

Discussion on the Empowering Effect of Children's Motor Skill Improvement on Psychological Development in Physical Education Classroom Practice

Xingyue Li

Master of Social Science in Sports Coaching and Management, The Education University of Hong Kong, Hong Kong, China

Abstract: The link between motor skills development and psychological development of children is an essential issue of physical education. This essay analyses the empowering effect of strengthening motor skills in children's psychological development, using the practice of physical education classes as the research object. The study is based on the assumption that the development and perfection of motor skills are not limited to the improvement of physical functions, but systematically influence the psychological development of children in many dimensions, such as cognitive functioning, emotional stability, social adaptation, self-efficacy, and volitional qualities. According to the data of the Eighth National Survey on Students' Physical Fitness and Health of the Ministry of Education, the proportion of students whose daily exercise time reaches more than one hour and their physical fitness is good is 27.4%, which is nearly 10 percentage points higher than that of students who do not exercise enough. The structured, game-based and cooperative movement situations in physical education classrooms generate conditions for the occurrence of the above-mentioned empowering impact. This article also notes that the development of motor skills and psychological development is not a linear causal relationship but a dynamic process of physical and mental synchronisation. The combination of psychological development and motor skill teaching should be the basic orientation of physical education curriculum design and teaching execution.

Keywords: Physical education class; Children; Motor skills; Psychological development; Empowering effect.

1. Introduction

Motor skills and psychological capacities develop and are malleable during childhood. In the past, sports education concentrated on physical growth but overlooked mental wellness. With the transformation of educational notions to "all-round development", the inherent relationship between motor development and psychological development has steadily attracted attention. The improvement of physical control ability is related to the development of motor ability, as well as cognition, emotion, social adaptability and personality development.

The theory of embodied cognition claims that cognition, emotion and action are interrelated and share a common neuronal physiological substrate. Children's attention, mood regulation and social interaction may also increase at the same time that they acquire actions such as running, jumping, throwing and catching in physical education programs. Developing motor skills during childhood is essential. Motor patterns developed in this period dictate the direction of subsequent motor abilities, and are also moulded by physical experiences, affecting children's cognition of themselves, others and the outside world.

The mental health of children and adolescents in China is grave. According to the blue book, the detection rates of depression in primary schools, junior high schools and senior high schools are 10%, 30% and 40% accordingly. The early development of psychological disorders has led to the expansion of avenues of psychological education by schools, but the educational role of physical education classes has not been fully appreciated. The physical health survey of the Ministry of Education shows that 27.4% of students who exercise more than one hour a day meet the physical health standard, which is nearly 10% higher than that of students

who do not exercise enough, suggesting a certain correlation between physical exercise and the physical and mental health of children [1].

Physical education classes provide an organised atmosphere, social interactions and quick feedback systems that facilitate the transfer of physical skill growth to the psychological level. "Health first" and "all-round development" have been emphasised in the current curriculum reform. The physical education should serve the promotion of psychological traits. It is meaningful to study the empowering mechanism of motor skill progress on psychological development to optimise classroom teaching. In the following, this is analysed from five aspects, namely, cognitive function, emotion management, social development, self-concept building, and volitional attributes.

2. The Promoting Effect of Motor Skill Improvement on Children's Cognitive Function

Children don't gain motor abilities only through their muscles and joints. The focus of attention, the temporary store of memory and the on-line control of the brain determine the angle of throwing, the moment of take-off, the anticipation of a trajectory in ball sports, etc. Body and mind are inseparably connected, motor training can bring about cognitive growth. That's the foundation.

Specifically, attention is the cognitive activity that is most immediately influenced by motor training. When youngsters are faced with a new movement, they have to follow the demonstration, listen carefully to the explanation and verify that they are doing it correctly and then correct themselves again and again. Repeated concentration over time like this, of course, stabilises attention and enables people to multi-task.

