



Research Article

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The research of Innovative Literacy Structure Model about PE Teacher in Normal University

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ABSTRACT

Innovative literacy is one of the core contents of the construction of PE teachers in the ordinary university. The structure model of the ordinary university sports teachers' innovative literacy is built according to systematic method, documentary method, questionnaire survey and mathematical method. research shows that the construction of PE teachers in the ordinary university is composed by six items of eleven sensitive index such as disciplinary knowledge, information literacy, psychological traits, Innovative security and work experience. It has the fundamental feature about dynamics and openness.

Keywords: college; P.E. teacher; innovation quality; structure model

INTRODUCTION

Nowadays, the society advocate the quality-oriented education and comprehensively improvement of the quality of the students' various abilities, so innovation education is one of the core objectives of higher education and still the main developing trend of education reform. Sports education to improve the health level of college students and the development of innovation ability can't be replaced by others subjects education effect. Cultivating and improving the level of college students' innovation ability become one of the elements in the reform of physical education target system. Physical education teachers plays key roles in the physical education teaching, in the process of education, the present situation of teachers' teaching ideas and innovative quality is influencing students thinking and inspiring their creative potential of major factors. Seen from the past literature: Ordinary university sports teachers' innovation quality related research literature is few, and only in the literature, most of the literature include one aspect or indicators of the innovation quality and research, the lack of systemic and the ordinary university sports teachers' innovation quality structure as a system or a whole literature has not. Based on the theory of system theory, this study is to build the common index system of college PE teachers' innovation quality, aiming to build innovation of college PE teachers quality structure model, for colleges and universities providing the theory basis for the improvement of PE teachers' innovation quality, providing guidance for the ordinary university sports teachers construction.

THE RESULTS AND ANALYSIS

On the basis of the related principle of system theory, this study of ordinary university sports teachers' innovation quality structure model constructed factors and index were studied. According to the principle of system theory, in must connect with each other, and relationship of each component of the overall environment development, namely the system. System has three basic elements: 1, it is more than two or more than two elements interconnected combination; 2, it has a certain limitation and time environment material energy exchange with the outside world; 3, it is the relatively independent part of the unique features and characteristics of organic whole and part. 1) the innovation of physical education teachers in colleges and universities literacy structure model as a system, based on the point of system theory, system theory, it should also have more than the standard: A composed of multiple "factors" orderly and dynamic structure, it is a connected with each other, has certain organization and function of

the system. First, innovative literacy structure model is a big system, which contains many subsystems, each subsystem and contains a number of levels of subsystems or specific indicators, within the system, index and index, between system and system are independent of each other, but influence each other, it contains the subsystems and indexes can play a specific function, and through certain way to carry on the organic integration, thus forming the whole literacy system innovation; Second, the innovation of college PE teachers literacy system is an open system, it is only in a certain period of time remained relatively stable, its subsystems and refers to different extent because of the influence of the external environment, and environment of material and energy exchange with the outside world, any subsystem or indicators of change will affect the function of the whole system, and open characteristics is also pushing forward the innovation of college PE teachers' quality structure model of continuous development of the main power; Finally, in this system, each subsystem or factors on the contribution and value of the whole system is also different, in a certain period and conditions, each subsystem and index position of the corresponding transformation happens.

THE INDEX SYSTEM OF COLLEGE PE TEACHERS' INNOVATION QUALITY SCREENING

Set up index system of college PE teachers' innovation quality is a measure of the purpose of physical education teachers innovative literacy level of high and low, 2 it is to make college sports teachers can fully understand their own the deficiencies and weaknesses in terms of innovation, quality, innovative literacy for college sports teachers improve provide the correct direction. Screening process in order to make the index system more scientific and objective, the following goal orientation, scientific nature, the principle of objectivity, comprehensiveness and (2), on the basis of reference and use the Beijing sports university professor Xing Wenhua about effective screening index method and the step (3) :First, the establishment of index system of primary must have theoretical support; Second, to the expert questionnaire, the primary index system selection and dimension reduction of expert experience; Finally, using the factor analysis method for processing through expert experience and screening of the index system of statistical analysis, to ensure that the final selection of the index system for statistical logic support.

