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Analysis of the Integration Elements of Physical Education Teaching Objectives in Primary, Secondary, and High Schools in China Based on Grounded Theory

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Abstract: This study is committed to promoting the development of physical education teaching in China and enriching the theoretical research results of the integration of physical education teaching objectives. This study comprehensively reviewed the research status and achievements of scholars in various countries in the field of integration of physical education teaching objectives, and proposed qualitative research methods based on grounded theory. This study selected a total of 100 original special reports, policy documents and research documents related to the integration of physical education teaching objectives as the original materials, and used open coding to determine 110 original concepts and 17 original categories, which were integrated into four main categories through spindle coding. The results of selective coding showed that there was no inclusion relationship among the four main categories. According to the four main categories finally confirmed, the integration elements of Chinese physical education teaching objectives are "teaching logic construction", "teaching content structure", "teaching evaluation principle" and "teaching method innovation".

Keywords: Rottenness Theory; Physical Education; Goal Integration; Elemental Analysis

Introduction

Youth sports is the most positive intervention to improve the physical health and physical and mental health of young people, is to promote the development of sports for people of all ages and form the basis of lifelong sports, and is an important link in the development of school sports, especially the introduction of documents such as China Education Modernization 2035, which has raised the work of physical education teaching to a whole new level^[1]. Triggered by the General Office of the State Council in 2016. Opinions of the General Office of the State Council on Strengthening School Sports to Promote the Physical and Mental Health Development of Students" emphasized that: with the main line of cultivating students' interest, forming exercise habits, and enhancing students' physical fitness, we will gradually improve the national standards for physical education and health, and establish a teaching system in which the large, medium, and small physical education curricula are interconnected.^[2]

In China, despite the fact that physical education covers three different stages of schooling: large, medium and small, the lack of differentiation in the teaching of physical education has led to unclear division of teaching objectives between the various stages of schooling, and the lack of articulation in the teaching of physical education has led to a lack of obvious benefits of physical education for students as a whole, and to a failure to give full play to the value of physical education. The value of physical education cannot be realized without a scientific and unified teaching system. According to the students' school age, in the three school age stages of large, medium and small, the establishment of integrated teaching objectives, to avoid the problem of the outstanding randomness and blindness of the content of physical education teaching in different school age stages, can make the physical education teaching work more value-oriented, and can help to promote the enthusiasm of the students for physical education and sports. Therefore, this study analyzes the elements and constructs the theoretical logic of the integration of physical education teaching objectives in Chinese universities, middle schools and elementary school by means of a theoretically rooted approach. The study helps to demonstrate the feasibility of integrating physical education goals in Chinese universities, middle and elementary school, and enriches the relevant theories of physical education goal integration.

1 Theoretical Background

1.1 The Concept of Integration of Objectives in Physical Education

Integration of physical education goals can also be called the synthesis of physical education goals^[3]. It can be understood as the linkage and integration of physical education teaching objectives of different school-age stages through a certain teaching system or teaching mode, so as to form an organic whole and produce synergistic effects. In a broad sense, the integration of physical education teaching objectives requires that the physical education programs of large, middle and elementary school be linked and coordinated. In a narrow sense, it is required that the elements of physical education teaching at a certain stage and other stages of the formation of differences, mutual support, and the existence of student teaching and learning development to promote the process^[4]. Some studies have shown that the

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integration of physical education teaching objectives includes both integration at the horizontal level and integration at the vertical level. Integration at the horizontal level means that physical education teaching and learning is more characteristic at the same school age, while integration at the vertical level means that physical education curriculum teaching and learning is more articulated and progressive at different school ages^[5].

1.2 Components of the Integration of Physical Education Objectives

The key to the integration of the goals of physical education lies in the setting and implementation of the physical education curriculum. As a carrier for the implementation of physical education work, the details of the physical education curriculum's setting and implementation directly affect the achievement of physical education teaching goals. Therefore, some researchers try to realize the integration of physical education teaching objectives in universities, middle schools and elementary school by starting from the three aspects of physical education curriculum's objective selection, organization and implementation, and teaching evaluation^[6]. In addition, teachers' teaching process is also an important part of physical education teaching work. Teachers' setting of physical education teaching objectives, understanding of teaching tasks and implementation of teaching requirements are all key to ensuring the integration of physical education teaching objectives at different school ages^[7]. Some scholars also believe that physical education teaching at different school ages should have significant differences in teaching content and teaching methods due to the significant differences in students' psychological development, physiological development, and cognitive aspects of physical education learning. According to this point of view, in order to realize the integration of the goals of physical education teaching at different school age stages, the problem should be solved by starting from five major elements, such as teaching content, teachers' teaching, teaching curriculum, teaching evaluation and teaching resources^[8].

1.3 Theoretical Logic of Integration of Physical Education Teaching Objectives

From the perspective of the target teaching theory, the realization of the integration of physical education teaching goals involves a macro reform of physical education teaching, which cannot be realized simply by relying on the teaching power of a certain school or region. Therefore, realizing the integration of physical education teaching goals requires the establishment of a teaching integration management mechanism^[9]. At the same time, some physical education research has found that there are "non-linear", "non-step" and "non-difficulty gradual" characteristics in the physical education curriculum of Chinese universities, middle schools and elementary school, which makes it impossible for the physical education teaching level in China to be in line with the curriculum of Chinese universities, middle schools and elementary school. This makes it impossible for the physical education teaching level in China to improve according to the students' school age, which leads to the quality and results of physical education teaching being greatly reduced. Therefore, in order to realize the integration of physical education teaching goals, we should first pay attention to the differentiation of physical education courses, so that the intensity, difficulty, and fineness of physical education courses can be improved according to the improvement of the school age stage, so as to realize the unity and articulation of the goals of physical education teaching^[10]. Some scholars take off-campus physical education as a reference to explore the improvement and innovation of campus physical education to strengthen the integration of physical education goals. Such studies point out that taking the teaching materials and teaching methods of external PE teaching as a model, creating campus PE courses, building a campus human resource development platform to better acquire or attract excellent PE teachers from outside the campus, and optimizing the internal PE teaching mode are important ways to narrow the gap between internal and external PE teaching and to achieve the integration of PE teaching goals^[11]. Some scholars also believe that the key to realizing the integration of physical education teaching objectives lies in designing reasonable physical education teaching objectives, clarifying the physical education teaching objectives, implementing the teaching planning, and summarizing the practice over and over again^[12]. The physical education teaching of universities, Middle Schools and elementary school should be regarded as an organically integrated whole, and from the overall perspective, the allocation of teachers' resources, the requirement of teachers' ratio and the requirement of physical education teaching resources allocation in different school-age stages should be clarified, and the accountability and assessment mechanism of physical education teaching should be improved, which is a solution to the articulation of physical education teaching in different school-age stages from a holistic point of view^[13].

