

Research progress of self-determination theory in the field of sports learning motivation

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Abstract: Motivation is one of the most fruitful fields in sports and exercise psychology. As a relatively new motivation theory, Self-determination Theory (SDT) is widely used in the study of sports learning motivation, but there are also many problems. In this paper, the basic framework of SDT is listed by combing the domestic and foreign literatures, and then the related research on the four branches of theory and sports learning motivation is summarized, so as to sort out the research status and existing problems of SDT in the field of sports learning motivation in China. Finally, the shortcomings in this research field are summarized at the end of the article, and the future development space is prospected.

Keywords: Self-Determination Theory; Sports Learning Motivation; Basic Psychological Needs

1. Introduction

With the promulgation of the "double reduction" policy and the reform of physical education in the middle school entrance examination, the class hours and scores of school physical education increase, and physical education plays an increasingly important role in the all-round development of students. How to use curriculum reform to improve the effect of physical education learning and promote the all-round and healthy development of students is an urgent problem for schools. Learning motivation refers to the intrinsic motivation tendency to stimulate and maintain students' learning behavior and make learning behavior toward a certain goal [1]. Educational practice shows that learning motivation promotes learning activities, and learning motivation plays a dominant role in learning activities. As one of the popular theories of motivation theory, self-determination theory has been widely concerned by academic and practical circles. And some scholars have confirmed that self-determination theory can positively affect students' physical education learning activities [2]. In previous studies, scholars have sorted out the application of self-determination theory in the field of physical education teaching according to different aspects of physical education learning [3]. However, the author believes that the specific branches of self-determination theory have uneven application in physical education learning, and determine the basic content of the theory. Based on the sub-theory, this paper explains the relevant research status of self-determination theory in the field of physical education learning motivation at home and abroad from different sub-theories, summarizes the existing problems and shortcomings, and further points out the future development space.

2. The basic theoretical framework of self-determination theory

Self-Determination Theory (SDT) was put forward by Deci and Ryan in 1980s. It is a macroscopic theory to study human motivation, which explains the mechanism of the influence of environment on individual behavior and emphasizes the dynamic role of self in the process of motivation [4]. Self-determination theory does not divide internal and external motives into opposites according to the previous motivation theory [5], but regards motivation as a continuum of dynamic transformation from external to internal [6]. Self-determination theory holds that the environment enhances the internal motivation by meeting the basic psychological needs of individuals, and promotes the healthy development of individuals' body and mind by promoting the internalization of external motivation [4]. With the further research, self-determination theory has divided into five branches from different theoretical perspectives to understand self-determination behavior. They are: Basic Psychological Needs Theory, Cognitive Evaluation Theory, Causality Orientation Theory, Goal Content Theory and Organismic Integration Theory. Among them, the basic psychological needs theory mainly expounds three basic psychological needs of human beings, the cognitive evaluation theory emphasizes the

influence of social environment on internal motivation, the organic integration theory studies the internalization process of external motivation, and the goal content theory pays more attention to whether the object pursued by individuals is internal or external^[7]. Because the causal orientation theory is based on the degree of autonomy in the self-determination theory, Deci et al.^[8] did not introduce the causal orientation theory independently in the later theoretical review. Therefore, in this paper, the causal orientation theory is incorporated into the organic integration theory, and its research status is not introduced separately. According to the framework of each sub-theory of self-determination theory, this paper expounds the research status of each sub-theory and sports learning motivation respectively.

3. Self-determination theory and sports learning motivation related research

3.1. Basic psychological needs theory and sports learning motivation

According to the theory of self-determination, individuals have three basic psychological needs, and supporting and satisfying the basic psychological needs is the core condition to promote the internalization of external motives^[8]. Three basic psychological needs are autonomy need, competence need and relatedness need. Self-determination needs refer to individuals' psychological desire to be responsible for their own decisions, choices and actions. For example, students feel that they can freely choose the content of exercises in physical education classes. When individuals meet their self-determination needs, their internal motivation to participate in activities is high. Ability needs refer to individuals' belief that their learning behavior or actions can reach a certain level, and they believe that they can be competent for this activity. For example, students feel that they can master certain sports skills in physical education classes. Relationship needs refer to the inherent desire of individuals to establish contact with others, and they are eager to get attention, care, acceptance and support from others in the interactive process of establishing contact, and experience a sense of belonging, such as students' perception of support, care and understanding from PE teachers and classmates in PE class^[9].