Due to the data obtained through literature theory index number still is more, in order to achieve the purpose of dimension reduction, in reference to the professor XingWenHua index screening methods and steps of the proposed on the basis of a questionnaire to 20 experts, and USES the frequency analysis of the questionnaire survey results of recycling the corresponding statistical analysis: Expert scoring for 4 or 5 points and reached more than 80% of the total number of indicators as a preliminary to be included in the system of college PE teachers' innovation quality indicators (4), by the way of the initially identified 21 can effectively reflect our college physical education teachers' creative quality index system (see Table 3) .However, after the previous two steps to get still more, the number of indicators that may lead to build the index system is complicated, in order to use less index to reflect the innovation of college PE teachers most of the information literacy system, more representative, the index of screening out on by experts and frequency of screening index on the basis of the assignment, USES factor analysis to analyze it, to achieve the purpose of dimension reduction again. First of all, according to the principle of factor analysis in SPSS application and conclusion statistician Kaiser's point of view: When KMO test statistics is greater than 0.7, is more suitable for factor analysis, factor analysis is effective, on the other hand, represents the main component is a common and unacceptable, is not suitable for factor analysis (5)(10). From Table 2 to table 4 is to use statistical analysis of principal component analysis (pca) to obtain the result, can be seen from table 1, KMO 0.785 > 0.7, and Bartlett's (battery) sphericity test phase mixing probability is 0.012, less than 0.05, the show is very suitable for factor analysis.

Tab.1: KMO and bartlett spherical concomitant probability statistics

KMO test value	0.785
Bartlett spherical concomitant probability (Bartlett 's)	0.012

Secondly, table 2 for the characteristics of the principal component values and its contribution rate, according to the principles of characteristic value > 1 and the number of sample survey experts and research needs, select the 6 principal components (factors), can be seen from table 2, the six main component of the cumulative contribution rate was 67.5%, indicates that most of the information it reflects the entire system.

Tab.2: Characteristics of each principal component value and contribution of statistical results

factor	The eigenvalue	rate of contribution	The cumulative contribution rate
1	2.87	13.453	13.453
2	2.21	12.321	25.774
3	2.134	11.231	37.005
4	1.972	10.762	47.767
5	1.745	10.342	58.109
6	1.653	9.432	67.541

Again, table 3 orthogonal varimax rotation factor loading matrix table is constructed, you can see from the table, the

rotation was six factors of load is very clear, and within each factor has the load value larger representative indicators, such as the first factor in the typical indicators for sports theoretical knowledge; Basic theoretical knowledge; On this basis, according to the purpose of the study and combining the expert advice chose 11 will reflect college PE teachers' innovation quality system effective sensitive indicators (see chart 4); Finally, according to the features of each index and its embodiment of information to the corresponding named of each factor, followed by subject knowledge factor, factor of information literacy, psychological quality factor, innovation safeguard factor, social factor and experience factor.

Tab.3: Factor was rotated load matrix

indicators	The principal components					
	1	2	3	4	5	6
Sports theoretical knowledge	-0.887	-0.011	0.121	-0.032	-0.112	-0.132
Sports skills reserves	0.043	-0.154	-0.212	-0.318	0.134	0.852
Basic theoretical knowledge	0.899	0.054	0.156	-0.154	-0.026	-0.016
Experience in teaching and training	-0.515	0.129	-0.216	-0.221	0.135	0.814
Observation ability to think independently	0.011	0.052	-0.819	0.014	0.026	0.028
Knowledge acquisition ability	0.065	0.184	0.132	0.832	0.117	0.114
Creative thinking ability	-0.432	0.037	0.852	-0.213	-0.018	-0.013
Information capture ability	0.012	0.879	0.183	0.082	0.043	0.042
Critical reflection on their ability to summarize	0.432	0.143	0.062	0.814	-0.232	-0.232
Strategic knowledge	-0.732	0.192	0.132	-0.249	-0.354	-0.311
Self-innovation consciousness	-0.123	0.218	-0.745	-0.044	-0.062	-0.065
To accept and absorb new knowledge ability	-0.176	-0.129	0.113	0.147	-0.152	-0.012
The team cooperation consciousness	0.211	-0.060	0.213	-0.093	-0.833	-0.133
Professional theoretical level	0.710	-0.175	-0.014	0.332	-0.131	-0.134
Innovative thinking ability to execute	-0.083	-0.011	0.054	-0.875	-0.171	-0.071
Information literacy	0.321	0.787	-0.133	0.393	0.129	0.121
Information processing ability	-0.166	-0.787	0.126	0.123	0.036	0.033
Identifying information needs	0.174	0.861	-0.253	-0.322	-0.121	-0.141
Information consciousness	0.218	0.823	0.432	-0.318	-0.147	-0.148
Interpersonal knowledge level and ability	0.091	0.311	-0.032	0.371	-0.821	-0.121
Ability to continue to education	-0.043	0.132	0.274	0.871	-0.187	-0.765