2 Subjects and Methods

2.1 Subjects of Study

This study takes "the integration of physical education teaching objectives in Chinese universities, middle schools and elementary school" as the research object, and analyzes its components and theoretical logic. The researchers used Nvivo12 software to extract 210 original statements from 100 research reports, policy documents, and research literature related to physical education. A total of 3 special reports, 3 policy documents, and 94 research literatures were involved. The samples were determined by multiple rounds of sampling according to the principle of theoretical saturation and were ranked by their closeness to the object of study. The sample sources related to the research object are specifically shown in Table 2-1.

Table 2-1 Statistics of the sample sources for the analysis of the components and theoretical logic of the integration of physical education objectives

serial number	Sample name	Sample type	vintages	source (of information etc)
1	Green Development Behavior and Performance of Industrial Enterprises Based on Grounded Theory Study: Evidence from China	paper	2019	Sustainability
2	Research on the Teaching Integration of Physical Education Core Literacy	paper	2019	Social Science and Modern Education Conference
3	Physical Education and Sport in Schools: A Review of Benefits and Outcomes	paper	2006	American School Health Association
4	Classroom teachers and physical activity integration	paper	2010	Teaching and Teacher Education
5	Models of Curriculum Integration	paper	1999	The journal of technology studies
6	The Pedagogy of Technology Integration	paper	2006	The journal of technology studies
7	How the Whole School, Whole Community, Whole Child Model Works: Creating Greater Alignment, Integration, and Collaboration Between Health and Education Education	paper	2015	Journal of School Health
8	Teacher voice and ownership of curriculum change	paper	2001	Journal of Curriculum Studies
9	The state and status of physical education in schools in international context	paper	2014	EUROPEAN PHYSICAL EDUCATION REVIEW
10	INTEGRATION AND CORRELATION CONCEPTS in PHYSICAL EDUCATION	paper	2016	Research in Kinesiology
11	Promoting Integration Through Physical Education	paper	2020	Sport, Education and Societ
12	Integration and Physical Education: A Review of Research	paper	2016	Quest
13	Teachers' Knowledge of Curriculum Integration: A Current Challenge for Finnish Subject Teachers	paper	2018	Intech Open, London
14	Physical Education under the New Curriculum Reform in Hong Kong: Current Political Situation of School Physical Education	paper	2014	Asian Journal of Physical Education & Recreation
15	A framework for the design and integration of collaborative classroom games	paper	2011	Computers & Education
16	A model of horizontal and vertical integration of teaching on the cadaveric heart	paper	2010	Annals of Anatomy
17	Diversity in teachers' approaches to Movement Integration: A qualitative study of lower secondary school teachers' perceptions of a state school reform involving daily physical activity. The Joint Committee also noted the importance of the role of teachers' organizations in the implementation of the Convention on the Elimination of All Forms of Discrimination against Women.	paper	2019	European Physical Education Research
18	A Few Thoughts about Examination Method of Holding a Post Education in the Military Academy	paper	2011	Education and Educational Technology

19	IMPLEMENTING A PEDAGOGY OF INTEGRATION: SOME THOUGHTS BASED ON A TEXTBOOK ELABORATION EXPERIENCE IN VIETNAM	paper	2006	Planning and Changing
20	Inclusion in Physical Education: A review of literature	paper	2012	International Journal of Disability, Development and Education
21	Quality Physical Education: A Commentary on Effective Physical Education Teaching	paper	2014	Research Quarterly for Exercise and Sport
22	Technology Integration in Secondary Physical Education: Teachers' Attitudes and Practice	paper	2010	Journal of Educational Technology Development and Exchange
23	The Realistic Predicament and Path Dispelling of the Integration of Physical Education Curriculum in Universities, Middle Schools and Primary Schools	paper	2021	Frontiers in Sport Research
24	Australian curriculum reform II: Health and physical education	paper	2014	European Physical Education Review
25	State of art and didactics opportunities of Physical Education teaching in Primary Schools	paper	2019	Journal of Physical Education and Sport
26	Curriculum, pedagogy and assessment: three message systems of schooling and dimensions of quality physical education	paper	2009	Sport, Education and Society
27	A Study of Physical Education in Elementary and Middle Schools in the United States	paper	2010	Doctoral Dissertation, Beijing Sport University
28	Talking about the articulation of physical education programs from integration	paper	2020	Physical Education
29	A Longitudinal Study on the Integration of Public Physical Education Teaching in Higher Education--A Study on the Teaching System of Implicit Physical Education Courses Highlighting the Cultivation of Vocational Abilities	paper	2021	Contemporary Sports Technology
30	Interpretation of the Guidelines for Teaching Reform of Physical Education and Health (for Trial Implementation)	paper	2021	Journal of Capital Institute of Physical Education
31	New Requirements, Challenges, and Classes of the Compulsory Physical Education and Health Curriculum Standards (2022 Edition)	paper	2022	Education Review
32	Practical Exploration of Physical Education Curriculum Integration in Universities and Primary Schools Based on Students' Core Physical Education Qualities	paper	2020	Contemporary Sports Technology
33	Physical Education Program Integration Implementation Strategies	paper	2020	Journal of Physical Education
34	The "integrated" teaching model of physical education in general colleges and universities	paper	2002	Journal of Physical Education
35	Suggestions on Improving the Physical Education (and Health) Curriculum Standards (above) - Discussion on the Expression of the Nature of the Physical Education Curriculum and the System of Objectives	paper	2007	Journal of Physical Education
36	Reform Experiment of Integrating Physical Education Inside and Outside Classes in	paper	2007	Journal of Physical Education

