INNOVATION OF THE TEACHING MODE FOR PHYSICAL EDUCATION OF COLLEGE STUDENTS BASED ON PSYCHOLOGICAL ANALYSIS AND CONSTRUCTIVISM

Lijun Chang

Abstract

The traditional teaching mode of physical education has many shortcomings in both concept and practice. For instance, the psychological needs of students are basically overlooked in the teaching process. To solve the problem, this paper attempts to develop an innovative teaching model for physical education that caters to the psychological needs of college students. Firstly, the author fully deliberated the teaching model of physical education in the light of constructivism, and demonstrated the importance of learner-centrism in the teaching practice. Then, the mental health of college students in physical education major was evaluated empirically, revealing that mental problems exist in quite a number of these students. Based on the psychological analysis, the student-oriented principle was introduced to the traditional teaching model of physical education, creating an innovative teaching model that fully consider the physiological problems of college students. To verify its performance, the proposed teaching model was compared with the traditional teaching model through simulation. The results show that our learner-centered teaching model for physical education achieved desirable results among college students. The research findings provide a new path for the reform of physical education in colleges.

Key words: Psychoanalysis, Constructivism, Physical Education, Teaching Model.

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INTRODUCTION

In recent years, in the context of the deepening development of quality education, the importance of physical education has gradually become prominent, and has been placed in an important position. Although physical education has achieved certain results, there are still some shortcomings (Liu & Lei, 2014). Physical education at the present stage has not been able to get rid of the traditional physical education mode that teachers are in the main position while students are in the receiving state. This single-effect teaching mode lacks a certain qualitative and quantitative combination. In 2013, the research on the value and motivation of non-intellectual factors in the process of physical education teaching was put forward (Amado, Del Villar, Sánchez-Miguel et al., 2016). It is believed that this is only one aspect of the problem, and more importantly, it is necessary to reflect on the problems of physical education itself. The old teaching concept, simple repetition and dull teaching content, and the single teaching mode need to be solved urgently. Under this situation, colleges and universities have gradually attached more importance to the innovative development of physical education teaching mode and effectively meet the needs of social development. However, according to the analysis of current situation, there are still many shortcomings in the physical education teaching mode in colleges and universities (Sevil, Abós,
Generelo et al., 2016; Jaakkola, Wang, Soini et al., 2015). Therefore, how to more actively maintain and promote the improvement of students' overall psychological health level should be included in the main content of the quality education of schools. To this end, this paper classifies and analyzes the literature on the research of the role of the environment in college physical education, and puts forward many opinions that are conducive to the research and development of the psychological environment in college physical education with the purpose of improving the psychological environment in physical education.

In the traditional sports psychology research, there are quite a lot of studies involving the influence of psychological factors on the body and behavior, especially in the clinical aspect, but small number of studies have been performed on the psychological impact on the body (Kynadt, Raes, Lismont et al., 2013). With people's deep understanding of health, it also promotes people's new understanding of sports function. Sports can not only promote people's physical health, but also achieve ideal health effects. The group teaching mode of physical education is a variant of the group cooperative learning mode in the teaching theory (Han, 2013). Group cooperative learning is a teaching mode that promotes students' development in cognitive, emotional and social aspects by promoting the exchange of students in the form of group learning. There are many studies on the psychological health education in the physical education in middle schools. However, most of these studies stay in the psychological aspect and only a few studies have involved the cultivation of social adaptability. In high schools, the number of such studies is smaller (Pan, 2014). In 2014, the relationship between PE teachers' self-efficacy and students' motivation, atmosphere and satisfaction was put forward (Merino-Marban, Mayorga-Vega, Fernandez-Rodriguez et al., 2015). Later, the research on the influence and regression of the stretching exercise based on physical education on pupils' sitting and stretching performance was put forward (Dong, 2014). Psychological health is a multi-level, multi-lateral network structure. With the continuous sublimation and deepening of human understanding of themselves, the concept of psychological health is gradually improved and clarified in the ongoing debate, and the research depth is also constantly improving and developing in the exploration. Constructivism, as a new epistemology and learning theory, advocates "learners as the main body", and puts forward a series of new ideas for learning and teaching, which has a profound impact in the field of education (Oh, Jia, Lorentson et al., 2013; Cui, 2011).