COLLEGE P.E. TEACHERS' INNOVATION QUALITY SCREENING OF THE ESTABLISHMENT OF THE INDEX WEIGHT AND THE ANALYSIS

In order to further understand the selected indicators in the position and value of innovation quality structure model, first of all, in the sports education and pedagogy experts support under the premise of each teacher overall quality score and scored on each index of concrete, and the comprehensive quality score as the dependent variable, selected indicators score as the independent variable; Secondly, through the grey correlation analysis method and the selected indicators and the comprehensive quality and contribution rate of grey correlation degree score; Finally, by grey correlation size indirectly calculated the selected in the structure of innovative quality target size (see table 4).

Tab.4: College PE teachers' innovation quality screening of the establishment of the index weight

Screening indicators	The index code	The grey correlation degree	weight coefficient	Associated with the serial number
Sports theoretical knowledge	A1	0.5956	0.0966	2
Basic theoretical knowledge	A2	0.5987	0.0971	1
Information capture ability	A3	0.581	0.0943	4
Identifying information needs	A4	0.5612	0.091	5
Independent observation thinking ability	A5	0.5132	0.0833	9
Innovative thinking ability and consciousness	A6	0.5923	0.0961	6
Innovative thinking ability to execute	A7	0.5911	0.0959	7
Ability to continue to education	A8	0.5098	0.0827	10
The team cooperation consciousness	A9	0.5521	0.0896	8
Sports skills reserves	A10	0.4743	0.0769	11
Teaching, training and scientific research experience	A11	0.5945	0.0965	3

First, for the comprehensive understanding of innovation education in common colleges and universities teachers index system, the level and structure of the inner of this study with the help of system theory and the related theory of holistic interpretation on it. Based on system theory and principles of holism, innovation will be the ordinary

university sports teachers as a complete system and overall, which is mainly composed of reflecting the subject knowledge, psychological quality of professional PE teachers, work experience and social communication quality level and the innovation safeguard six aspects, such as information subsystem composition (see table 4, table 5), each subsystem and contains many specific indicators, subsystem and subsystem, between index and index to a certain extent and are independent of each other, relatively stable during a certain period, each play its function and effect of the location, but under certain conditions, they can influence each other, restrict each other; Ordinary university P.E. teachers' innovation quality index system is an open system, it is only in a certain period of time in a relatively stable state, its internal system and specific index is usually affected by external environment and The Times change, and keep the material energy exchange with the external environment. With the change of environment and the era of progress, form the structure of the system and factors will adjust or change, but in any one indicator system, subsystem of adjustments and changes will have on the structure and function of the whole system, the influence of different level in this institute construction of ordinary university sports teachers' innovation quality index system is under the effect of the above factors comprehensive development forward.

Second, you can see from the table 5, the accomplishment of innovation of selected indicators of grey correlation degree and ordinary university sports teachers comprehensive quality sorting of $A2 > A1 > A11 > A6 > A7 >> A3 > A4 > A9 > A5 > A8 > A10 >$, in the top two of the two indicators of basic theoretical knowledge, sports knowledge correlation respectively 0.0966, 0.0971, reflect the innovative physical teacher's discipline knowledge structure. The two innovation quality index rank and the response of the front of the plane information shows that physical education teachers in common colleges and universities in the quality and level of subject knowledge on its innovative literacy structure is most closely. First of all, the subject knowledge innovation is the basis of building today's average college physical education teachers quality structure, the basis of the so-called discipline knowledge, refers to a career in a certain need, the certain choice of human knowledge system, and carries on the dynamic combination, formed the individual specific structure (5), along with the expansion and deepening the degree of quality education, physical education teachers in common colleges and universities are required to system to master the professional knowledge, has the education, psychological quality, statistics, and other multi-disciplinary basic theoretical knowledge, from selected the two indicators of high ranking and fully reflect the information of illustrates this point.