	General Colleges and Universities in Minority Areas			
37	Talking about the cultivation of physical education literacy from the integrated curriculum development	paper	2019	Journal of Shenyang Sports Institute
38	Talking about the content logic and structured setting of physical education courses from integration	paper	2020	Physical Education
39	Talking about structuring the content of physical education courses in terms of integration	paper	2020	China School Sports
40	Talking about the focus point of deepening physical education teaching reform in the new era from integration	paper	2020	Physical Education
41	Talking about the athletic ability standard and its system construction from integration	paper	2021	School Sports in China
42	Research on the construction of an integrated system of physical education teaching in universities, middle schools and elementary school	paper	2015	physical education
43	A study on the integration of the content of physical education course materials in university, secondary and elementary school	paper	2005	Journal of Chengdu Institute of Physical Education
44	Research on the construction of "inside and outside the classroom integration" curriculum system of university physical education class	paper	2020	knowledge-based economy
45	Current status of research on the integration of physical education programs in schools, universities, and elementary and junior high schools (and young children)	paper	2018	China School Sports
46	A study on the articulation of the content of physical education programs in elementary and Middle Schools and universities	paper	2008	Scientific and technical information (academic research)
47	The regular basis for the integrated design of teaching objectives in university, middle school and elementary school civics courses	paper	2022	Journal of Social Sciences of Shanxi Higher Education Institutions
48	An Exploration of the Integrated Design of Teaching Objectives in Civics Courses in Universities, Middle Schools and Primary Schools	paper	2023	Secondary School Political Science Teaching Reference
49	The dilemma and the way out of the integrated construction of teaching and learning of Civics courses in universities, middle schools and elementary school	paper	2021	Secondary School Political Science Teaching Reference
50	Problems and Countermeasures of Physical Education Teaching Interface between Universities and Primary Schools	paper	2016	World of Sports (Academic)
51	Discussion on the dominant ideology of elementary school physical education teaching under the integrated model of physical education teaching in universities and elementary school	paper	2016	Neijiang Science and Technology
52	Research on the Integration of Civics and Politics Teaching in Physical Education Programs in Universities, Middle Schools and Primary Schools	paper	2023	Journal of Physical Education
53	Problems and Countermeasures Analysis of	paper	2021	Contemporary Sports

	the Integrated Construction of Physical Education Courses in Universities and Primary Schools			Technology
54	Awareness and Reflections on the Construction of an Integrated Physical Education Curriculum System for Universities, Middle Schools, Primary Schools (and Early Childhood)	paper	2018	China School Sports
55	A study on the overall design of the Physical Education curriculum (bridging the university and college curricula)	paper	2002	Journal of Beijing Sport University
56	Reflections on the Construction of Integrated Physical Education Curriculum System for Universities, Primary and Middle Schools (Young Children) in China	paper	2018	School Sports in China
57	An integrated quality education model for physical education in and out of the classroom in colleges and universities	paper	2000	history and literature of sport
58	Reflections on the Reform of "Learning, Practicing, and Playing" Integration Teaching in High School Physical Education	paper	2021	new programme
59	Goals and Processes of Implementing an Integrated Model of Physical Education Instruction in High Schools	paper	2022	track and field (athletics)
60	A Cross-Sectional Study of the Integration of Public Physical Education Instruction	paper	2021	Journal of Chifeng College (Natural Science Edition)
61	An experimental study on the integration strategy of physical education quality teaching	paper	2002	Journal of Capital Institute of Physical Education
62	Reflections on the Construction of Integrated Physical Education Curriculum System in International Perspective	paper	2018	School Sports in China
63	Dilemmas and Dissolving Paths of Integrated Teaching Objective Design in Physical Education Courses from the Perspective of Core Literacy	paper	2022	Contemporary Sports Technology
64	Research on the construction of physical education programs for schools, universities and children based on the perspective of "curriculum integration".	paper	2021	Teaching Management and Educational Research
65	Based on the construction of an integrated physical education curriculum system for schools, universities, elementary and junior high schools (and young children)	paper	2020	Contemporary Sports Technology
66	A Brief Analysis of the Problems and Reform Paths of the Effective Articulation of Physical Education Programs in Universities and Primary Schools at Present	paper	2016	Youth education
67	Integrated teaching of primary and secondary physical education in nine-year schools	paper	2012	E-learning in primary and Middle Schools (below)
68	The Effects of Integrated Physical Education Teaching Inside and Outside the Classroom on Primary School Students' Interest in Physical Education in the First Grade--A Case Study of Experimental Primary School in Beichen District, Tianjin, China	paper	2022	Master's Thesis, Shanghai Institute of Physical Education
69	On the "concretization" and "operability" of physical education objectives	paper	2011	Physical Education

