Research on the Risk of Inclusive Physical Education in Colleges and Universities and Construction of Safety Prevention and Control Mechanism--Analysis Based on Grounded Theory

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Abstract. This study aims to promote the return of special physical education to the mainstream education system and ensure the normal advancement of inclusive physical education courses in colleges and universities. Consequently, all educatees can enjoy equal educational resources, obtain comprehensive development, and realize the fairness of education. Based on the grounded theory, the first-line physical education teachers from 6 inclusive and demonstrative colleges and universities in China were selected for in-depth interviews, and 20 pieces of interview materials were collected and sorted. The NVIVO12 software was employed to collate data and determine the risks of inclusive physical education. The results demonstrated that the factors causing school sports injury accidents mainly included human factors, material factors, and management factors. Under the guidance of the three-level prevention theory in the field of medical prevention and medicine, the three-level safety prevention and control concept of sports injury was introduced, and the theoretical model of the safety prevention and control mechanism of special physical education courses was constructed.

Keywords: Physical Education. Safety Prevention. Control Mechanism.

1. Introduction

In recent years, more and more students with injuries, disabilities, and diseases, influenced by the concept of inclusive education, enter colleges and universities to receive education, promoting the reform of colleges and universities in the curriculum setting and implementation [1]. Among them, the physical education that needs students to earnestly practice what they advocate is regarded as the first course for reform [2]. Through necessary reform of curriculum provision and resource allocation in colleges and universities, the education rights of the least advantaged should be carefully considered to better meet the needs of the reality and provide an important guarantee for incorporating special education curriculum into the mainstream education system [3].

2. Background

Inclusive Education, proposed in The Salamanca Declaration and Programme of Action on Special Needs Education approved by UNESCO at the 1994 World Congress on Special Education held in Salamanca, Spain, indicates that students with disabilities should be arranged in ordinary schools and provided with the support and assistance best suited to their needs under the premise of equality and non-discrimination, enabling students with disabilities of different learning styles, abilities, and backgrounds to receive the best public education as much as possible [4, 5].

In January 2017, the executive meeting of the State Council passed The Education Regulations for the Disabled (revised draft), proposed the concept of “promoting inclusive education, guaranteeing
that persons with disabilities can enter ordinary kindergartens and schools to receive education”. Vigorously developing inclusive education is not only the need of people with disabilities to achieve all-round development but also the requirement for promoting the fair, balanced, and sustainable development of education [6].

In 2018, six universities across the country were selected as the first batch of inclusive education demonstration universities to conduct pilot projects. Based on foreign practical experience, each pilot university has boldly conducted a series of improvement measures. For example, they tried to make some students who have the willingness and ability participate in ordinary classes with relatively small amount of exercise in the form of quality reduction; they mobilized teachers with a human science background to actively adjust the teaching content and form and take the initiative to accept, so as to allow these students to enjoy the same opportunity in activities rather than passively being taught or learning in isolation. As a result, every student is a “master” instead of a “spectator” in classes. However, after a period of teaching operation, some teachers successively realized great risks and pressure in classroom teaching, including the lack of risk prediction and response mechanism, lack of individual analysis of students and sports participation recommendation, and lack of management measures such as insurance intervention and teachers exempt from liability.

3. Literature review

According to the review of relevant literature worldwide, the research on inclusive physical education conducted by the researcher is currently in the initial stage [7-10]. The research content focuses on the theoretical connotation related to inclusive physical education [11], the safeguard of the sports rights of disabled students [12,13], and the cultivation of teaching talents of inclusive physical education [14]. The research objects are mainly concentrated on the youth group. There is little research on inclusive physical education in colleges and universities, and even less research on the risk assessment and security prevention and control mechanism construction of inclusive physical education in colleges and universities. As teachers are the executors of curriculum teaching, their risk cognition and risk control of inclusive physical education determine the success of the reform of inclusive physical education in colleges and universities [15 ,16]. Therefore, this paper emphasizes the direct executors of public physical education, namely, public physical education teachers. From the perspective of their basic cognition and practical experience, the grounded theory and NVivo 12 software are used to explore the risk cognition and understanding of university public course teachers for inclusive physical education. Then, the practical significance of such specific understanding is further investigated to construct the corresponding prevention and control system.