Again, the current information age, "The CPC Central Committee and State Council on deepening education reform and comprehensively promote quality education decision" points out the innovation education as the goal of education reform and development in our country (6), the ordinary university sports teachers' information literacy, puts forward the higher request. In the information society, information literacy, people need practical skills and information processing of information filtering, identification and the ability to use (7). As an important catalyst innovation ability of information literacy, it is important to the innovation education content and innovative talents necessary basic quality, and in the knowledge update, and the velocity of accelerating information era, information is the basis for the smooth implementation of innovation education, today's also closely around information and to carry out the innovation education, is because the information on the position and role of the innovation education is so important, so today's information literacy level of physical education teachers have in common colleges and universities directly affect the innovation education, to achieve the goal of education of information literacy should be brought into the innovation to the ordinary university physical education teachers quality structure model is the basic requirement of the era have entrusted to it, from the strong ability of information capture, the ability to identify information needs of these two indicators, weight coefficient of grey correlation degree (fourth and fifth) and the reaction of information can be proved that prompt the ordinary university sports today teachers to be innovative, must attach great importance to and strengthen the information literacy level of improvement.

Fourth, from the selected indicators A6, the A7, A9 (sixth, seventh and eighth) as well as the weight coefficient of grey correlation degree rank, you can see that today's innovative physical education teachers in common colleges and universities in addition to should have strong professional and other disciplines theory knowledge, experience and good information literacy level, should also have good psychological quality, strong innovation execution support capability (innovation) and strong team cooperation ability and so on. First of all, the current physical education teachers in common colleges and universities must have good psychological quality, innovation as the innovation of the active thinking, strong innovation consciousness, strong ability of independent thinking and observation, make its can capture from the teaching, training and research some information, and combined with the existing theoretical knowledge level, will they be creative transformation, to meet the needs of teaching, training, or scientific research; Secondly, having a strong guarantee of innovation quality level, mainly in terms of innovation ability to execute, because any a kind of creative ideas and thinking must pay a practical action there is a possibility of implementation, to generate the corresponding value, otherwise is the tower of Babel, and in the process of execution, often encounter the existing theory of knowledge level and technology to meet the needs to solve the problem, it's about professional sports teachers continue to teaching and learning ability put forward higher

requirements. Therefore, innovation thinking ability to execute and physical education teachers continuing education learning ability is an important factor that constitute its innovative literacy system and so on. The team cooperation ability is PE teachers' innovation quality model one of the important indexes. (especially in today's sports field sports scientific research), to produce a creative idea and action, sometimes just by a person's wisdom and energy is not enough, must use the power of the team, brainstorm, take hundred, try to make up for the inadequacy of their own to achieve. So, having knowledge of interpersonal communication and team cooperation ability is a professional in colleges and universities physical education teachers innovative literacy system is one of the important factors.

Through the above analysis, we can through a simple equation of relation of each selected indicators and outstanding PE teachers' innovation quality composite scores, the relationship between Y (composite scores)= $0.0966 \times A1 + 0.0971 \times A2 + 0.0943 \times A3 + 0.091 \times A4 + 0.0833 \times A5 + A6 \times 0.0961 + A7 \times 0.0959 + A8 \times 0.0827 + A9 \times 0.0896 + A9 \times 0.0769 + A10 \times 0.0965$.

CONCLUSION

The paper Theoretical analyses and indexes based on the principle of system theory related to innovation of college PE teachers quality structure model. Dynamics, openness are the basic features of the model. Due to this research hasn't yet establish innovative qualities of college PE teachers model according to each single index and integrated scoring criteria, it is a problem urgently to be solved in future study due to its inconvenient.

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