Attention allocation is well practiced in multi-tasking instances in physical education classes, such as dribbling while keeping track of where teammates have moved to and evaluating where to land while in motion. Motor learning also drags along working memory. There is a succession of action steps in the brain, and changing based on input while doing is itself an update exercise for working memory. There is also evidence of enhanced cognitive flexibility. Children need to modify their thoughts swiftly to adapt when game rules change or competition needs change, and this skill for rapid switching is gradually acquired.

Experimental evidence has also been supplied. In one study, moderately autistic children were trained using fundamental motor skills for 18 weeks. The children exhibited considerable improvement in inhibitory control, cognitive flexibility and working memory after the training [2]. A meta-analysis of 10 trials indicated that such interventions had a moderate enhancing effect on the executive functions of preschool children ($SMD = 0.401$, $p < 0.001$) and the effect from 5 to 6 years old ($SMD = 0.492$) was more pronounced than that from 3 to 4 years old ($SMD = 0.359$) [3].

distinct sorts of movement require distinct cognitive emphasis. Open skills, such as on-the-spot response in ball games, require children to make quick judgements and provide more exercise for cognitive flexibility. Closed skills, such as gymnastics or martial arts routines, emphasise the precise reproduction and stable output of movements, and place higher demands on working memory and sustained attention. These two sorts of abilities differently affect cognition and cannot be used interchangeably. Thus, both types of skills require practice and youngsters will enjoy full cognitive stimulation. If the cognitive difficulty is intentionally incorporated into the motor tasks, like introducing strategic limitations to ball games or requiring children to repeat the sequence of movements during gymnastics practice, it will enhance the cognitive benefits of physical education classes and usher motor learning toward intellectual development.

3. The Positive Impact of Mastering Motor Skills on Children's Emotional Regulation Abilities

Besides cognitive advantages of motor abilities, the emotional aspect is one that cannot be overlooked [4]. When infants learn movements, emotions are always there. From the unfamiliarity and uncertainty, to frustration and tenacity with repeated practice, to joy and satisfaction when the task is accomplished. Physical education lessons are a constant replay of this emotional journey. Often going through the ups and downs of emotions provides a true practice situation for emotional management.

Motor skills learning proceeds in two directions for improvement of emotional regulation generally. The first is the change of the emotional experience. The aggravation of not being able to do things will be eased by the sense of competence when youngsters finally do things they couldn't do before. Visible growth can bring a real joy even if the progress is only a few centimetres more in long jump or a little more accurate in throwing and regular additions will make the emotions tend to stabilise. The second is acquisition of regulation strategies. Failures are inevitable in motor exercise. Children have to cope with impatience, suffer repetition and keep calm under pressure. With the proper coaching from the

teacher—taking a deep breath and trying again, for example, or replacing "I can't" with "I'll think of a way"—children will learn the skills of emotion regulation through practice. These techniques will be transferred to other classes.

This is also confirmed by empirical studies. Early Childhood Education Journal. "Quasi-experimental study". 97 children aged 7-8 were divided into an experimental group (41 people) and a control group (56 people). The experimental group had 8 physical education lessons (45 minutes each) with cooperative games, yoga relaxation and sports activities [5]. After the end, the experimental group was better than the control group in emotional repair and anxiety control ($p < .001$). Short term intervention was also successful.

Gamified teaching may aid in making emotional regulation more natural. Motor practice wrapped in story-driven games makes repetition no longer dull and difficulties less daunting. Children instinctively increase their tolerance for failures. Competition is another kind of emotional substance. Children need to assimilate the gap between winning and losing, learning not to go wild when winning and not to be discouraged when losing, respecting opponents in conflict and accepting themselves in failure. Other classes are hard to get these experiences. In the final analysis, physical education teachers need to seize the chance of emotional education at every step of teaching motor skills so that physical education classrooms become a fruitful ground for cultivating children's emotional ability.