In the contemporary society of reform and opening up, there are multiple values in the society. How to choose correct values and world outlook requires college students to have a positive and healthy mentality to make correct choices (Perlman, 2010). Essentially, constructivism is to recognize things and accumulate experience through different cognitive ways, thus forming a body with certain psychological structure, knowledge and experience (Garn & Cothran, 2006). Physical education in schools has unique advantages that other sports carriers do not have, so it has irreplaceable significance in promoting psychological health. It can be said that the concept that physical education in schools has promoted the psychological health of students has been basically recognized in academic circles (Martin & Kulina, 2004). Many studies have shown that physical activities have a unique advantage in promoting people's psychological health, so sports in schools have an irreplaceable role in the psychological development of students. This is evidenced by the research on the importance of the support of different psychological content in basic psychology in physical education (Jaakkola, Wang, Soini et al., 2015). Through the influence of visualization or the rich story- plots, students are actively and reasonably guided to be actively engaged in the environment of enlightenment, increasing students' enthusiasm for active training, and fully experiencing the success of the learning process. Knowledge and skills, deepen the memory of the technology learned, so as to achieve the harmonious development of mind and body (Lopez-Valeiras, Gonzalez-Sanchez, & Gomez-Conde, 2016; Leitner, 2014). Therefore, changing the concept, innovating teaching content, methods and forms, constructing a physical education teaching model that meets the requirements of social development and meets the needs of students is an important task of physical education in schools at the current stage.
The traditional concept of physical education is the crystallization of the long-term education and teaching experience of human beings, which plays an important role in college physical education and teaching (Amado, Del Villar, Sánchez-Miguel et al., 2016). However, with the development of society and the progress of the times, especially the extensive application of Internet and multimedia technologies in education and teaching, the shortcomings of traditional physical education teaching concepts become more and more obvious. Constructivism emphasizes the subjectivity of human beings. In the teaching mode, it reflects the teaching idea of "student-centered", which regards students' needs as the basic starting point of teaching, while teachers change from the original dominant role to assistants, promoters and instructors (Lynch, 2014). Modern sports teaching methods should be formulated according to the actual situation of students. We should attach importance to students' interests and reasonable requirements, and create conditions for students to experience their interest in learning sports and the joy of success. Although the cultivation of cultural education is very important, the role of physical education cannot be ignored. The openness of the activity of physical education is an essential factor in cultivating the psychological health of college students (Merino-Marban, Mayorga-Vega, Fernandez-Rodriguez et al., 2015; Webster, Caputi, Perreault et al., 2013). The teaching mode based on this theoretical perspective requires to use existing teaching resources and elements, innovate teaching methods, extend teaching content, fully mobilize students' learning enthusiasm, and stimulate their subjective initiative so as to help students to correct psychological defects, eliminate psychological distress, overcome psychological barriers, improve psychological state, and psychological quality.

In the teaching of physical education, students' psychological health level is tested. Table 1 below tests the psychological health level of students in the experimental group and the control group, and tests the difference of the psychological measurement results between the experimental group and the control group. The results are shown in Figure 1:

**Table 1. The psychological health scores of the experimental group and the control group before the experiment were compared**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number of experimental group</th>
<th>Number of control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning anxiety</td>
<td>63</td>
<td>56</td>
</tr>
<tr>
<td>Lone tendencies</td>
<td>42</td>
<td>44</td>
</tr>
<tr>
<td>Physical symptoms</td>
<td>88</td>
<td>32</td>
</tr>
</tbody>
</table>

**Figure 1. The psychological health scores of the experipsychological group and the control group before the experiment were compared**

As it can be seen from table 1, there is a serious problem of learning anxiety and loneliness in students. By comparing the results of the back side with those of the experimental group and the control group, it can be seen that the learners' psychological health problems have been further alleviated. As shown in Table 2 and Figure 2:

**Figure 2. After the experiment, the psychological health scores of the experimental group and the control group were compared**
Table 2. After the experiment, the psychological health scores of the experimental group and the control group were compared

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number of experimental group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning anxiety</td>
<td>31</td>
<td>26</td>
</tr>
<tr>
<td>Lone tendencies</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Physical symptoms</td>
<td>39</td>
<td>33</td>
</tr>
</tbody>
</table>

With the deepening development of Constructivism theory, many scholars believe that the world exists in an objective way. However, as a subjective active subject, the human being has subjectivity in their understanding of the world, and there are many differences due to different cognitive perspectives and understanding abilities. However, due to various reasons, many studies on the physical education in schools and the psychological development of students in our country only stay in the superficial stage of "seeing things but not people" in the sense of theoretical cognition, phenomenal analysis and experience summary. When reconstructing the teaching mode of physical education, we should first consider its operability, closely combine the theory with the practice, and give full play to the bridge role of the teaching mode. People's physical quality and psychological quality are two aspects of mutual restraint and mutual promotion. Psychological health will inevitably have an impact on physical health; in turn, physical health will inevitably have an impact on psychological health. Traditional epistemology and cognitive science believe that knowledge is a passive reflection of the objective world. Learning is the process by which students obtain realistic images through the process of physical education. Of course, under the conditions of physical education teaching, we must pay attention to the unity of teaching objectives, and also pay attention to the gender differences, hobbies and stakeholders between male and female students in sports foundation. A new teaching mode suitable for the development of socialist modernization construction should be established. This paper puts forward that the physical education in schools should be based on the guiding ideology of "health first", with students as the basis, improving students' physical and psychological qualities as the main goal, and the "lifelong sports" and improving the quality of the whole people as the ultimate goal. According to the research purpose and requirements, on the basis of interviews with relevant experts, referring to the same type of questionnaire and following the basic principles of questionnaire design, 99 students are selected as the respondents to design the student questionnaire. The statistical results are shown in Table 3 and Figure 3:

Table 3. Students' overall evaluation of questionnaire design

<table>
<thead>
<tr>
<th>Object of investigation</th>
<th>Population ratio (%)</th>
<th>Evaluation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior high school student</td>
<td>56</td>
<td>8.6</td>
</tr>
<tr>
<td>College student</td>
<td>44</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Figure 3. Students' overall evaluation of questionnaire design

With the help of physical education teachers, the questionnaire was explained one by one by the students surveyed, and then they were asked to fill in the questionnaire. Questionnaires were distributed as follows: 45 senior high school students and 54 college students, with an effective recovery rate of 88.61% and 86.77%, 99% and 87% respectively. The statistical results are shown in Tables 4 and Figure 4:

Tables 4. Questionnaire return statistics

<table>
<thead>
<tr>
<th>Object of investigation</th>
<th>Quantity</th>
<th>Effective rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior high school student</td>
<td>45</td>
<td>88.6</td>
</tr>
<tr>
<td>College student</td>
<td>54</td>
<td>86.77</td>
</tr>
</tbody>
</table>
In constructivism, the learning and knowledge are not an objective existence, but a subjective interpretation and hypothesis of human beings in cognitive practice for new things, new information, new phenomena and new problems. Emotions are innate, and each individual’s activities are accompanied by emotional colors and thus it is necessary to understand the role of physical activities in psychological health, recognize the relationship between physical and psychological development and physical activities and understand the relationship between physical activities and self-esteem and self-confidence. Students should learn to strengthen the will quality to overcome difficulties through sports activities. Physical education is inseparable from the students’ personal experience. Every kind of action and technique requires students to feel and discover in the experience. Discovery-based teaching is based on new teaching ideas, focusing on students’ subjectivity and inquiry spirit. Model is the standard style of things. If we sum up the method of solving certain problems to a theoretical level, the model will be formed. According to the guiding ideology, teaching organization process, teaching method and evaluation method in the teaching of physical education and health courses, teaching is divided into traditional model and new model. According to the characteristics of physical education and learning stage, constructivism teaching theory should be adopted, so as to combine the traditional learning theory with constructivism learning theory in physical education teaching, and promote the development of physical education teaching more scientifically. The psychological state of individual activities mainly refers to the ability, characteristics and temperament. This is a relatively stable component of the psychological structure of personality, which can best reflect individual differences in psychological activities and behaviors. Different abilities, characteristics and temperament will have different impact on the teaching and learning of teachers. The theoretical knowledge and skill learning contained in physical education make it more dependent on the teaching system and gradually become a necessary teaching principle. Many schools regard it as the basis and criterion of teaching methods. Therefore, by actively participating in school sports organization activities, students can eliminate psychological tension, alleviate their own pressure, and enhance their psychological control abilities.