70	On the Contribution of Integrated Curriculum Development to the Development of School Sports	paper	2019	Journal of Physical Education
71	Research on the Teaching Mode of Physical Education in General Colleges and Universities "Integrating Inside and Outside the Classroom	paper	2020	Sichuan Sports Science
72	An Introduction to the Integration of Physical Education	paper	2012	Journal of Shayang Normal College
73	Talking about changes in the physical education classroom in the context of integration	paper	2020	Physical Education
74	Exploring Strategies for Integrating Physical Education Programs with Teaching Practices	paper	2020	Proceedings of the 2020 Research Summit on Basic Education Development
75	Research on the Articulation of Physical Education Programs in Chinese Universities and Primary Schools under the Integration of Sports and Education	paper	2021	Sports Boutique
76	Physical Education Teachers' Strategies for Advancing Physical Education Curriculum Integration - From Understanding, Practice and Research	paper	2020	School Sports in China
77	A Practical Exploration of Whole-Course Content Integration in Physical Education	paper	2023	Physical Education
78	Physical education instructional design: setting and implementing "teaching goals"	paper	2012	School Sports in China
79	A Comprehensive and Precise Intervention Study on Students' Physical Fitness and Health in the Context of Physical Education Curriculum Integration	paper	2020	Educational research
80	Constructive Logic, Implementation Dilemmas, and Promotion Strategies for Physical Education Curriculum Integration	paper	2021	Journal of Shenyang Sports Institute
81	Physical Education Program Integration in Education and Teaching	paper	2020	Proceedings of the 2020 Research Summit on Basic Education Development
82	Hierarchical articulation of the goal areas of the physical education curriculum in China's large, middle and elementary school	paper	2010	Zhejiang Sports Science
83	Existing Problems and Improvement Ideas of Effective Convergence of Physical Education Courses in Primary and Middle Schools in China	paper	2015	Journal of Wuhan Institute of Physical Education
84	An overview of the content articulation problems of physical education courses in schools and universities in China	paper	2016	Sporting Goods & Technology
85	Regional Practices in Integrating Curriculum and Instruction at the Primary and Secondary Levels	paper	2021	Jiangsu Education
86	Research on teaching physical education in elementary schools under the integrated model of school physical education teaching	paper	2021	Research on Ice Sports Innovation
87	The Construction of Integrated Teaching Mode of College Physical Education Inside and Outside the Classroom in the Background of Sunshine Sports.	paper	2019	Contemporary Sports Technology
88	Value Orientation, Multiple Connotations	paper	2020	Journal of Shenyang Sports

	and Basic Characteristics of an Integrated Physical Education Curriculum			Institute
89	The Purpose and Construction of an Integrated Physical Education Program	paper	2019	Educational research
90	The construction of an integrated physical education curriculum content system	paper	2019	Journal of Physical Education
91	Analysis of the construction of an integrated human-centered (university, middle school, elementary and junior high school) physical education curriculum	paper	2019	Contemporary Sports Technology
92	Constructing a framework system for Chinese students' core literacy in physical education	paper	2017	Journal of Physical Education
93	SWOT Analysis of the Integrated Construction of Physical Education Content in Elementary and Middle Schools	paper	2021	Scientific advice (science and technology - management)
94	Research on the Quality of Physical Education Teaching in Colleges and Universities Based on Kano and PZB Models	paper	2019	Journal of Xi'an Institute of Physical Education
95	HEALTH AND PHYSICAL EDUCATION Years 1 to 10 Syllabus	Policy documents	1999	Queensland School Curriculum Council
96	Physical Education Syllabus for Nine-Year Compulsory Education (2022 Edition)	Policy documents	2022	Ministry of Education of the People's Republic of China
97	Physical Education and Health Curriculum Standards for Compulsory Education (2022 Edition)	Policy documents	2022	Ministry of Education of the People's Republic of China
98	From the perspective of personnel training in colleges and universities to see the construction of large, small, medium and small (young) - physical culture sports curriculum system	report	2018	China School Sports
99	The significance of the construction of an integrated physical education curriculum system for schools, universities, primary and Middle Schools (young children)	report	2018	China School Sports
100	The Practical Claims of the Integrated Physical Education Curriculum System Construction for Universities and Primary Schools	report	2018	China School Sports

2.2 Research Methodology

At this stage, the research on the integration of physical education teaching goals in China has obvious realistic background and local educational characteristics, but lacks theoretical research based on the foundation of Chinese education and realistic environment. Based on this status quo, the choice of qualitative research can more comprehensively explore the potential elements related to the realization of the integration of physical education teaching goals in China^[14]. Therefore, based on the concept of rooted theory, this study adopts an inductive-deductive research method to analyze the constituent elements of the integration of physical education teaching goals in Chinese universities, middle schools, and elementary school, and in the process of the study, we coded the 100 pieces of selected literature and compared the contents of the categories by using the word-frequency search function of Nvivo12, so as to derive the theoretical logic of the integration of physical education teaching goals^[15].

3 Data Processing

3.1 Coding Process

Based on the coding principles of rootedness theory, the researchers sequentially open coded, spindle coded and selectively coded the selected textual materials.

3.1.1 Open Coding

The researchers coded and labeled the selected primitive texts sentence by sentence, and refined the primitive concepts and primitive categories through the primitive texts combined with the research results in related fields. By refining the representative statements related to the integration of physical education goals, 210 primitive statements were obtained, and these primitive statements were merged and organized to refine 110 primitive concepts. These primitive concepts

were generalized and merged to finally form 17 primitive categories. Limited to space, the specific results of open coding are shown in Table 3-1.

Table 3-1 Example Table of Open Coding Results

area	conceptual	The original statement in the information in this article
F1 course framework development	F11 course materials	The Institute of Curriculum and Textbooks of the Ministry of Education held a seminar on major research projects on curriculum and textbooks on July 17, 2018, and proposed the basic goals of China's integrated curriculum and textbooks: establishing the fundamentals-establishing the roots of the nation and casting the soul of education; mending the shortcomings-all-around development of morality, intellectuality, physicality, and aesthetics, and solving problems through research; and connecting the chain-integration of morality, intellectuality, physicality, and aesthetics in primary and Middle Schools and universities, and student-development-oriented, and focusing on the overall Design.
	F12 Content Integration	The content of teaching materials is consolidated, and the relevant authorities have regulations on the preparation and publication of teaching materials that take into account the physical and mental characteristics of the students and the objectives of the curriculum, while avoiding low-level repetition and ensuring that the teaching materials used in the various grades can have a certain degree of coherence and phasing.

F2 Healthy Movement Philosophy	F21 National Physical Fitness	Under the strategy of "Healthy China", the issue of national physical fitness has been raised to an unprecedented level. University sports is the basic unit of school sports work, the last stop of physical education, and the key node of physical education for the prosperity of the nation.
	F22 Physical Health	The role of school sports in enhancing the physical fitness and health of young people has been stretched to the limit, and the worrying state of young people's physical fitness and health has become a drawback to the country's continued development. In response to this situation, the State has continuously formulated regulations and policies to improve the physical health of young people.

