related to the sports items. The sports items selected in the study have mostly fixed sets of movement categories compared with the fancy rope jumping, and simply practicing the movements without choreographing the movements. Students had little room for free play, and were difficult to enhance their creative motivation and innovative thinking ability.

The results of the divergent thinking experiment showed that the students had a significant increase in divergent thinking, and the fluency. Originality, title abstraction and delicacy of the students in the experimental group were also significantly better than the control group. Part of the research of Kim and Jun (2013), Chae and Choi (2005), Kim (2015) also applied the Torrance Test of Creative Thinking (TTCT) to test creativity, and the results were basically the same. The studies of Lees et al. (2005) using other scales, also showed consistent results. Fluency refers to the amount of different ideas that an individual generates in a given amount of time when confronted with a problem situation, and students will generate as many ideas as they can during the exercise. Ingenuity is the ability of an individual to come up with an unusual opinion that surpasses his or her own and his or her predecessors when faced with a problem situation. Students' physical flexibility and fluency were improved in jumping, which in turn led to the development of mental flexibility and fluency. But the effect shown on the dimension of resistance to premature closure was not significant. However, studies of Sung-han and Huh (2012) found that 30 minutes of exercise per week led to a decrease in originality and fluency in 6-year-olds children. There was no change in abstraction, complexity, resistance, or criterion scores. Inconsistent with the results of the present study, its conclusion states that this is due to the lack of emphasis on physical activity in educational institutions. That is, the current standard of 30 minutes once a week is clearly not enough, at least for creativity. In contrast to the present study, there should be

three times a week of physical activity, preferably similar to fancy rope jumping, in order to have an improvement on the development of creativity.

6. Conclusions

Six months of moderate intensity fancy rope jumping exercise has a significant effect on elementary school students' creativity, mainly in terms of risk-taking, curiosity and imagination of creative tendencies and originality, flexibility, fluency, appropriateness and resistance to the effects of premature closure of divergent thinking. The findings of this study not only support the previous view that sports can positively influence individual creativity, but also refine the previous study, confirming that fancy skipping helps to enhance the level of creative tendencies and divergent thinking of elementary school students and promote the development of their creativity, thus broadening the horizon of research on the relationship between sports and students' creativity, and providing a basis for comprehensively revealing the relationship between sports and students' creativity development. This broadens the horizon of research on the relationship between sports and students' creativity, and provides a basis for revealing the relationship between sports and students' creativity development.

It is suggested that the novel, interesting and easy to be accepted by primary and middle school students that fancy rope jumping sports should be incorporated into the physical education curriculum system of primary and middle school, and the teaching contents, methods and modes of fancy rope jumping for each level section should be improved, so as to provide an implementable path for further deepening the physical education reform of primary and middle school. In the teaching process of fancy rope skipping, teachers should not only focus on the teaching of basic movement skills, but also focus on motivating students to innovatively choreograph and design movements; not only to let students understand the essence of skills and movements in this sport and improve their physical quality, but also to make students more interested in this sport, and then stimulate their creativity.

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