4. Research design

4.1 Specific research methods

In-depth interview: An in-depth interview of individual behavioral events was performed on the first-line physical education teachers in the first batch of inclusive education demonstration universities, and the first-hand interview data was acquired. Then, NVivo 12 software was used to code and analyze the data obtained from the in-depth interview according to the three-level coding method in the Grounded Theory.

4.2 Recruitment and sampling process

Considering that the research objects were mainly physical education workers of current inclusive demonstrative colleges and universities, the purposive sampling was adopted to select 20 first-line physical education teachers of the first batch of inclusive demonstrative colleges and universities to conduct in-depth interviews, including Sichuan University, Beijing Union University, Changchun University, Nanjing Normal College for Special Education, Zhengzhou College of Engineering and Technology, and Wuhan University of Technology. With the purpose of protecting their privacy,
recordings were made after permission, and the researchers’ names were substituted with G1-G30 in the later stage. After the initial coding, three teachers were selected for the second interview coding to ensure the saturation and effectiveness of the study.

4.3 Data collection process

Under the comprehensive consideration of the research purpose and the characteristics of the research objects, a semi-structured interview outline was designed from three dimensions: ontology, epistemology, and methodology. The predictions were made before the formal interview, so as to test their reliability and validity. In the interview process, the researchers did not strictly obey the order of the interview outline. They handled the interview questions flexibly according to the actual situation, and made long-term and careful observations. The whole data collection process lasted from May 2020 to May 2021. Each researcher was interviewed 3-5 times, and each interview lasted about half an hour, mainly including face-to-face interviews and telephone interviews. The interview process was recorded with the consent of the interviewees. Besides, more than three researchers were arranged to sort out the collected data and check and verify each other to ensure the data's accuracy.

Table 1. The semi-structured interview outline mainly revolves around the following questions:

<table>
<thead>
<tr>
<th>Ontology</th>
<th>What is inclusive physical education?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Theory</td>
<td>Problems existing in the implementation of inclusive physical education at present</td>
</tr>
<tr>
<td>Methodology</td>
<td>How to construct the inclusive physical education under the new situation</td>
</tr>
<tr>
<td></td>
<td>Essence of inclusive physical education</td>
</tr>
<tr>
<td></td>
<td>Significance and value of implementation of inclusive physical education</td>
</tr>
<tr>
<td></td>
<td>Feasibility of implementation of inclusive physical education</td>
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<tr>
<td></td>
<td>Plight in implementation of inclusive physical education</td>
</tr>
<tr>
<td></td>
<td>Study and judge of risk points in inclusive physical education</td>
</tr>
<tr>
<td></td>
<td>How to build a security prevention and control mechanism</td>
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</tbody>
</table>

4.4 Data analysis

The NVivo12 software was applied to code and analyze the original interview data. First, the text data were pre-coded; the meaning of words, sentences, and paragraphs was made clear; the teachers’ perception of inclusive physical education was clarified; the risk points were determined. Then, the thematic concept of the security prevention and control system construction proposal was researched and named preliminarily, and marked as free nodes. Eventually, 137 free nodes were formed. Secondly, the researchers associated, compared, analyzed, and integrated the free nodes obtained from open coding to form 12 nodes, which were labeled as tree nodes. Finally, the researchers further selected the “core category” and determined three core categories based on associative coding, including the nature and value of inclusive physical education, the dilemma and risk points of the implementation of inclusive physical education, and the feasibility suggestions in the implementation of inclusive physical education.

Besides, 3-5 interviews were conducted for each researcher before and after the study to ensure the preciseness of the study. It was coded by two researchers simultaneously. After the coding was completed, the researchers selected three front-line physical education teachers and were interviewed for coding again. The results revealed that no new coding appeared, suggesting that the coding had been saturated. Thus, the research had a certain validity and credibility.
5. Analysis and discussion

The interview materials were coded, the themes were extracted, and the concepts and findings related to the themes were sorted out and presented.