F3 Teaching system construction	F31 Educational process	Consider the overall design of the physical education program in the context of the entire educational process of primary, secondary and tertiary education, i.e., the issue of articulation between the physical education programs of schools and universities, which is of great concern to us nowadays.
	F32 Clarifying the development mandate	The level of physical and psychological development and the requirements of each school age group are different, so it is important to clarify the developmental tasks of each age group, and the objectives and contents of the teaching of each school age group.

F4 Instructional Gradient Progressivity	F41 Teaching ladderability	In the implementation mechanism, there is a certain ladder between elementary school physical education teaching, secondary school physical education teaching, and university physical education teaching.
	F42 Progressive Teaching Model	In colleges and universities with a sports club system, students can choose to study the same program, switching between beginner, intermediate, and advanced levels and insisting on the use of a progressive teaching model.

F5 Big Data Management Platform	F51 Student Information	The integrated implementation of the physical education program involves the interface between students' physical education learning and health development information at various academic levels, and it is necessary to have a big data management platform for the continuity of students' physical education learning information and health development information

	F52 information file	The student sports information file mainly consists of two parts: basic physical information and sports information. The basic physical information includes students' physical examination and injury information; the sports information includes the contents of physical education and evaluation information.

F6 Diversification of teaching evaluation	F61 Evaluation	Problems such as an unscientific evaluation system, the disconnect between physical education classes and extracurricular physical education activities, the lack of guaranteed funding for physical education, stadiums and equipment, and irrational physical education curricula are serious constraints on the development of the "integrated in-class and out-of-class" mode of physical education teaching.
	F62 terminal evaluation	At present, the teaching assessment and evaluation is mainly based on summative evaluation, with uniform standards for students with physical personality differences, which obviously has certain irrationality.

F7 Identify domain objectives	F71 Establishment of school segments	Establishing the content of basketball teaching in universities, middle schools and elementary school needs to take into full consideration the age, gender, physiological development and athletic ability of students in all school segments.
	Overall objective of F72	The overall objectives of the physical education curriculum are set, and the objectives of the school segments, units and lessons that serve the overall objectives are set according to the age characteristics of the students, so as to clarify the hierarchical progression of the objectives and facilitate the achievement of the objectives.

F8 Diversification of teaching methods	F81 classification study	To do a good job of articulating the upper and lower levels of different school segments or grades it is necessary to carry out a hierarchical and categorized study of the basic, functional, improving and expanding nature of the curriculum content, and to design a spiral curriculum system based on the laws of the formation of motor skills, the laws of the order and direction of movement development, and the laws of physical and mental development.
	F82 Learning styles and methods	Students have relatively stable characteristics at each stage, and this integrated orientation is tantamount to initially stipulating the progressive stages of physical education learning at different stages of the school year, and adopting the corresponding ways and means of learning at each stage of the school year is conducive to the mastery of motor skills.

F9 Regularity of teaching structure	F91 Teaching and Research	Continuing to strengthen the efforts of physical education teachers in schools of large, medium and small schools in teaching and researching physical education, improving the professionalism and teaching level of physical education teachers and club coaches and promoting the integration of physical education in schools of large, medium and small schools through various forms of exchanges, such as teaching observation, teaching demonstration and evaluation activities.
	F92 Supervisory guidance	At the same time to strengthen management supervision, supervision and guidance at all levels and in all types of schools to implement the requirements of the national physical education curriculum, strengthen the implementation of the main responsibility of the school leadership, for the smooth implementation of school sports work to do a good job of organizational security

F10 Teaching Openness	F101 Integration of Physical Education	Emphasize the excellent teaching contents of each teaching stage, reorganize and edit them with new teaching resources, and promote the effective integration of traditional physical education teaching and new age physical education teaching.

	F102 Deepening Reform of Teaching Materials	Strengthening research into the coherence of the content of physical education teaching in schools, universities and children, and promoting the further reform of physical education teaching materials in order to improve the degree of articulation of physical education teaching materials for schools, universities and children.

F11 Teaching and Educating	F111 Student Development	It is to fully embody the development of students as the basis, and to give full play to the integrated curriculum to promote the development of students to a greater extent, which specifically includes health first, enjoyment of fun, using the body to turn morality into virtue, benefit for all, and lifelong physical education.
	F112 Teacher training	Physical education teachers, while subdividing into specialties and refining their specialties, finalize their research directions according to their own research specialties. In the various types of training conducted by the college, the training of teachers teaching different sports should focus on different aspects such as content and purpose; even the training of the same sport should focus on different grades, different specialties and different regions.

F12 Establishment of communication mechanisms	F121 Question Feedback	Physical education teaching in the 3 stages of elementary school pays attention to the articulation with middle school physical education teaching on the basis of following the syllabus. Problems arising from middle school physical education teaching are fed back to elementary school physical education teaching and summarized to the stage of high school physical education teaching, and high school physical education teaching feeds back problems arising to middle school physical education teaching and summarizes them to the university at the same time (record-keeping mechanism).
	F122 Internal and External Joint	Inside and outside the classroom, inside and outside the school joint Whether the implementation of physical education curriculum integration at the national, local or school level, there is the problem of internal and external joint, including not only the joint implementation of inside and outside the classroom within the school, but also the joint of the school and outside the school.

F13 Professionalization of Physical Education Teachers	Age characteristics of F131 students	In the process of teaching, the American school sports advocate the development of the characteristics of the age of the students and focus on the safety of the guarantee shows the scientific teaching philosophy.
	F132 Classroom group activities	Physical education teachers use a variety of instructional methods and teachers use cooperative group activities, skills training, competitive group activities and physical activity stations in at least one physical education class.

Age differentiation of F14 students	F141 Activity Innovation	There are a number of innovative sports in the physical education programs at the elementary and secondary levels, and many of these activities are geared toward lifelong physical education.
	F142 Personalization	Teachers in the teaching of student-centered students in the main position, fully mobilize the subjective initiative of students, students through active participation in the acquisition of knowledge and growth of competence.