Based on the above research results, the analysis of the interpersonal relationship between physical education teachers in physical education at the current stage is analyzed. It is believed that theoretical support is provided for the establishment of physical education teaching methods based on psychoanalysis. The specific results are shown in Table 5 and Figure 5:

<table>
<thead>
<tr>
<th>Examples of interpersonal relationships</th>
<th>Acceptable number (%)</th>
<th>Unacceptable number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching ideas communicate with each other</td>
<td>45</td>
<td>64</td>
</tr>
<tr>
<td>Fair and open teaching competition</td>
<td>36</td>
<td>58</td>
</tr>
</tbody>
</table>

Figure 4. Questionnaire return statistics

Figure 5. Investigation on interpersonal relationship between PE teachers in Physical Education Teaching
Following the above-mentioned related research, 54 college students and 45 high school students were randomly divided into experimental and control groups, and their emotional state and psychological health diagnostic tests were tested. After 10 weeks of teaching experiments, the emotional state scale and the psychological health diagnostic test were performed on students in the experimental and control groups. The measurement results are shown in Table 6 and Figure 6:

Table 6. Score of mood scale before and after students’ experiment

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Score before teaching</th>
<th>Score after teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nervous</td>
<td>63</td>
<td>41</td>
</tr>
<tr>
<td>Anger</td>
<td>44</td>
<td>23</td>
</tr>
<tr>
<td>Depressed</td>
<td>74</td>
<td>55</td>
</tr>
</tbody>
</table>

Figure 6. Score of mood scale before and after students’ experiment

Strengthening students’ physique, promoting students’ physical and psychological health, and improving students’ comprehensive quality should be the focus of current physical education in schools. Traditional physical education teaching theory regards the process of physical education as a cognitive process of imparting and accepting competitive technology. The traditional view of teachers and students also holds that physical education teachers are imparters of competitive sports knowledge and skills and have the authority. In school physical education, in order to continuously improve the physical quality of students, it is necessary to carry out corresponding exercise. In the process of sports activities, students always have to overcome certain internal and external resistance, which is accompanied by obvious will efforts and corresponding emotional experience. Sports activities promote people’s psychological health. The psychological theory hypothesis emphasizes that sports activities directly lead to changes in people’s cognitive behaviors and psychological levels. It is concerned that physical exercise does not have an immediate effect on the long-term benefits of psychological health. Teachers should be in a dominant position when setting goals, and actively guide students to set reasonable and realistic goals. It is necessary to take psychological health education as the goal, and to use the migration and integration of sports and psychological knowledge. Also, the teaching methods should be flexible and diversified. Secondly, school physical education can also help to alleviate students’ emotional problems through special teaching methods, which makes it difficult for the majority of sports teaching staff to grasp the teaching objectives. Even in teaching practice, it is difficult to achieve personalized and abstract goals with specific teaching design. The objective is a situation and expectation standard and the setting goals can give clear guidance to teaching activities. Teachers set goals for teaching while students set goals for learning. It can be found from Table 7 and Figure 7 that “physical education teaching objectives” and “school physical education objectives” are often misused by sports workers in China. The problem of misuse is also common among sports researchers.