5.1 Essence and value of inclusive physical education

Through the first round of coding, 17 nodes related to the essence of inclusive education were obtained, among which 12 nodes had more than 10 reference points. Almost all the interviewed teachers mentioned the issue of educational fairness, which was also repeatedly presented in the education policy, regulations, and standardization documents such as the Education Law and the 14th Five-Year Plan for the Development of Education. This contributes to providing everyone with the right to enjoy education normally.

| Table 2. Nature of inclusive physical education and its reference points (more than 10) |
|----------------------------------|--------------------------------------------------|
| Open coding                      | Educational Equity (20), Acceptance (19), Adaptation (19), Inclusiveness (18), Equality (17), Help (17), Care (15), Understanding (14), Differential Settlement (12), Harmony (12), Competence (11), Care and Caring (10) |

Firstly, the achievement of equity in education. “Inclusive education is a very beneficial attempt for the development of special education, whose core is to guarantee high-quality educational equity. The development of inclusive education indicates that special education has been gradually transformed from the deviation from the mass to the mass” (T11).

Secondly, the change in the concept of physical education cognition. “It sublimed from physical education to life education. By strengthening life education, students with disabilities can increase their knowledge, improve their personality, and enhance their social adaptability in a harmonious environment” (T17).

Thirdly, inclusiveness, acceptance, mutual assistance, and win-win. “Inclusive education is inclusive to differences. It tolerates not only the commonality of disabled students and able-bodied students but also the individuality of both sides, treating each other with tolerance. It actively accepts and advocates sharing joy and unhappiness. It helps each other, grows together. It achieves a win-win situation and interacts with each other to reflect the idea of ‘justice’” (T20).

5.2 Difficulties in the implementation of inclusive physical education and study and judgment of risk points

The difficulty of implementing inclusive education is judged on a scale of 1-10. The vast majority of teachers chose 5 points or above, among which 7 points are the most.

| Table 3. Difficulties and reference points of inclusive physical education implementation |
|----------------------------------|--------------------------------------------------|
| Associative coding | Open coding | Number of reference points | Associative coding | Open coding | Number of reference points |
| High difficulty | 10 | 0 | Medium difficulty | 5 | 2 |
| | 9 | 3 | | 4 | 0 |
| | 8 | 3 | | 3 | 0 |
| Medium difficulty | 7 | 8 | Low difficulty | 2 | 0 |
| | 6 | 4 | | 1 | 0 |

According to the research and judgment results of “risk points for promoting inclusive physical education”, 58 nodes were obtained in the open coding stage. These nodes were the estimates and judgments of possible risks by the front-line teachers with years of teaching experience. They were comprehensively embodied as three categories of risks: risks caused by human factors, risks caused by material factors, and risks in the management process, as exhibited in Table 4.
Table 4. Risk points and their reference points for the implementation of inclusive physical education (more than 10)

<table>
<thead>
<tr>
<th>Associative coding</th>
<th>Open coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human factors</td>
<td>Ideological attention (20), Heterogeneous students themselves (20), Cognition (19), Knowledge structure (17), Protection and help (17), Teaching thinking (15), Methods (14), Perfunctory (11), Concealment (11), Frustration (10), Negative (10)</td>
</tr>
<tr>
<td>Material factors</td>
<td>Venue (20), Equipment (20), Dress (16)</td>
</tr>
<tr>
<td>Management factors</td>
<td>Emergency Plan (20), Professional Training (20), Course Resources (19), Course Construction (17), Encouragement Mechanism (15), Guarantee Mechanism (15), Disclaimer (13), Coordination (13), Evaluation System (12), Compensation (10), Public Opinion (10), Comfort (10), Accountability (10)</td>
</tr>
</tbody>
</table>

According to the teacher group surveyed in this study, the implementation of inclusive education has certain complications, including lack of attention, state of disabled students themselves, insufficient investment in venues and equipment, untargeted educational content, insufficient allocation of educational resources, as well as unreasonable allocation of teachers.

First, lack of attention. “In the public physical education teaching system of colleges and universities, leaders pay more attention to the quality and participation of the vast majority of students. it is “natural” that their normal needs are ignored” owing to the small number of disabled students” (T1).

Second, insufficient investment in funds, venues, and facilities. “The funding for college sports is relatively low and even less for special education. Few schools can set up special funds for special sports, leading to inadequate teaching facilities and insufficient teaching staff. The development of special physical education courses in most colleges and universities is to “fit the needle”, and can only choose projects with low time costs and low economic costs” (T4).