F15 Pupil Subjectivity	F151 Instruction is student-driven	Taking students as the main body, when constructing the teaching content of physical education and health, we should not only consider from what teachers want to teach students or what standards they are required to achieve, but also from the perspective of students' own development and needs, reflecting students' initiative, positivity and creativity.
	F152 Learner-	Adopt learner-centered learning and teaching methods.

	centered	

F16 Teaching and learning assessment methods	F161 Demonstration of Learning Outcomes	Within the outcomes framework, assessment focuses on students' demonstration of learning outcomes. When assessment focuses on learning outcomes, students are aware of what is being assessed, the assessment techniques being used, and the criteria by which their demonstration of learning outcomes will be judged.
	F162 Assessment techniques	At any point in their schooling, pupils can demonstrate their learning in different ways and at different levels across the range of learning outcomes. Assessment techniques must take account of the fact that each pupil progresses at different rates within and across key learning areas.

F17 Curriculum System Establishment	F171 Sports Club	Most Japanese students participate in sports clubs at school or in the community outside of class, and the athletic ability and physical fitness as well as motor learning skills gained at the clubs can be fed back into physical education classes.
	F172 National policy	Japanese universities abolished the nationally legislated compulsory university courses in 1991, so university physical education courses are elective and there is no more low-level repetition of physical education in primary and Middle Schools.

3.1.2 Spindle Coding

The principal axis coding is based on the open coding, and the original categories obtained through the open coding are inductively analyzed^[16], and the principal axis coding finally forms 4 main categories by generalizing the internal logic between the 17 original categories. The results of the main axis coding are shown in Table 3-2.

Table 3-2 Example of spindle coding results

main category	Initial scope	Scope
Z1 Instructional Logic Construction	F1 course framework development	Curriculum framework building is in the course materials, materials development, teaching content, teaching quality overall planning and harmonization.
	F3 Teaching system construction	Teaching and learning planning, work plans and focus on content and development tasks must be developed when building the teaching and learning system.
	F4 Instructional Gradient Progressivity	Physical education is laddered and progressive, determining that the content is coherent and compartmentalized.
	F8 Diversification of teaching methods	Physical education is characterized by diversity in the way classes are taught teaching forms and learning styles.
	F13 Professionalization of Physical Education Teachers	Physical education teacher specialization is a teacher's ability to teach students of different ages through the implementation of instructional strategies that use targeted classroom instruction and physical activity as the main focus.
	F15 Pupil Subjectivity	Physical education teachers should be student-oriented and manage the relationship between teachers and students when establishing performance expectations.
Z2 Structuring of teaching content	F7 Identify domain objectives	Physical education should define the general objectives of teaching, including the articulation of content, the articulation of school periods, the planning of work units and the achievement of modularity.
	Age differentiation of F14 students	Physical education teachers should pay attention to the individual differentiation of students in teaching, in teaching different age contact content is different.
	F9 Regularity of teaching structure	Physical education teaching should be based on the law of teaching teaching and research, supervision and guidance, accurate training to make the development of physical education in line with the changes of the times.
	F17 Curriculum	The establishment of a personalized, selective and specialized physical education

	System Establishment	curriculum system for students is an effective strategy for achieving the organic connection between the university and elementary school curricula.
Z3 Principles of Teaching Evaluation	F6 Diversification of teaching evaluation	The evaluation criteria of physical education teaching evaluation are the dimensions of teaching evaluation, student evaluation, performance evaluation and summative evaluation.
	F16 Teaching and learning assessment methods	Physical education assessment is indispensable in teaching and learning in terms of assessing teaching tasks, demonstration of student learning outcomes and technical assessment.
	F11 Teaching and Educating	The value of school sports is reflected in the highlighting of student and teacher development in physical education and parenting.
	F2 Healthy Movement Philosophy	Physical education teaching should pay close attention to the physical quality of students, improve their physical health and establish the concept of lifelong sports.
Z4 Pedagogical innovations	F10 Teaching Openness	The openness of physical education teaching is the integration of traditional contents of physical education teaching with the new era of teaching, and at the same time, the teaching content should be coherent to promote the deepening of the reform of the teaching content.
	F5 Big Data Management Platform	The integration of physical education should include the creation of student information, body information, and athletic information files, which allows for the communication of information between large and small physical education.
	F12 Establishment of communication mechanisms	The establishment of a content feedback mechanism in physical education and the strengthening of communication make it possible to join internal and external forces.

3.1.3 Selective Coding

Selective coding refers to the systematic analysis of all the categories to identify a core category that strings all the other categories into a whole, encapsulating most of the findings within a broader theoretical scope^[17]. Through repeated reflection on the main categories, original categories and original texts, this study finds that none of the main categories obtained can fully represent the characteristics of the rest of the main categories on the main axis. Therefore, this study takes "Integration of Physical Education Teaching Objectives in Elementary, Middle and Primary Schools" as the core category. The structure of the "story line" is as follows: the construction of teaching logic is the theoretical guideline of the core category, the structuring of teaching content is the premise of realizing the core category, the principle of teaching assessment is the guarantee of realizing the core category, and the innovation of teaching methodology is the path of realizing the core category.

3.2 Theoretical Model Saturation Test

By conceptualizing the interrelationships implicit in the concepts or categories resulting from open coding and spindle coding. Then, in conjunction with the existing relevant literature, a constant comparison of the initially constructed theories and concepts with them revealed that no new conceptual dimensions emerged, and thus the resulting coding results were determined to be theoretically saturated. Secondly, the six interview transcripts and ten pieces of literature left behind in the process of sampling the coded textual material were coded and analyzed again according to the aforementioned process, and the results were all consistent with the previous coding results. Therefore, the results of the theoretical model saturation test indicate that the theoretical model developed in this study on the basis of selective coding is saturated.

