

EFFECT OF CONTENT KNOWLEDGE ON THE EMPLOYMENT OF PHYSICAL EDUCATION STUDENTS IN CHINA

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Abstract

Factors that affect the employment of physical education students in China include: written exams, skills interviews, course setting, teaching mode, and the knowledge required of students by the employers. Content knowledge (CK), as one of the necessary factors, has a significant impact on the employment of physical education students. The CK studied in this paper focuses on pre-service teachers (students majoring in physical education). Based on the curriculum of 26 universities and the impact of CK on the employment of physical education majors in China, 780 students were selected as samples to complete the study. The study was conducted in two stages. Firstly, the CK teaching mode was adopted on the experimental group for a 4-month periodic teaching; and then, the employment situation was clarified by tracking the students after graduation. A mathematical analysis model was thus constructed with two dimensions, preset CK, and employment. Based on the consideration of the exam content for employment of physical education students in China and the analysis of the content factors set for the examinations of physical education disciplines, it is clear that CK is not the only factor that affects employment. The perception of CK teaching mode's influence on employment of physical education students in China is not consistent. It doesn't involve much knowledge of sports principles. In the future, the focus should be on the development of the theoretical direction of CK in the Chinese physical education curriculum and the development of the CK teaching mode.

Keywords: Physical education, Empirical analysis, Students' employment, China education, Content knowledge.

1. INTRODUCTION

With the rapid development and popularization of higher education in China, many people have access to it, putting nearly ten million college students under employment pressure

each year. Physical education (PE) majors face more pressure and competition than general arts and sciences majors due to the limitations of their knowledge field and career fields.

The reality of low employment rate in physical education colleges is closely related to the knowledge system of students, and the knowledge system is the true embodiment of the structure and content of professional courses. The most important factors are: curriculum system, teacher resources (in the first place), discipline tradition, material condition and so on. In China, the general basic courses are weak, the proportion of physical education technology courses in the specialized basic courses is relatively small, and no or few physical education courses in the specialized courses affect the employment rate of students. (Hu, 2003).

Statistics show that the employment rate of prominent PE graduates is 93%, 91%, and 90%, respectively, from 2018 to 2020, with a decreasing trend year by year. The average salary of these graduates in 2020 is 4,200 yuan, which is lower than the average salary of colleges graduates, which is 5,100 yuan (Wang, 2020). The above data show that the students majoring in PE in China's colleges and universities face a harsh employment environment and intense competition and pressure. What colleges and universities must focus on in the future teaching reform is how to improve the employment competitiveness of PE majors, with the key being to reform the curriculum content system and teaching mode. Furthermore, the core of the reform is the curriculum content system, which serves as the basis for students to absorb professional knowledge and improve professional ability (Jin, 2021).

The current research shows that content knowledge (CK) is a hot topic in this field. Based on the existing research on CK, CK is a key independent variable in improving pedagogical content knowledge (PCK) (Ward et al., 2016). Under subject matter, the term CK includes both common content knowledge (CCK) and specialized content knowledge (SCK). CCK includes subject-specific knowledge, such as rules, skills, and tactics to teach specific activities, whereas SCK includes some unique knowledge, such as errors, representation of content, and teaching

tasks required to teach specific activities (Ward 2009). CK is the knowledge of "what, how to do and how to teach" about physical fitness, motor skills, and health education that teachers should have to teach effectively in physical education and health. It mainly includes two main categories: common content knowledge (CCK) and specialized content knowledge (SCK). CK has a certain influence on teachers' choice of teaching methods and has a great impact on their teaching process (He, 2018). CK is directly related to college teaching, and students' mastery of skills and theories in teaching will, to some extent, affects the employability and competitiveness of PE majors. Therefore, the overall teaching reform requires colleges and universities to fully understand and grasp the factors and mechanisms that influence the course CK on the employment of PE majors to better design and optimize the CK system in teaching and improve the comprehensive employability of PE majors.

The CK mode, intended to develop physical education students' CK, was described as a treatment containing basic theoretical knowledge, health promotion knowledge and physical exercise knowledge. In an initial study conducted by experts, different materials were used, including a specific sport CK package, ranging from basic theoretical knowledge, health promotion knowledge, correct and incorrect physical exercise demonstration videos to coding instructions and instruments, and workflow. In western countries, CK focuses on the knowledge of rules, etiquette, safety, techniques, tactics, finding and correcting errors, and presenting tasks setting during teaching. Then, physical education students would receive training within the prescribed time frame at different times. The seminar of basic theoretical knowledge, health promotion knowledge and physical exercise knowledge consists of (a) overview and introduction, (b) watching the seminar video, (c) evaluation, and (d) oral examination.