Third, insufficient allocation of educational resources and unreasonable allocation of teachers. “Regarding teaching staff, public special physical education is mostly undertaken by general physical education teachers, who did not receive special and professional training and cannot fully understand the disabled students’ physiological law and psychological characteristics. Besides, some schools often arrange old teachers or female teachers to conduct public special physical education, with the arrangement standard that this kind of classes is relatively relaxed” (T7).

Fourth, lack of instructional design. “Some students are not satisfied with the exemption score of 60 points obtained by medical certificates. To acquire better physical education scores, they often conceal their illness and participate in physical education classes, leaving negative effects on their physical and mental health. Some students cannot complete the training of certain subjects due to physical reasons, and teachers arrange students for probation or temporarily coordinate students into the physical health class for the safety of the class. Hence, the resulting frustration and negative emotions also affect the students’ healthy growth to a certain extent” (T18).

5.3 Feasibility suggestions for the implementation of inclusive physical education

According to the first round of open coding, the feasibility suggestions for the implementation of inclusive physical education were obtained, with a total of 57 nodes. Among them, all respondents mentioned “great attention”, “safety education”, and “contingency plan” (up to 100%). The researchers classified all the codes and obtained three categories in the associative coding stage, similar to the three-level prevention and control system in preventive medicine, as presented in Table 5.
Table 5. Feasibility Suggestions and Reference Points for the Implementation of Sports Inclusive Education (more than 10)

<table>
<thead>
<tr>
<th>Associative coding</th>
<th>Open coding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary prevention and control</strong></td>
<td>Pay high attention to (20), Formulate contingency plans (20), Safety education (20), Investigation (18), Create files (17), Ledger (15), Maintenance and management (13), Purchase insurance (12), Publicity and guidance (12), Risk assessment (10)</td>
</tr>
<tr>
<td><strong>Secondary prevention and control</strong></td>
<td>Start plan (20), Medical intervention (19), Collaborative treatment (17), Step-by-step reporting (17), Process monitoring (15), Linkage (11), Site protection (10)</td>
</tr>
<tr>
<td><strong>Tertiary prevention and control</strong></td>
<td>Accountability (18), Appear (14), Public opinion prevention and control (10)</td>
</tr>
</tbody>
</table>

The importance of risk prevention and control in inclusive physical education should be carefully considered. “While actively promoting inclusive physical education and realizing educational equity, we should pay special attention to the prevention and control of sports risks. Specifically, we need to establish and improve sports risk prevention and control systems and mechanisms, gradually improve the relevant rules and regulations, strengthen risk prevention and control, protect the legitimate rights and interests of students, teachers, and schools, and guarantee the health and orderly development of inclusive physical education” (T3). Besides, “the first person responsible for establishing and improving risk prevention and control mechanisms is the leader in charge of sports, who should clarify that inclusive physical education is based on school sports rather than sports department” (T1).

Safety management agencies should be established to clarify responsibilities and strive to achieve comprehensive coverage of risk prevention and control. “School sports risk prevention and control should be based on The Interim Measures for School Risk Prevention and Control, following the principle of prevention first, responsibility at different levels, and full participation. They should clarify responsibilities, implement measures, establish risk prevention and control network, and strive to achieve comprehensive coverage” (T5). “The implementation of inclusive physical education must follow the education principle that everyone should participate in the whole process from all aspects. A multi-department cooperative prevention and control system should be established in schools. According to the established sports injury accident treatment plan, responsibilities should be clarified, supervision should be strengthened, and specific implementation should be performed under the requirements” (T13).

Health screening before exercise should be conducted and included in the management of students’ sports files. “By reading the physical examination of college entrance examination and the physical examination report of college students, students can master the true information of students’ health status” (T7). “Sports health screening is extremely necessary for students before taking public physical education courses since this facilitates the understanding of students’ conditions and gives guidance in a targeted way. For disabled students who are willing to participate in physical education courses, courses should be recommended based on their health screening status, students’ parents or guardians should be informed in writing, and the consent should be obtained” (T12).