4 Explanation of the Elements and Connotations of the Integration of Physical Education Teaching Objectives in Universities, Middle schools and Elementary School

4.1 Composition of the Elements of the Integration of the Objectives of Physical eEducation in Universities, Middle Schools and Elementary School

As shown in Figure 4-1, curriculum framework construction, teaching system construction, gradient progressivity of teaching, diversification of teaching methods, professionalization of physical education teachers, and students' subject position are the theoretical basis for realizing the integration of physical education teaching goals, and the principles of teaching assessment, structuring of teaching content, and innovation of teaching pedagogy are the implementation conditions for realizing the construction of teaching logic. Among them, the structuring of teaching content (domain goal, age differentiation of students, regularity of teaching structure, establishment of curriculum system) is the prerequisite for realizing the integration of teaching goals, the principle of teaching assessment (health concept, evaluation diversification, nurturing, assessment mode) is the guarantee for realizing the integration of teaching goals, and the innovation of teaching method (teaching openness, big data management platform, communication mechanism) is the implementation path for realizing the integration of teaching goals. Implementation path. This also shows that curriculum construction cannot be separated from the four interrelated stages of curriculum shaping, preparation,

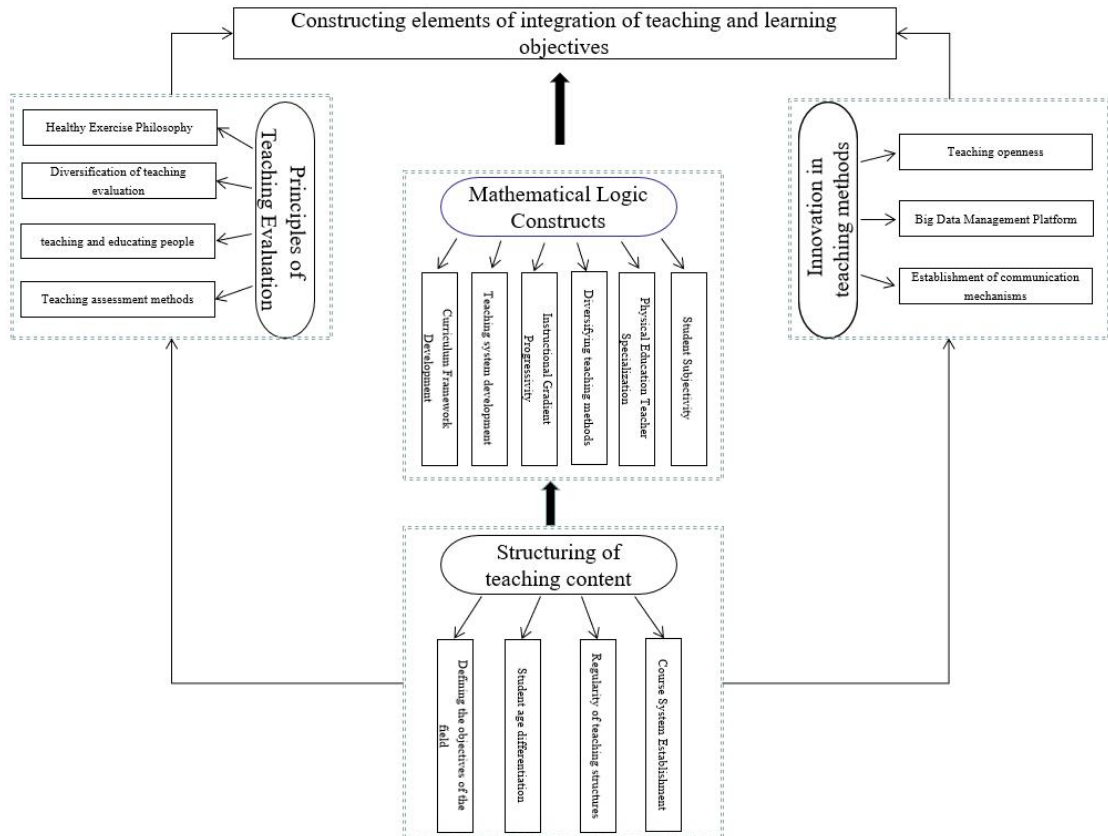
implementation and evaluation.

Figure 4-1 Schematic diagram of the components of the integration of physical education objectives in universities, middle schools and elementary schools

4.2 Connotation of the Elements of the Integration of the Objectives of Physical Education Teaching in Universities, Middle Schools and Elementary School

4.2.1 Connotations of Pedagogical Logic Construction

Curriculum framework construction, teaching system construction, teaching gradient progressivity, teaching method diversification, physical education teacher specialization, and students' subjective status are the main connotations of teaching logic construction. Teaching logic construction is the three dimensions of teaching assessment, teaching content, and teaching innovation to implement the integrated evaluation of teaching objectives. Curriculum framework



is an important part of the school curriculum system, curriculum materials, teaching materials, teaching content, teaching quality overall planning, is the implementation of quality education and training of all-round talents is an important "beacon". Teaching system construction requires the development of teaching planning, work plan, development tasks, due to the physiological development of students of different ages, the development of tasks and teaching objectives and content of each age group also has differences. Therefore, it should follow the overall direction of sports development in the new era and formulate a scientific overall development plan for physical education. The gradient progressivity of teaching refers to the fact that there should be a ladder between physical education teaching in universities, middle schools and elementary school, and the horizontal and vertical articulation between school-age segments is a smooth transition, coherent and orderly, and the objectives of each ladder are a relationship of gradual progression and mutual promotion. In particular, it is important to guarantee the quality of teaching in the school segments, as the quality of teaching is related to the implementation of the curriculum plan, which can be achieved through the nationally standardized registration of teachers and the improvement of the quality of teaching^[18]. At the same time, teachers should adopt different teaching methods, such as the introduction of computer technology products into the teaching methodology, the incorporation of games into physical education for all age groups, and the use of the Classroom Multi-Player Demonstration Game (CMPG) model of teaching^[19]. In terms of teaching methods, the middle and upper grades of elementary school can be taught with in-class options, middle school with in-grade and in-class options, high school with in-grade options or mixed-age options, and university with mixed-age options. Teachers and students are the two main bodies of the construction of teaching logic, and teachers can quickly integrate students into classroom teaching by practicing different classroom teaching methods for students of different ages.