4. The Promoting Effect of Motor Skill Training on Children's Social Development

Motor skill training also has a great impact on children's social development in addition to emotions. Social development involves many factors like interaction with peers, ability to cooperate, understanding of rules, and social cognition. Physical education programs provide many opportunities for interaction and rich cooperative situations, which establish the circumstances for children's social growth. Motor skill instruction rarely takes place in isolation in the classroom but is integrated into group cooperation, team competition or collective performances. Skill practice and social engagement go hand in hand in physical education sessions.

The cultivation of cooperative ability is the most direct reflection of the social benefit of motor skill training. In double-person ball toss, one has to modify the force and direction; in collective relay race, it checks the coordination between team members; in group gymnastics, each member has to be in the appropriate position at the same rhythm. To do such things, there are prerequisites: communication and coordination. There should also be division of labour and mutual help. One must put up with the faults of peers. Such experiences will slowly strengthen children's communication abilities and team awareness. The "Journal of Physical Education" released a teaching experiment, which revealed that the cooperative learning model has a positive influence on the primary and secondary school physical education courses, and students' mental health and social adaptability have been greatly enhanced [6].

Rule-based games and competitions also offer unique values. These activities are common in physical education classrooms. Almost every action practice in physical education classes has limited constraints. Starting should be

after the order, throwing cannot cross the line, competitions must follow the referee. Students learn the importance of norms and how to develop their skills under conditions through habitualized action. They take turns as team leader, referee and recorder so that they have the experience of the same event from the multiple roles, and learn to appreciate how others think and act.

In the physical education courses the youngsters look who is fast in running and who is high in jumping. The capacity gaps are obviously there, and may generate emotions of inadequacy, but also possibilities for observation, imitation, and mutual aid. When children of different levels work together and are given tasks that can only be achieved via cooperation, they learn to value others' abilities and tolerate their own inadequacies. A meta-analysis of 40 research with 3,985 participants summarised the data and found the most significant effect of the cooperative learning model on social learning in physical education classes ($ES = 0.612$) [7]. The actual inclusion of cooperative elements in the training of motor skills turns physical education classes into a practical area that feeds children's social skills, fostering peer connections and group integration.

5. The Constructive Role of Skill Progress in the Formation of Children's Self-Concept and Self-Efficacy

An ongoing development of motor skills does not only influence what youngsters can "do", but also how they see themselves. This alteration in the view of their own talents is eventually integrated into their general system of self-evaluation and influences the building of their self-concept and self-efficacy [8]. The former is about "what kind of person am I?" while the later is about "what can I accomplish?" The two are intertwined with each other, constituting the internal driving force of children's psychological growth. The influence degree of each movement exercise in physical education class on this construction process is different, and the cumulative psychological promotion effect is formed. But this empowering impact does not happen automatically, but is dependent upon the thorough design and dynamic regulation of the learning scenario by the teacher and the teacher's capacity to vividly catch the psychological changes of children and guide them. These factors collectively determine whether the action practice has a positive or negative psychological impact, the degree of difficulty of the task, the timeliness and specificity of the feedback, the classroom atmosphere conducive to the attempt or the fear of making mistakes by students.

In this process, the role of change in self-efficacy is considerable. Self-efficacy is different from a broad self-concept in that it is a child's perception of his or her capacity to perform a certain task and is most immediately affected in physical education classes. The more the youngsters repeat the practice and really feel their development in a given action, their confidence in this type of task grows. This confidence is also transferable—the judgement of "I can do it" made in physical education class occasionally spills over to academic learning and daily interactions, developing into a more universal confident inclination. Such a good spillover from the physical to other domains is exactly the crucial manifestation of the psychological empowerment benefit of

physical education sessions.

There is a double promotion relationship between the depth of self-cognition and the development of skills [9]. When a child has a breakthrough in a given action, his judgement of his own capable capacity will improve proportionately. This favourable self-evaluation makes people more motivated to try when they are faced with new acts. In contrast, if youngsters actually feel "I can do it", they will also be more engaged and more resilient when they are studying. Understanding this rule and taking into consideration the psychological effect in the creation of goals of action, can transform physical education classes from simple physical training into a holistic educational practice, which takes into account both physical and mental aspects.