Give full play to the role of PE teachers in safety education and protection. “Physical education teachers should give full play to the initiative control of sports participants, unremittingly perform sports safety publicity and education of students and the guardians, popularize knowledge of safety, strengthen the awareness of physical security, understand the risk prevention and control measures, master correct movement skills, master self-protection method, and lower the incidence of sports injury” (T17).
Carefully check and sort out sports risk points in schools, formulate prevention and control plans, and implement prevention and control measures. “Common sports risks mainly include equipment, facilities and site risks, sports process risks, physical education teaching risks, etc.” (T8).

Establish sports equipment and facilities and site safety ledger, strengthen safety management, conduct regular inspection and maintenance. “Establish sports equipment safety ledger, conduct regular inspection and make corresponding records” (T11).

Pass on the risk through various means such as buying insurance. “An insurance mechanism should be introduced to allow schools to buy liability insurance and accident and injury insurance for students to transfer risks. Simultaneously, students who may have sports risks and have strong participation in sports should be informed and exhorted in advance. Moreover, a good communication should be conducted between home and school, and then a risk responsibility letter should be signed.” (T20).

6. Suggestions

With the qualitative research method and the in-depth interviews involving 20 teachers, the following suggestions for the risk assessment and prevention and control system construction of inclusive physical education in colleges and universities are proposed after the interview data were carefully analyzed.

6.1 Nature and characteristics of inclusive physical education

The inclusive education concept that everyone is equal should be internalized in the process of special physical education to realize the idea of “making no social distinctions in teaching” and “every student being equal”. Thus, more physically disadvantaged people can enjoy more comprehensively higher education under the radiation of the inclusive education concept. Particularly, regarding physical education be practiced, colleges and universities should conduct necessary reforms about curriculum design and resource allocation, so as to truly take care of the educational rights of the least beneficiaries in special physical education. Meanwhile, it emphasizes non-discriminatory treatment of all students, satisfies the educational needs of all students, and opposes the use of the education system to create artificial discrimination and subjective segregation.

Concerning teaching objects, inclusive education emphasizes that every student is equal [17]. Equality is an essential symbol to measure the degree of social civilization and the spirit of progress. Inclusive education puts more emphasis on full participation. If students of special groups have a strong desire to participate, they have the right to be educated in normal classes regardless of their degree of disability.

As for the teaching form, inclusive education highlights differential treatment in education. Teaching students in accordance with their aptitude is conducive to meeting the individual needs of students and therefore improving the educational effect. For inclusive education, it is necessary for educators to formulate corresponding strategies according to the special conditions of students since students are a heterogeneous group. Hence, the curriculum of inclusive education is generally composed of a public curriculum and individualized education plan.

Concerning the teaching methods, inclusive education advocates two-way interaction. Classroom teaching is mainly performed by group learning. Consequently, every student has the same opportunity to participate in activities rather than passively being taught or learning in isolation. Thus, every student is a “master” instead of a “spectator” in class.

5. Difficulties and risks in the implementation of inclusive physical education

There are risks in physical activities, not to mention the physical defects of the students. By determining the causes of the past school sports injury accidents, it is revealed that the factors causing the school sports injury accidents mainly include three categories: human factors, material factors, and management factors.
6.2 Human factors

School management ignores it at the ideological level. Most of the grassroots management personnel do not have a medical background and knowledge related to physical education, making it difficult to screen and propose course suggestions in the course selection stage [18].

In terms of teaching staff, public special physical education is mostly undertaken by general physical education teachers, who do not have received special and professional training and cannot fully understand the disabled students’ physiological law and psychological characteristics. Some schools often arrange old teachers or female teachers to conduct public special physical education, with the arrangement standard that this kind of classes is relatively relaxed. Therefore, teachers’ teaching energy and attitude are not optimistic.

Disabled students are the most special heterogeneous group, with a double identity of students and people with disabilities. Based on personal construct theory, the self-concept of disabled students contains group characteristics of negative factors, mainly embodied as introversion, negativeness, inferiority, dependence, insecurity, and fear, and thinking in a relatively radical and sensitive way. Thus, it is not conducive to mental and physical health development and the teaching process.