Table 7. Physical examination teachers’ misuse of sports teaching objectives

<table>
<thead>
<tr>
<th>Teaching goal</th>
<th>Number of people</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical education teaching objective</td>
<td>66</td>
<td>68.13</td>
</tr>
<tr>
<td>School sports objectives</td>
<td>34</td>
<td>44.36</td>
</tr>
</tbody>
</table>

Figure 7. Score of mood scale before and after students’ experiment
From the statistical results in Table 8 and Figure 8, we can easily find that physical education teachers have different degrees of error in the description of "teaching objectives". For example, they misuse the teaching purpose as the teaching goal, vague, difficult to evaluate.

Table 8. Statistical results of random examination of objective statement in Physical Education Teaching

<table>
<thead>
<tr>
<th>Irregular situation</th>
<th>Number of Statistics</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confusion between teaching aims and objectives</td>
<td>103</td>
<td>87</td>
</tr>
<tr>
<td>The statement is ambiguous.</td>
<td>89</td>
<td>79</td>
</tr>
</tbody>
</table>

Figure 8. Statistical results of random examination of objective statement in Physical Education Teaching

THE ESTABLISHMENT OF LEARNER CENTERED POSITION IN CONSTRUCTIVISM PHYSICAL EDUCATION TEACHING MODE

Constructivist learning theory emphasizes that human knowledge is not purely objective. Also, learners' knowledge is not imparted by teachers, but constructed by themselves; knowledge is not formed alone, but in the process of interaction with the external environment. All kinds of modern physical education teaching methods emphasize the main position of students in teaching, let students find problems in sports, think about problems, solve problems, and enable students to realize the comprehensive development of sports quality in sports. Therefore, it is urgent to organize and discuss the literature on the role of psychological environment in college physical education. We should establish a scientific, reasonable and practical academic quality evaluation system for the study of psychological environment in college physical education and a learner-based physical education method. The traditional physical education teaching model still follows the teacher-based teaching mode and follows the simplistic and procedural teaching methods. This is not only unfavorable to the students' enthusiasm and initiative, but also restricts the development of teaching effectiveness. In the process of sports activities, students must coordinate their hand-eye flexibility, which requires the use of psychological resources such as attention, thinking ability, and cognitive ability. It is a new type of physical learning method that is born to satisfy students' self-learning interest. Therefore, the teaching mode of sports option class has a theoretical basis for improving students' psychological health. To improve the interpersonal relationship in physical education, we should first improve the teaching system, enhance the democratization of teaching managers, and effectively solve the problem of fairness in teaching competition of physical education teachers. Secondly, from the point of view of teacher-student relationship, in order to enable the majority of teacher-student relationships to develop towards intimate relationship, we must improve the interaction between leaners and teachers in physical education teaching, and strengthen their communication. We should break away from the concept of "competition" in textbooks and the consciousness of "local ocean".

During the swing of legs, it can be divided into three stages of acceleration, propulsion and deceleration. The relative speed of the walking of human body is \( HW \), and a mathematical expression can be obtained:

\[
HW_t = \frac{\sum_{i=1}^{N} D_i(x)}{N} \tag{1}
\]

During the walking process of the human body, the center of gravity changes continuously in the periodicity. Here, the vertical position of the center of gravity is mainly considered, that is, the amplitude of the ups and downs of the human body during the movement, which is expressed as:
During the running, there is an overlapping time during the swinging period $D$ of two legs, which forms a vacant period. During the running process, the following constraints must be met:

\[
D(p_i) = A \cdot \frac{m(1-r)}{p_i^b} \tag{3}
\]

Among them, $I$ represents the duration of the support period in one step; $Q$ represents the duration of the swing period; and $D$ represents the duration of the flight period. For AI, the following formula can be used to obtain the solution:

\[
AI_i = \frac{(I_i + Q_i) + (I_i + Q_i - D_i)}{2} = I_i + Q_i - \frac{D_i}{2} \tag{4}
\]