Physical education students were provided with an overview of the seminar, including (a) the purpose of the seminar, (b) expectations, and

(c) a discussion of the principles of game practice (Lauder, 2001). Then, the physical education students watched the seminar including videos of basic theoretical knowledge, health promotion knowledge and physical exercise knowledge, and were presented with (a) the objectives of the teaching task, (b) examples of appropriate tasks for the taught principles, (c) specific and orderly task progress, (d) each skill's key elements, and (e) examples of verbal and visual representation of the task. During the seminar, physical education students must answer the prescribed questions in the knowledge package. If the accuracy of their answers reaches 90-95%, it is defined as pass.

Based on the above statements, this paper explores and analyzes how CK affects the employability of PE majors in China from the perspective of its influence on teaching, as well as the potential correlations that exist between it and the employment of PE major graduates to gain insight into the associations between the various influencing factors. Exploring the mechanism of the effect of the CK teaching model on the employment of PE majors can provide valuable guidance for colleges and universities in PE teaching.

2. FACTOR ANALYSIS OF CK ON THE EMPLOYMENT OF PHYSICAL EDUCATION MAJORS

Improving the employability of PE majors does not happen overnight. Even with the impetus of the teaching CK system reform, it requires a vertical development and a gradual learning stage, and the CK system of learning requirements corresponding to different learning stages differ. After completing school education and entering society, an educated individual faces practical problems of adaption to society, such as job hunting and entrepreneurship. As social experience and knowledge accumulate, graduates' learning of the CK system can be expanded and deepened in horizontal development, promoting lifelong development and learning, and finally, improving their employability (Wang, 2021).

The following are the main factors that influence CK on students' employability:

2.1 College factor

A college's development status and system construction play a vital role in cultivating and establishing students' learning of the CK system. Especially in relatively less developed areas, because of the colleges' inadequacy of development and deficiency in conditions and facilities, it directly affects the improvement of students' ability to do sports and master and practice the knowledge, which eventually harms students' employability (Yang, 2021).

2.2 Faculty factor

Content knowledge, as the basis of subject teaching, has long been. For a long time, people have always thought that as long as they have sufficient knowledge of the subject content, they will. Being a good teacher makes it easier to get a job. The reason why people hold this view is that they are in the discipline (Liang, 2021). On the basis of content knowledge, physical education teachers process and transform their own content knowledge for students in a way that students can easily understand. That is to say, in a specific classroom teaching situation, physical education teachers organically integrate the physical education content, pedagogy principles, and other related disciplines so as to guide students to systematically master physical education and health knowledge and sports skills, strengthen their physique, improve their social adaptability and promote their employment. Physical education teachers' content knowledge and subject teaching knowledge are the key factors that affect teachers' professional growth and teaching effect (Liang, 2021).

Content knowledge is the growing point of teachers' subject teaching knowledge. In the case of an identical CK system, there is a significant variation in the process of different teachers teaching and guiding students to learn the relevant CK. Such differences will lead to differences in students' learning ability enhancement even under the same CK system.

and teaching mode, affecting students' overall employability (Liang, 2021).

2.3 Student factor

Students have different self-perceptions, and there are significant differences in learning ability and perceptions, especially across ages. Even at the same age, students of different genders have different levels of thought maturity. Such differences also affect students' perception of their employability under the CK system, which affects their mastery of CK at the learning stage and impacts their employability.

3. OBJECT AND METHOD OF THE STUDY

3.1 Selection of object

Approved by the University Institutional Review Board and gained consent from the participating schools, faculty, and students, this study mainly involves junior PE majors in colleges and universities offering full-time undergraduate courses in China. Following their voluntary participation, 780 PE majors, including 420 males and 350 females, were selected to be the object for being in similar professional courses and with similar entrance examination scores. Data on relevant teaching content and samples, including the course content of PE majors, were collected by tracking the students' teaching and employment in 26 different colleges and classes.

3.2 Design of method

The study adopts an intradisciplinary design to study the students' learning ability under various CK systems and its impact on employment. The control group adopted traditional teaching modes, whereas the experimental group adopted periodic CK teaching modes. After a one-year study, the students' employment situation was tracked, and information such as the nature of the students' employment units, salary levels, and career fields was counted.