6.3 Material factors

At present, most colleges and universities involve cross-campus offices, with a large venue area. Compared with its area, the number of management personnel is especially insufficient. Therefore, the management personnel will be in short supply if there is a prominent situation.

Since most of the venues and facilities in domestic colleges and universities are mainly outdoors, they are susceptible to the influence of weather and other factors, resulting in negligence in management and maintenance, such as uneven or slippery sites and corrosion or deformation of equipment.

Most colleges and universities renovate venues during holidays and inspect them before class. However, there is no regular inspection mechanism and no venue management ledger.

Special sports facilities are severely inadequate and mostly general fitness equipment.

6.4 Management factors

Insufficient active investigation of health screening information. Students have undergone a series of physical examinations for the college entrance examination. Nevertheless, relevant data has not been shared promptly due to the protection of students’ personal information and privacy. Most colleges and universities employ medical certificates of students to apply for course exemption instead of actively performing health screening.

The overall design of the courses is single. The design of physical education courses in colleges and universities mainly considers ordinary college students while ignoring the individual needs of heterogeneous students. At present, the implementation of “increasing the intensity of classroom quality” and “process assessment” increases the difficulty for special groups to participate in physical education courses.

Lack of life safety education concept. Safety education often does not run through the teaching process. Moreover, some teachers do not provide protection and help to avoid the embarrassment caused by gender.

The establishment of sports risk prevention and control and other management mechanisms is insufficient. Most schools neither establish a complete set of sports risk management mechanisms, nor clarify responsibility-sharing and emergency-handling mechanisms in case of risks, regularly strengthen the education and training of teachers, and perform inspections and drills.
7. Suggestions on the construction of the three-level safety prevention and control system

According to the potential safety hazards in current special physical education, including human factors, physical factors, and management factors, the study and discussion conducted based on the grounded theory were comprehensively analyzed. Under the guidance of the three-level prevention theory in medical prevention and control, the notion of the three-level safety prevention and control of sports injury was introduced, and the prevention focus was primary and secondary prevention and control. Finally, the theoretical model of safety prevention and control mechanism of the special physical education curriculum was constructed.

7.1 Primary prevention and control stage.

Make a pre-arranged planning. School management should fully understand the importance of risk prevention and control in physical education under the background of inclusive education, discuss and formulate relevant contingency plans in advance. It mainly includes emergency management plans, training plans for physical education teachers, ideological and political education plans for colleges and universities, and risk contingency plans for students’ participation in sports, so as to make sufficient preparations.

Sports risk assessment. Before the special group of students participates in physical exercise, the school should well perform in the early screening and evaluation, mainly including the understanding of students’ basic physical conditions, sports participation, informed consent of parents and guardians, and sports risk assessment. As a result, the students with disabilities can do physical exercise in a purposeful and planned way if it can be implemented.

7.2 Secondary prevention and control stage

Security. Schools should attach great importance to the safety education of disabled students and take “safety first” as the guiding ideology in the process of sports. Physical education teachers should organize disabled students to join physical exercise on the premise of ensuring safety, so as to enhance their physical quality and improve their immunity.

Effectiveness. The professional quality of physical education teachers should be improved to ensure the quality of disabled students’ participation in sports. In the face of special groups, individualized analysis and teaching should be performed based on students’ aptitude in formulating teaching schemes, implementing the teaching process, and providing reflection after class. Thus, students with disabilities can orderly participate in physical exercise, and their right to receive physical education can be guaranteed, contributing to better meeting their living needs.

Timeliness. In case of accidental injury during sports, the school should immediately take corresponding emergency prevention and control measures and conduct on-site protection and preservation of evidence. Besides, various effective first aid measures and timely and effective medical assistance should be taken through reasonable channels to prevent the further development and deterioration of sports injuries.

7.3 Tertiary prevention and control stage

After the occurrence of sports injury, physical rehabilitation, responsibility division, and the treatment of relevant public opinions are mainly involved [19]. The school and relevant departments shall publicize and clarify the relevant matters concerning the division of responsibilities, and notice the results. After the completion of rehabilitation treatment in the hospital, physical education teachers should adjust the design of the teaching program, focus on sports rehabilitation, and then organize them to properly participate in sports under the condition of ensuring safety.
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