6. The Forging Effect of Motor Skill Training on Children's Willpower and Resilience

A more firm willpower to support is also required for the beneficial creation of self-awareness. The main sources of this support are the will power and resilience and they are part of the advanced level of children's healthy personality and are also an important pillar of psychological development. The study of motor skills in physical education programs has repeated, tough and challenging aspects, which exactly creates a perfect setting for forging willpower. As opposed to academic learning, there are virtually no shortcuts to learning motor skills, and theoretical explanations cannot substitute the constant trial and error of children. To stabilise a throw, it may take hundreds of repetitions, and to perfect a gymnastic routine, it may take weeks of continual refinement. This constant trial and error is the very forging of endurance and resilience.

Especially in motor skill learning, perseverance is noticeable. At a certain level of practice, youngsters often plateau: no matter how hard they try, they seem to make no progress. This period is the most testing of patience, and it is only the crucial node for the establishment of the quality of perseverance [10]. Children who have gone through the plateau and finally made breakthroughs not only have an improvement in motor abilities, but a personal experience—perseverance does pay off. This is more convincing than any sermon can be. Teachers can assist kids break through the plateau with goal breakdown, practice changes, and good support at the right time.

The failure scenarios in the physical education class also have the particular educative meaning. Mistakes in moves, defeats in competitions, bad exam results—all these are actual setbacks that youngsters have to confront. If teachers teach children to attribute failures to lack of practice not lack of ability, children gradually will have a healthier way of coping—learning to learn from experience rather than dismissing themselves. What makes physical education classes distinctive is that failure is minimal risk, movement faults will not have major consequences and children can attempt and get up again and again with a safe setting.

Another feature of motor skills training is that it trains both body and cognition at the same time. When children continue to perform motions, when the body is tired, what they are training is not only the muscle endurance, but also the psychological endurance. They are quickly changing their mental state after a mistake and moving on to the next attempt, changing not only the technical movements, but also the

emotional state. If teachers deliberately design moderately difficult tasks in the classroom, every child can experience the relationship between effort and progress in the range of "slightly difficult but achievable", and physical education classes may become an effective arena for cultivating a resilient personality [11].

7. Conclusion

In terms of teaching practice, the impact of learning of motor skills on children's psychology is not a single element, but develops simultaneously in several directions, such as cognition, emotion, social interaction, self-awareness and volitional behaviour. These orientations are not only parallel interactions, but a developmental course from lower to higher levels with gradual integration. Every practice of motor skills leaves traces in these areas, and the whole effect of repeated practices is a comprehensive psychological promotion mechanism.

This boosting effect is not inevitable. Some children gain more confidence with practice in the same physical education session, whereas some become more apprehensive. The changes are not only in the nature and the complexity of the movements, but also in the design of the classroom atmosphere and in the teacher's guidance. The control of task difficulty, the specificity and timeliness of the feedback, the classroom atmosphere that encourages trying or makes people afraid of making mistakes—these are differences in details that often determine whether the practice of motor skills ultimately leads to growth or frustration.

There is a mutual support between the growth of psychological traits and the improvement of motor abilities. When a youngster gets a breakthrough in a particular movement, concentration and persistence tend to improve as well, or if psychologically more confident, one will be more patient when learning other movements. If teachers can understand this, and bring the purpose of psychological cultivation into teaching every day, physical education classes may extend from mere physical training to a holistic educational activity that takes body and mind into consideration.

Of course, the discussion in this article is mostly theoretical analysis and literature review, and no systematic quantitative tracking research has been completed yet. No detailed differentiation has been made of the psychological effects of different types of motor skills or of different age groups of children. Further research can explore the corresponding relationship between motor skill classification and psychological development dimensions, and longitudinal tracking can also be conducted to explore the long-term psychological effects of motor intervention, so as to accumulate more sufficient basis for precise teaching in physical education classes.

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