The experimental group adopted the periodic CK teaching mode. (a) The students in the

experimental group received a professional development workshop on the CCK and SCK of basic theoretical knowledge, health promotion knowledge, physical exercise knowledge (treatment) and subsequently were taught with several additional classes of basic theoretical knowledge, health promotion knowledge and physical exercise knowledge (post-treatment). (b) The same measures of physical education students performance were recorded in each study. (c) The studies were conducted in college physical education settings. (d) The independent variable (CK workshop) was standardized and physical education students training procedures met the same criteria. (e) The number of pre- and post-treatment lessons were the same. (f) Physical education students performance data were collected from the videos recordings their performance. The correlation analysis model analyzes the correlation between employment and the relevant CK system indicators and concludes that different knowledge content systems impact students' employment.

3.3 Research process

Stage 1: teaching stage. Different CK systems were used to teach the experimental and control groups, and a one-year follow-up was conducted to evaluate the students' academic performance and various comprehensive abilities.

Stage 2: employment tracking stage. Following graduation, the student's one-year employment was tracked through questionnaires and follow-up, including the nature of employment units, salary levels, employment industry information, and students' own employment experience.

Following the preceding two stages, statistics and data analysis were carried out. Finally, according to the relevant variables set by the research, the correlation between the variables and indicators was analyzed by mathematical-statistical analysis methods to understand the impact of CK on the employment of PE majors.

3.4 Selection of variables

Based on the analysis of the influencing factors of CK on the employability of PE major students from different perspectives, the study selects the following variables for empirical

research to empirically analyze the relevant influencing factors and mechanisms of CK on the employment of PE major students. Table 1 shows the definition and explanation of variables.

Table 1: *Selection and definition of variables*

Type	Name	Definition and Evaluation Criteria
Outcome variable	Students' Comprehensive Employability Score (Y1_CEA)	Comprehensive scoring results of the employment salary level, employment unit strength, employment industry matching degree, and employment unit nature
	Students' Comprehensive Employment Experience Score (Y2_CEE)	Students' satisfaction with employment
Explanatory variables	Comprehensive Assessment of	
	Academic Ability of Seniors (X1_CAASP)	Comprehensive scoring results of grades and practice assessments .
	Students' Professional Ability Score (X2_SPK)	Professional knowledge mastery ability score, including professional course score and professional course practice assessment score.
	Students' Mastery of Public Knowledge (X3_MOPK)	A comprehensive score of students' public knowledge mastery, comprehensive score = test score * 50% + student self-evaluation * 50%
	Comprehensive Score of Teaching Skills (X4_TTS)	Comprehensive scoring of teachers' curriculum skills, referring to the standard score of teaching standard of PE major, the average value of the comprehensive periodical evaluation of each course, and the evaluation of comprehensive evaluation team of the school curriculum.
	Comprehensive Score of Teaching Content (X5_TCE)	Comprehensive scoring of teaching content, referring to the teaching standards of PE majors, the comprehensive scoring of the content of each course, and the comprehensive evaluation of school courses by group evaluation.
	CK Depth Score (X6_CKD)	CK depth rating of the teaching, the average value of CK of each course, comprehensive evaluation of school courses by group evaluation.

3.5 Data description

According to the previous research method, based on the above variable definitions, this study carried out experimental tracking research and evaluation data collection on 780 PE majors in 26 colleges and universities across the country. After completing the two-stage follow-up investigation described above,

the final data was used for the empirical analysis in this paper.

After completing the data collection, 780 pieces of 26*30 data were imported into Excel, analyzed using Stata software, and subjected to descriptive statistical analysis. The results are shown in Table 2 below. Table 2 shows that all sample data are within the $P < 0.05$ difference,

which conforms to general statistical laws and can be used for empirical analysis.