Self-determination theory holds that if these three needs are met in the social environment, then human nature and motivation can develop positively. Basic psychological needs play an intermediary role in the interaction between social environment and individuals, and this intermediary role is interdisciplinary. Therefore, the basic psychological needs theory, as the main part of self-determination theory, has been widely used in the related research of self-determination theory and sports learning motivation^[10]. In foreign research, some studies have studied the relationship between autonomous motivation and motor skills by using autonomous needs in basic psychological needs, and found that the relationship between them is positive^[11]. Cox et al. found through the follow-up study that the efficiency of students' after-school physical activity is positively correlated with their perceived autonomous motivation in physical education class, and the satisfaction of students' three basic psychological needs in physical education courses can positively predict their participation in after-school physical activity^[12]. And autonomous motivation can improve students' sense of pleasure in the process of physical education learning by satisfying their basic psychological needs^[13]. Therefore, physical education teachers can meet students' three basic psychological needs in different ways, so as to improve students' autonomous motivation and stimulate students' interest in physical education. From the domestic research, scholars tend to take the basic psychological needs as the basic intermediary variables to investigate the influence of teachers' autonomous support and peer relationship on physical education learning. The research results show that teachers' high-quality autonomous support and good peer relationship can promote the improvement of students' physical education learning effect by meeting the basic psychological needs^[14,15]. Generally speaking, the basic psychological needs have played an important intermediary role between the social environment and sports, and have been more mature at home and abroad. In the follow-up research, the basic psychological needs theory can be used as a starting point to link with other sub-theories to study the direction of sports learning.

3.2. Cognitive Evaluation Theory and Sports Learning Motivation

Cognitive evaluation theory mainly aims at people's views and evaluations of objective events and things, and points out that external rewards weaken internal motivation^[8]. According to cognitive evaluation theory, internal motivation is due to individual's internal psychological needs, and it needs to be motivated. Just as a person is obese (has a need for figure), he will try his best to meet three basic internal psychological needs. Meeting external needs produces external motivation, while meeting three basic psychological needs produces internal motivation^[16]. Cognitive evaluation theory points out that if the independent needs and ability needs are negatively affected by the external environment, that is,

individuals feel controlled or feel powerless, they will reduce their internal motivation. On the other hand, if the external environment satisfies the basic psychological needs, it may greatly improve the internal motivation^[18].

Cognitive evaluation theory emphasizes the influence of social environment on individual's internal motivation, and social environment includes external reward (including language reward and material reward), teacher's leadership style and parents' style, peer relationship and motivation atmosphere^[17]. Owen and others conducted a survey of students in an Australian middle school to explore the relationship between individual and class motivation level and moderate to vigorous physical activity (MVPA) in physical education class and extracurricular moderate to high-intensity physical activities^[18]. The research shows that both the individual's autonomous motivation and the learning atmosphere of the class will have an impact on the participation rate of students' physical activities. The research of^[19] by Aelterman et al. points out that physical education teachers need to consciously create a more positive learning environment and enhance students' participation in physical activities in physical education class through the overall learning atmosphere of the class. Summing up the relevant foreign literature, cognitive evaluation theory, as one of the main sub-theories of self-determination theory, is extremely rich in evidence in sports learning motivation, but there are some problems in uneven measurement tools. On the other hand, the related research in China shows that the theory of cognitive evaluation was introduced earlier. In the 1990s, some scholars explained the internal motivation of sports according to the theory of cognitive evaluation^[20]. In recent years, domestic research focuses on the influence of PE teachers' leadership style on students' learning motivation^[21], and there are few empirical studies on the influence of social environment such as peer relationship and external rewards on sports learning motivation. In particular, the influence of external rewards that need to be studied in the experimental environment still needs further exploration by scholars.

3.3. Organic integration theory and sports learning motivation

According to the theory of organic integration, motivation is re-divided into three types according to the degree of self-determination: unmotivation, intrinsic motivation and extrinsic motivation. No motivation means that individuals lack both internal motivation and external motivation to participate in activities. Internal motivation means that individuals participate in learning based on the fun of learning itself and are in a state of high self-determination. External motivation is between non-motivation and internal motivation, which refers to the actions that individuals carry out in order to obtain some ideal results. This tendency of action is not derived from the behavior itself, but is stimulated by external factors^[16]. Based on the degree of internalization, external motivation can be divided into four types: external regulation, introjected regulation, identified regulation and integrated regulation. External regulation refers to the regulation of individual behavior by external stimuli, and action is dominated by external factors, which is essentially external control. For example, in order to gain the approval of parents and teachers, students take physical exercise, and their behavior is completely dominated by objective factors, and there is no internal control component. Secondly, introversion regulation: it is the regulation of behavior caused by internal stimulation or pressure. Behavior is dominated by internal factors, but individuals do not really accept it in their hearts, and it is essentially part of external control. For example, students have realized that sports are very important to them, but they do not agree with the importance of sports behavior, that is, they are between acceptance and recognition. Identity adjustment refers to the adjustment when individuals realize that the current activities are valuable to them. Individuals begin to recognize the significance and value of activities, and in essence, they have gradually developed internal control. Students accept and agree that physical exercise behavior is important in identity adjustment, and the motivation of physical education learning has changed from external control to internal control, but it has not yet reached the level of internalization. Finally, the integration adjustment, which is the adjustment mechanism of the highest degree of internalization of external motivation, has achieved a high degree of self-integration within individuals. However, integration adjustment still belongs to external adjustment, which is essentially different from internal adjustment. At this stage, students' physical exercise behavior has achieved a high degree of self-integration, but it has not reached the real sense of self-determination. Generally speaking, external adjustment and internal adjustment belong to the motivation controlled by external factors, while identity adjustment and integration adjustment belong to the motivation of partial internal control or infinitely close to internal control. Therefore, external adjustment and internal adjustment are called control motivation, and identity adjustment and integration adjustment, together with internal motivation, are called autonomous motivation.