The movement of each joint in the kinematic chain has certain limitations, that is, to meet the physiological and motion constraints described below, which limits the range of motion of the joint in the air. The mathematical expression of the physiological limit constraint is:

\[
R_i(p_i, Q_i) = p_i \cdot \min(I_i + Q_i, D_i) - (p_i \cdot Q_i + C \cdot AI_i) + R_i \tag{5}
\]

By further transforming the function $R$ in the above formula, the hypothetical conditions of human kinematics constraints can be obtained, which are expressed as follows:

\[
I_{i+1} = I_i + Q_i - \min(I_i + Q_i, D_i) = \max(I_i + Q_i - D_i, 0) \tag{6}
\]

In addition, the constraint $I$ of the virtual human kinematics can be expressed as:

\[
AI_i = \frac{(I_i + Q_i) \cdot (I_i + Q_i)}{D_i} \tag{7}
\]

The current society is a fast-developing and constantly innovating society. As a physical education teacher, it is necessary to continuously learn in his own positions and arm himself with advanced ideas, ideas and technologies. Therefore, we should attach great importance to the content and form of evaluation, focusing on positive and encouraging evaluations, and evaluating students from multiple perspectives. Learners are the subject of learning, but not the indoctrinated object of cognitive theories. Therefore, the focus of teaching research under the guidance of constructivism is to focus on learners, emphasizing the “learning environment”, “learning activities” and “learning evaluation” of learners. The lifelong sports ability of students should be cultivated. To study teachers' teaching methods, we should also study students' learning methods, such as observation method, comparison method and correct and wrong discrimination method in students' sports learning. If students learn and grow under oppressive psychological environment, not only students' personality development will be constrained, and their interest in learning will be limited, but also students' initiative and enthusiasm in learning cannot be mobilized, and thus physical education teaching cannot reach the goal. Whatever teaching content and the practice method that can achieve the teaching goal of physical education has its value in physical education. Even it is “non-competitive" or “full of local atmosphere" in the traditional sense, these methods should be boldly developed and utilized. The traditional teaching process of competitive sports knowledge often emphasizes technology, ability, practice, theory, stage and long-term. These simplified technical treatments take "teaching" as the center. However, neither the cognitive characteristics of the learning subjects nor the social interaction attributes of learning subjects are considered. As a result, most students like sports but are reluctant to take physical education classes, which is not conducive to the cultivation of students' lifelong sports ability.

**Figure 9. Physical education teachers’ satisfaction with psychological health education in physical education and health classes**

![Graph showing satisfaction index vs. Desatisfaction index with data points]
As it can be seen from Figure 9, 8.13% of PE teachers are satisfied with the current psychological health education, and 20.3% are not satisfied with it. Generally speaking, the satisfaction of PE teachers is not high. The reason for this phenomenon is that in physical education teaching, although there are some reference materials and some different teaching forms for psychological health education, most of teachers just copy some psychological content and explain it in physical education class. They fail to have a deep understanding of physical activities and physical education teaching, which leads to the disconnection between physical education and psychology.

In psychoanalysis, by introducing uncertainty into the analytical framework of rational decision-making, expectation utility theory describes how “rational people” determine optimal decisions and take actions in the face of uncertain situations. Specific decision criteria can be expressed in the form of the following function:

$$f(x) = \text{sign} \left( \omega^T x + b \right)$$

The decision criterion of prospect theory is that the individual’s decision behavior is determined by the expected value, which is determined by the “value function” $W(t)$. The value function can be expressed as follows:

$$w(t) = w_2 + (w_1 - w_2) \frac{T - t}{T}$$

The first aspect of expectation value theory is the uncertainty decision-making theory, which assumes that people make decisions based on the mathematical expectation value. The expression is:

$$W_j = d_j / \sum_{j=1}^{m} d_j$$

Teaching and educating people is the first step. Physical education in colleges and universities should set up the idea of "lifelong education”, implant the consciousness of lifelong exercise into students’ minds, and encourage students to actively participate in physical exercise and sports activities in the sunshine. Students can choose physical education courses independently. Teachers carefully design teaching plans before teaching, which can stimulate students' interest and enthusiasm in learning, thus enabling students to master sports skills and enhance their physique in an atmosphere of self-conscious and voluntary learning. Modern educational technology provides an excellent material environment for reforming traditional teaching models. In today's digital age, multimedia and network technologies have changed the traditional concept and form of textbooks, changing the teaching environment and teaching methods, and new teaching models will follow the development of the information age continues to transcend. The learners' high-level thinking activities can be activated and the interaction of new and old knowledge and experience can be promoted, so that new knowledge can “grow” on the basis of original experience to promote learners to complete the meaning construction.

From Figure 10, it can be seen that the methods and models of psychological health education for teachers in physical education and health classes are related. That is, there are different ways to adapt.

Figure 10. The mode of psychological health education adopted by P.E. teachers in physical education and health course

According to the hypothesis of psychological endurance, the value index of teachers providing physical education information can be expressed by the following formula:

$$W_{ij} = W_{ij}^a + a \left( \frac{X_i}{m} - W_{ij}^b \right)$$

Here, the psychological endurance function D
is a subtraction function of information sharing cost $X$ and information sharing income $y$, which satisfies the following expressions:

$$d(x, y) = \sqrt{\sum (x_i - y_i)^2}$$  \hspace{1cm} (12)$$

Based on the function $d(x, y)$, a short board optimization model of sports teaching information sharing can be constructed as follows:

$$\text{sim}(x, y) = \frac{1}{1 + d(x, y)}$$  \hspace{1cm} (13)$$

Based on the principle of short board, the optimization goal is to enable learners with the lowest information sharing value index in the PE teaching process to reach the level of $e$, which satisfies the expression:

$$e_i = -k \sum_{i=1}^{n} f_i \ln f_i$$  \hspace{1cm} (14)$$

The richness of the content and form of physical education curriculum is a direct means to reflect the connotation of "sunshine sports culture". The content enhancement of the curriculum can be made from several aspects: nationality, innovation and entertainment. The accumulation of comprehensive quality of sports is gradually formed in the practice of sports, especially that the accumulation of sports practice in the basic education stage is the most important. The psychological environment of physical education refers to the environmental factors that directly affect the teaching of teachers and the learning of students in the actual process of physical education. In the education and teaching of physical education, the active reflection of various objective factors in teaching and learning is the main content of teachers and students' psychological activities. The active development of these national sports is not only conducive to the inheritance and innovation of traditional culture, but also conducive to broadening the horizons of college students and increasing the sense of national belonging. Regular physical activities can effectively improve students' physiological mechanisms, such as the activities of the central nervous system. Exercise can achieve more flexible and rapid transformation of excitation and inhibition processes of the nervous system and more intensive neural network, thus promoting the accuracy and balance of brain activities and enhancing the cognitive ability of individuals. On the one hand, it can improve the sports experience of college students; on the other hand, these forms can also be taken out of the campus by students into their families and circles.

**CONCLUSIONS**

At present, under the influence of the National Fitness Program, physical education has achieved in-depth development and has become the primary task and core of quality education in colleges and universities. At present, under the guidance of constructivism theory, the learner-centered physical education teaching model has not yet formed a complete theoretical system, and all aspects need further research and development. The development is also facing practical difficulties, such as single teaching means, poor interaction and experience in the teaching process, and poor subjectivity of students. The school has not attached enough importance to students' psychological health problems, and the concept of infiltrating psychological health education in various disciplines has not been popularized, especially how to develop the physical education teaching model with learners as the main body in the physical education on the basis of the traditional college physical education teaching mode. The development of constructivism theory will break through the shackles of traditional teaching mode and bring a new development path for physical education in colleges and universities. Therefore, building a high-quality teaching team, boldly reforming and innovating the physical education teaching model, grasping the key points of teaching, and improving the quality of physical education in a large-scale manner will facilitate the realization of the multi-value of physical education in schools and cultivate a healthy body and mind and physical education teaching talents.

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