Table 2: *Descriptive statistical analysis of data*

Variables	Statistics	Deviation	Standard Interval Error	Bootstrap 95% Confidence	
				Lower Limit	Upper Limit
X1_CAASP	Mean	3.84	.00	.04	3.76
	Standard Deviation	.691	-.001	.019	.654
	N	780	0	0	780
	Minimum	2			
	Maximum	5			
X2_SPK	Mean	3.46	.00	.06	3.33
	Standard Deviation	1.170	-.003	.022	1.125
	N	780	0	0	780
	Minimum	2			
	Maximum	4			
X3_MOPK	Mean	2.86	.00	.05	2.78
	Standard Deviation	.855	-.001	.021	.810
	N	780	0	0	780
	Minimum	2			
	Maximum	5			
X4_TTS	Mean	3.45	.00	.05	3.35
	Standard Deviation	.922	-.003	.025	.870
	N	780	0	0	780
	Minimum	2			
	Maximum	5			
X5_TCE	Mean	3.55	.00	.05	3.45
	Standard Deviation	.863	-.002	.023	.811
	N	780	0	0	780
	Minimum	2			
	Maximum	5			
X6_CKD	Mean	3.65	.00	.05	3.55
	Standard Deviation	.877	-.002	.021	.835
	N	780	0	0	780
	Minimum	2			
	Maximum	6			
Valid N (list status)	Mean	3.75	.00	.05	3.65
	Standard Deviation	.928	-.002	.023	.883
	N	780	0	0	780
	Minimum	2			
	Maximum	6			

a. Unless otherwise noted, bootstrap results will be based on the 1000 bootstrap samples.

correlation of the impact of college PE teaching on the employment of PE students based on the CK system.

3.6 Setting of the model

In data research and analysis, this paper adopts the regression analysis method model to construct an explanatory model that reflects the

Model 1:

$$Y1_{CEA} = \alpha_1 X1_{SC} + \alpha_2 X2_{SII} + \alpha_3 X3_{MOPK} + \alpha_4 X4_{TTS} + \alpha_5 X5_{TCE} + \alpha_6 X6_{CKD} + \alpha_7 X7_{SEX} + \alpha_8 X8_{ISFC} \\ + \alpha_9 X9_{FEL} + \alpha_{10} X10_{MEL} + \alpha_{11} X11_{TCD} + \alpha_{12} X12_{CAASPS} + \beta_1$$

Model 2:

$$Y2_{CEE} = \alpha_1 X1_{SC} + \alpha_2 X2_{SII} + \alpha_3 X3_{MOPK} + \alpha_4 X4_{TTS} + \alpha_5 X5_{TCE} + \alpha_6 X6_{CKD} + \alpha_7 X7_{SEX} + \alpha_8 X8_{ISFC} \\ + \alpha_9 X9_{FEL} + \alpha_{10} X10_{MEL} + \alpha_{11} X11_{TCD} + \alpha_{12} X12_{CAASPS} + \beta_2$$

Each variable is consistent with the previous variable definition in the above models. To denote the correlation coefficient between the dependent and independent variables and represent the adjustment coefficient of the model. Based on the above models, this paper used Stata software to conduct model analysis based on the previous data, conduct a stationarity test, cointegration test, and cointegration regression on the data, and then

verify the error correction model to complete the empirical analysis.

4. EMPIRICAL METHOD

4.1 Stationarity test

The empirical process began with examining the data's stationarity, the results of which are shown in Table 3. According to the results of the stationarity test, the sample data collected show good characteristics of time series stationarity, which can be predicted and analyzed by the regression analysis method. The results show that each variable has good stationary sequence characteristics for Y1 and Y2.

Table 3: Stationarity test to the data

	(1)	(2)
Variables	Y1_CEA	Y2_CEE
	0.2554 *	0.4155
X1 CAASP	(0.4146)	(0.2264)
	-0.022*	-0.0212
X2_SPK	(0.0252)	(0.0424)
	0.2316**	0.160**
X3_MOPK	(0.1116)	(0.052)
	-2.542*	0.61
X4_TTS	(1.132)	(1.543)
	0.2106**	0.161**
X5_TCE	(0.1104)	(0.034)
	0.2323**	0.1822**
X6_CKD	(0.1293)	(0.062)
	0.2316**	0.151**
Constant Term	(0.1012)	(0.049)
Annual Fixed Effect	Controlled	Controlled
F Statistic	11.25***	31.20***
Sample Size	16	16

4.2 Cointegration test

Table 4 shows the data from the cointegration test results, and each variable passed the stationarity test. Although the sequence shows sequence stability, the variables are also affected by its unit root, and its stationary estimation is challenging to achieve directly. Therefore, the estimation equation and cointegration detection must be combined to detect the equilibrium relationship between variables jointly.