4.2.2 Implications of Structuring Teaching Content

Teaching content is the carrier of teaching and learning in teaching, the core of educating and guiding students, and the content after pedagogical processing of teaching materials^[20]. Determining the objectives of the physical education

field, the age differentiation of students, the regularity of the teaching structure, and the establishment of the curriculum system are the main connotations of the structuring of the teaching content. The articulation of the physical education curriculum for each school age group should begin with universal physical education, then individualized choices, and continue until the reception of a specialized physical education curriculum system.

The physical education curriculum is an integral part of school education and is also a movement-based curriculum aimed at promoting the all-round development of students. The knowledge system of physical education is a scientific system that is taught to students in an organized and planned manner, in accordance with the aims of education. In different school years, the physical education teaching process should have a hierarchical back and forth, such as teaching objectives should follow the principle of gradient, to ensure that the overall objective and sub-objectives are consistent. The construction of the integration of the objectives of physical education teaching in primary, secondary and tertiary schools requires that the knowledge system of the subject has a unified, systematic and scientific nature. It is necessary to use systematic principles and methods to design an all-round, multi-dimensional integration of physical education teaching content for all school-age groups, so that the large, medium and small physical education teaching system is internally articulated and connected, and the elements are organically linked. It is also necessary to study the articulation of the goals and objectives of physical education curricula at all school levels, and to rationally arrange the goals and tasks of physical education curricula at all levels, so that students can receive systematic physical education before they go out into the world, develop good exercise habits, master theories and methods of scientific physical exercise, and establish a lifelong awareness of physical education, thereby achieving lifelong benefits.

4.2.3 Implications of the Principles of Teaching and Learning Assessment

Diversification of teaching evaluation, teaching assessment methods, teaching and educating people, and the concept of healthy movement are the main connotations of teaching evaluation principles. The construction of an integrated curriculum must establish a hierarchical progressive, multi-angle course evaluation system. It is necessary to insist on following comprehensiveness^[21] in the evaluation object, evaluation content and evaluation method. Assessment programs and practices need to be based on the principle of fairness and impartiality, and teachers' judgments of student performance can be compared both within and across schools. Assessment systems should provide teachers with useful feedback on the needs of the classroom, such as opportunities to learn new teaching techniques and suggestions from teachers and parents on how to make changes in the classroom. Lesson plans can reflect the extent to which teachers are thinking about the goals of their teaching. By looking at classroom records you can monitor whether teachers are linking lesson plans, instruction, and testing^[22]. Physical education teaching evaluation is like a baton, often where the evaluation is, the result is oriented to where the focus of physical education teaching work leads to. Therefore, it is especially crucial to improve the evaluation of physical education teaching. The evaluation should focus on the evaluation of the teaching process, focusing on the evaluation of the elements of physical education teaching presented in the classroom.

4.2.4 Implications for Pedagogical Innovation

The openness of teaching, the construction of a big data management platform and the establishment of communication mechanisms are the main components of the innovation of teaching pedagogy. Today's innovations in educational technology have transformed communication systems, learning resources, curriculum concepts and professional development. Innovative technologies promote creativity and learning effectiveness. New educational technologies include computer programs, Internet programs, or other augmentative, digital communication tools. Over time, teachers have integrated these forms of technology in a variety of ways through different styles and practices in the classroom. While these technologies have had a tremendous impact on educational endeavors, many physical education teachers' knowledge and use of these emerging technologies is more lacking. With the development of the information society, the teaching methods of physical education teachers are also put forward higher requirements, and purely traditional teaching methods are no longer in line with the development characteristics of the current era. With the help of these new teaching technologies, physical education teachers can understand the physical condition of students faster, establish a student body and sports information file system, and build a networked monitoring system for students' sports development. In addition, the establishment of a feedback mechanism for teaching content in physical education and the strengthening of joint communication within and outside the school are conducive to the formulation and implementation of teaching policies. In the new era, the teaching methods and ideas of physical education teachers should be changed, from injective teaching to inspirational teaching, giving full play to the main position of students. The excellent teaching content of each teaching stage is reorganized and edited with new teaching resources to promote the effective integration of traditional physical education teaching and new era physical education teaching. At the same time, it is more important to focus on the combination of theory and practice in teaching, using effective oral and body language, combined with the application of network communication technology to strengthen the students' sense of communication in sports activities.

5 Conclusions and Implications

5.1 Conclusions of the Study

By applying the rooting theory to the 100 texts related to the integration of physical education teaching goals, open

coding, spindle coding and selective coding were applied, which finally showed that the elements of the integration of physical education teaching goals in Chinese universities, middle schools and elementary school were expressed in four aspects, namely the construction of the teaching logic, the structuring of the teaching content, the principle of teaching assessment and the innovation of teaching methods. Through the analysis, it is found that the construction of teaching logic is the theoretical core of realizing the integration of physical education teaching goals, the structuring of teaching content is the premise, the principle of teaching assessment is the guarantee, and the innovation of teaching method is the path to achieve. Through the analysis of the constituent elements and connotation, it can be found that the logic of curriculum, the articulation of teaching content, the system of teaching assessment, and the application of teaching methodology are the key to determine whether the physical education teaching objectives of universities, middle schools, and elementary school can be effectively articulated, and the effective articulation of the teaching objectives is a necessary condition for realizing the integration of teaching objectives. Meanwhile, this study also verifies the saturation of the theory of physical education teaching goal integration through the theoretical saturation test, which shows that teaching logic, teaching content, teaching assessment, and teaching pedagogy are the theoretical logical structure of physical education teaching goal integration.

5.2 Research Implications

Rooted theory is an important academic research theory that focuses on qualitative research, and the integration of physical education teaching goals in China is an important branch of research on the direction of physical education teaching development in China. It can be seen through this study that qualitative research has a positive significance in research in the field of physical education teaching development, which can effectively make up for the problems of insufficient sample size and insufficient consideration of dimensions in questionnaire surveys and case studies, and scrutinize the various dimensions of physical education teaching development from a more comprehensive perspective. Therefore, subsequent research on the integration of physical education teaching goals can still use the rooted theory as a research method, and dig more into the laws and regulations of physical education teaching, policy documents, and survey reports as a supplement to the argumentation of the relevant theory.

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