Self-determination theory assumes that autonomous motivation is beneficial to the development of

individual's positive emotion, cognition and behavior^[7], and these assumptions are proved in the related research of sports learning motivation: Zhang found that internal motivation and identity adjustment are positively related to students' pleasure, while no motivation is negatively related to students' pleasure^[22]. Sanchez et al. pointed out that autonomous motivation can positively predict students' pleasure in physical education learning, while controlled motivation has a negative effect on pleasure, while boredom is related to no motivation^[23]. Chan and Hagger found that autonomous motivation is significantly related to the attitude, social norms and behavior control of individuals participating in physical exercise^[24]. Some studies have also pointed out that, the higher the internal motivation of qigong trainers, the higher their reported concentration, and the better the qigong training effect^[25]. In domestic research, identity regulation and internal motivation also have a positive predictive effect on students' physical exercise behavior^[26]. Follow-up research on the application of organic integration theory in the field of sports learning motivation can be combined with other individual internal psychological variables such as happiness, and the influence of sports on individual psychological quality can be deeply explored.

3.4. Target Content Theory and Sports Learning Motivation

Target content theory is the fifth sub-theory of self-determination theory^[7]. Ford believes that the combination of goals, emotions and personal beliefs constitutes motivation^[27]. Therefore, goal is a part of motivation and an indispensable condition in the process of individual behavior. The appearance of the goal content theory reasonably brings the goal, an important variable in the field of motivation research, into the system of self-determination theory, which opens up a new space for its further development. The goal content theory holds that individuals have two kinds of goals: internal goals and external goals. Intrinsic goal refers to the internal growth trend that can promote the realization of individual's internal potential. For example, a person may take part in a sport because he wants to make his body healthier or make more friends through exercise^[28]. Extrinsic goal means that an individual belongs to external orientation or ownership orientation, and pays more attention to valuable external performance rather than the satisfaction of basic needs^[29]. For example, if a person participates in a sport, it may be because he wants to shape his appearance through sports and make himself look more beautiful.

SDT assumes that different target content will produce different psychological and behavioral results^[7]. Relevant research in the field of sports has confirmed this view. Ingledew et al. found in the study that individuals take the goal associated with external motivation, such as improving appearance, as the exercise goal, which will lead to less participation in physical exercise^[30]. However, individuals will take the improvement of health related to intrinsic motivation as the exercise goal, which will encourage individuals to actively participate in physical exercise. Moreover, Gillison and others found that intrinsic goal can positively predict autonomous motivation, and it can promote individuals to participate in physical exercise and improve their quality of life^[31]. It can be seen that the application of goal content theory abroad focuses on the positive aspects of applying intrinsic goals, and regards intrinsic goals as an important driving force to promote physical education learning and individual healthy and happy development. From the domestic research, the most emerging theory of target content theory developed late in China, and the first Chinese document referring to target content theory was published in 2011^[32]. The target content is combined with the physical education discipline to form the exercise target content, and most of the research on the exercise target content is obtained under the western cultural background. However, the domestic research on the content of exercise goals is not localized to a high degree, and most of them are combined with basic psychological needs for research. For example, Zhang Qin and others found that basic psychological needs can mediate the relationship between the relative internal goal content of exercise and physical self-efficacy^[33]. Combined with physical education learning, some studies show that the internal goal content effect of exercise is suitable for the physical exercise of Chinese teenagers, but the internal influence paths for the three basic psychological needs are different^[34]. Generally speaking, the target content theory, as a popular research theory, has been widely concerned in many disciplines abroad, but it has not been studied by researchers in China^[10], especially in physical education. In the future, we can increase the application of exercise target content in the field of physical education, and conduct intermediary research together with basic psychological needs, which still has great room for development.

4. Shortcomings and Prospects

By combing and summarizing the application of self-determination theory in the field of sports learning motivation, the researchers found that the existing research topics at home and abroad have involved all five branches of self-determination theory, but it seems that each branch of theory is not

deep and comprehensive enough, especially in domestic research, which focuses more on the application of basic psychological needs theory. Therefore, many research directions and problems are worthy of further discussion and excavation in future research.

From the perspective of the future development space of each sub-theory, the theory of basic psychological needs, as an important intermediary between the environment and individuals in sports activities, can be used as a link between variables in other sub-theories and sports learning motivation, thus driving the development of other theories. For example, we can study the relationship between exercise content and physical exercise behavior through the intermediary of basic psychological needs. The research paradigm and tools of the mature cognitive evaluation theory that have been developed abroad can also be applied to domestic research to supplement the deficiency of the empirical research of this theory in China, and to localize the research tools of this theory. In addition, the sub-theories of self-determination theory can be combined with sports learning motivation, and at the same time, other individual psychological energy variables can be appropriately included, such as sports learning interest, sports learning attitude, individual emotion, individual happiness, etc., so as to use self-determination theory to make sports learning behavior individuals develop better services.

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