From the results, the correlation degree of each variable with Y1 and Y2 is noticeable. In particular, the two subjective variables of Students' Professional Ability Score (X2_SPK) and Students' Mastery of Public Knowledge (X3_MOPK) were cointegrated with Students' Comprehensive Employment Ability Score (Y1_CEA) and Students' Comprehensive Employment Experience Score (Y2_CEE).

Table 4: Results of cointegration test

Variables Combination	Eigenvalue	Trace Statistic	Critical Value (5%)
Y1_CEA, X1	0.538932	19.98283	15.41
Y1_CEA, X2	1.672778	16.32562	15.41
Y1_CEA, X3	0.493922	15.26520	15.41
Y1_CEA, X4	0.592332	18.25625	15.41
Y1_CEA, X5	0.610233	20.23526	15.41
Y1_CEA, X6	0.609813	26.32562	15.41
Y2_CEE, X1	0.560252	20.75254	15.41
Y2_CEE, X2	0.562412	22.25852	15.41
Y2_CEE, X3	0.623344	21.43852	15.41
Y2_CEE, X4	0.723344	20.60396	15.41
Y2_CEE, X5	0.793222	19.36525	15.41
Y2_CEE, X6	0.338921	17.36256	15.41

4.3 Granger causality test

Table 5 represents the cointegration test results of variables through Granger Causality Test. The specific description is as follows:

Table 5: Results of granger causality test

Direction of Causality	Lag Period	F Statistic	F Critical Value(5%)	Direction of Causality	Lag Period	F Statistic	F Critical Value (5%)
X1→Y1	1	4.07885	0.0485	→	4	6.75852	0.0112
X2→Y1	1	7.70482	0.0128	→	4	5.63253	0.0189
X3→Y1	4	4.52554	0.0338	→	5	12.2521	0.0071
X4→Y1	1	7.85256	0.0458	→	5	16.3252	0.0042
X5→Y1	2	5.32145	0.0121	→	5	5.12421	0.0158
X6→Y1	3	4.04487	0.2521	→	5	17.2325	0.0232
X1→Y2	1	5.56325	0.0152	→	5	5.42152	0.0412
X2→Y2	2	6.21521	0.0312	→	5	9.85215	0.0128
X3→Y2	3	4.25325	0.0053	→	5	5.12412	0.0148
X4→Y2	3	4.25625	0.0036	→	1	4.95226	0.0258
X5→Y2	2	4.52575	0.00363	→	3	9.65852	0.0402
X6→Y2	1	5.785322	0.0315	→	1	9.36521	0.0085

The results of the Granger Causality Test in Table 5 represent that the Comprehensive Score of Teaching Skills

(X4_TTS), the Comprehensive Score of Teaching Content (X5_TCE), and the CK Depth Score (X6_CKD) directly and

significantly affect Students' Comprehensive Employment Ability Score (Y1_CEA) and Students' Comprehensive Employment Experience Score (Y2_CEE), especially the latter.

4.4 Empirical results

Through the analysis of the empirical results, from the point of view of the stationarity test, the sample data collected in this research show good time series stationary characteristics, and the regression analysis method can be used to predict and analyze it. The results show that each variable positively affects Y1 and Y2. Combining the cointegration test and Granger causality test, the following empirical conclusions can be drawn:

Under the teaching mode of college PE majors within the CK system, the impact of students' subjective scoring of teaching on Y1_CEA is more significant than that of objective factors. The objective factors are mainly reflected in the impact on Students' Comprehensive Employment Experience Score (Y2_CEE). It can be concluded that even in the CK teaching mode, students' learning ability is the key to determining their mastery of relevant CK and, ultimately, the key to affecting students' employability. Therefore, to a large extent, it is necessary to combine the design of the CK system in teaching to improve students' interest in related CK so that different students with different interests can be combined in different CK system teaching and scoring. In this case, more students can study according to their interests by adding more elective courses of sports-related majors from public CK and professional CK.

From the perspective of the CK system and based on the empirical research results of this paper, the Students' Comprehensive Employability Score (Y1_CEA) is more affected by the Students' Professional Ability Score (X2_SPK) and Students' Mastery of Public Knowledge (X3_MOPK), whose impact is more evident than that of Comprehensive Assessment of Academic Ability of Seniors (X1_CAASP). More attention should be paid to

improving professional teaching in the teaching reform of sports-related majors in colleges and universities. From the design of the CK system, the depth of professional CK can be strengthened to some extent, allowing the students can learn more professional knowledge and master it better. Because professional knowledge impacts students' overall comprehensive employment ability, it is also the key to determining students' employment with high satisfaction in sports and related career fields after they graduate and start working.

From the perspective of CK, the Comprehensive Score of Teaching Content (X5_TCE) and the CK Depth Score (X6_CKD) have a more significant influence on the Students' Comprehensive Employment Experience Score (Y2_CEE) than the Comprehensive Score of Teaching Skills (X4_TTS). This result implies differences in the teaching and teaching levels of different teachers when teaching the same CK system and teaching mode, which will also lead to significant differences in students' performance in learning-related course content and mastering related professional knowledge. Therefore, from the perspective of CK in the teaching reform of sports-related majors in colleges and universities, it is necessary to continuously improve teachers' teaching skills and the depth of teaching content so that teachers can effectively guide students to some extent to conduct more in-depth learning and master valuable lessons, which can also improve the students' employability.

5. CONCLUSION AND FUTURE

5.1 Conclusion

By combining the proposition process and empirical analysis, this paper summarizes the relevant influencing indicators of CK on the employment of PE majors in China from various perspectives of schools, students, and teachers. The empirical results show that students' CK learning ability, teachers' teaching level, and the CK system of related courses in colleges and universities are strongly correlated

with students' comprehensive employment level and employment experience. Based on the empirical results, the following conclusions can be drawn:

In the teaching mode of PE majors in colleges and universities within the CK system, students' behaviors significantly influence teaching effect and employment. From the empirical results of this paper, the explanatory variables are significantly correlated with the explained variables Y1 and Y2 ($P < 0.05$), and the confidence of the significant correlation with the two variables of Students' Professional Ability Score (X2_SPK) and Students' Mastery of Public Knowledge (X3_MOPK) is the highest, whose characteristic values are all over 0.5, trace statistics are greater than 15, and expression of critical value (5%) reaches 0.15. The indicators of the explanatory variables are cointegration related to the Students' Comprehensive Employability Score (Y1_CEA) and Students' Comprehensive Employment Experience Score (Y2_CEE).

To some extent, these data indicate that colleges and universities should consider students' future employment, expand relevant curriculum settings, and add more skills and professional knowledge assessments.

Add more professional and public elective courses combined with students' interests, stimulate each student's interest in learning in related fields, improve students' comprehensive learning and professional skills, and improve their comprehensive employability.

From the perspective of the CK system, the Students' Comprehensive Employability Score (Y1_CEA) is more affected by the Students' Professional Ability Score (X2_SPK) and Students' Mastery of Public Knowledge (X3_MOPK). Their eigenvalues all exceed 0.5, and trace statistics are greater than 15, more evident than Under the CK teaching mode, the employment of PE majors depends more on the students' mastery of professional skills. In the teaching mode and teaching assessment, more skills and professional knowledge assessments

should be added to improve students' professional skills to gain a more competitive advantage in employment.

From the analysis of empirical data results, the CK teaching mode has a significant influence on the Students' Comprehensive Employment Experience Score (Y2_CEE) ($P < 0.05$). The Comprehensive Score of Teaching Content (X5_TCE) and the CK Depth Score (X6_CKD) have a more significant influence on Students' Comprehensive Employment Experience Score (Y2_CEE) than the Comprehensive Score of Teaching Skills (X4_TTS). After testing the teaching of the CK system and the same teaching model, the differences in teachers' teaching and teaching levels also affect the comprehensive employment of students to some extent.

5.2 Future prospect

Future research must focus on students' learning behaviors and interests and strengthen guidance to ensure the sustainability of their learning. Simultaneously, colleges and universities should aim to strengthen their teaching skills and make relevant adjustments and optimizations based on students' interests and an in-depth understanding of students' characteristics.

Teachers must pay attention to the content presented during the teaching process

of CK teaching mode. This process can be accomplished by improving the interest in the displayed content, combining multimedia teaching with the CK teaching mode, fully utilizing the advantages of multimedia teaching, and integrating interest into the classroom to stimulate students' interest in learning and ultimately improve students' course experience.

CK originated in the United States, mainly focusing on students' skills achievements. The regional research of the test is mainly conducted in the United States and a few countries such as Turkey and France. Its cognition in China is limited, and more experimental and empirical data are needed to analyze its related functions and influencing

mechanisms. It is necessary to optimize the curriculum system setting and students' autonomous learning and standardize and improve the teaching skills from the teachers' perspective to improve the teachers' skills in the CK teaching mode.

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