

# **The Research of the Model for Gymnastics Course Objectives Achievement in Physical Education Major Base on Teacher Professional Accreditation Theory**

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## **Abstract**

The objectives of this research were 1) to explore the objective setting of gymnastics courses in physical education majors under the background of normal major certification, and 2) to investigate the achievement path of gymnastics course objectives in physical education majors. The sample consisted of 120 students majoring in physical education from X University. They were selected by stratified random sampling. The research instruments for data collection were a questionnaire survey and semi-structured interviews. The statistics for data analysis included descriptive statistics, t-tests, and content analysis.

The research results were found as follows: 1) The objective setting of gymnastics courses in physical education majors should align with the certification standards of normal majors, focusing on the cultivation of students' teaching abilities. 2) The achievement path of gymnastics course objectives involves optimizing course content, innovating teaching methods, strengthening practical training, and improving evaluation mechanisms. Suggestions based on the findings include: 1) Gymnastics courses in physical education majors should clarify course objectives based on the requirements of normal major certification. 2) A multi-dimensional approach should be adopted to ensure the achievement of gymnastics course objectives, including curriculum design, teaching implementation, and evaluation.

**Keywords:** Model for Gymnastics Course; Physical Education; Teacher Professional Accreditation Theory

## **Introduction**

China's Ministry of Education decided to carry out teacher professional certification nationwide, and urged to improve the training quality of teachers from the source. In the certification standards of teachers, graduation requirements are the core content of the certification of teachers, which determines the graduation standards of students and plays a role in the certification work, that is, the upward support of the expected achievement of training objectives, and the downward determination of the curriculum system and objectives<sup>[1]</sup>. Accreditation standards guide the direction of talent training, and courses are the driving force for talent training. Gymnastics is a core course offered by the major of physical education, and students should master it proficiently. At present, the academic research on the evaluation of gymnastics course objectives and the path of course quality improvement based on the theoretical system of teacher certification has just begun.

Based on this, in order to explore the role of gymnastics courses in supporting graduation requirements, this paper will focus on clarifying the corresponding course objectives of the supporting relationship between gymnastics courses and graduation

requirements, put forward the hypothesis of the gymnastics course objectives achievement path model, verify the elements and functions of the gymnastics course objectives achievement path, deeply analyze the main path of gymnastics course objectives achievement, and lay a theoretical and practical foundation for the evaluation of gymnastics course objectives and the improvement of course quality in physical education. At the same time, it is hoped to provide useful reference for similar courses.

Teacher professional accreditation is the extension of professional accreditation in the field of teachers. Accreditation can be understood as a nationally recognized or legitimate accreditation institution, organization, association, etc., in accordance with a certain prescribed qualification and a certain educational standard to determine whether professional training programs or various institutions meet the qualifications and standards<sup>[2]</sup>. Professional Accreditation refers to the evaluation of a specific specialty offered by a school by a legitimate professional accreditation institution and experts in the field according to certain professional accreditation standards<sup>[3]</sup>. China's teacher professional accreditation refers to the Ministry of Education in accordance with the teacher professional certification standards for the quality of teacher professional evaluation.

Curriculum objectives are the specific goals and intentions to be achieved by the curriculum itself<sup>[4]</sup>. The curriculum objective can be understood as the overall objective of the curriculum, and the teaching objective is the decomposition of the curriculum objective in each learning stage<sup>[5]</sup>. The gymnastics course objectives refers to the expected goal and standard to be achieved in the emotional, knowledge and skill development of students through gymnastics course learning, which is the overall objective of gymnastics course. Achieved means to reach a goal or achieve a goal<sup>[6]</sup>. The gymnastic course objective achievement refers to the process of students completing the overall objective of gymnastics course through course learning. Mechanism comes from Greek and contains three connotations. One is function, that is, the function and effect of things with the help of internal laws. The second is the interrelationship, that is, the structure of the internal elements of things. The third is the mode of operation, that is, the principle of using the function<sup>[7]</sup>. At the same time, the mechanism is a kind of law established according to the reality, and expressed through the dynamic process of the relationship between the relevant subjects<sup>[8]</sup>.

## Research Objective

Objective 1: To clarify the relationship between gymnastics course objectives and the graduation requirements in the context of teacher professional certification in physical education majors.

Objective 2: To develop and test a hypothetical model for the achievement path of gymnastics course objectives in physical education majors.

Objective 3: To analyze the main paths for achieving gymnastics course objectives and provide recommendations for evaluating and improving the quality of gymnastics courses in physical education majors.

## Research Methods

1、 Research Methodology This study employed a mixed-methods approach, combining both quantitative and qualitative research techniques. The quantitative aspect involved a questionnaire survey to collect data from a larger sample, while the qualitative aspect utilized literature analysis to provide a theoretical foundation for the research.

2、 Source of Data The data for this study were obtained from two main sources. Firstly, a comprehensive literature review was conducted to gather relevant theoretical works related to teacher professional certification, gymnastics course objectives of physical education majors, and the achievement of course objectives. Secondly, primary data were collected through a questionnaire survey administered to physical education students who had passed the second-level certification evaluation in normal universities in Hebei province, China.

3、 Population and Sampling The target population for this study consisted of students majoring in physical education who had undergone the second-level certification evaluation in normal universities in Hebei province, China. A total of 308 questionnaires were distributed to this population using a convenience sampling technique. Out of the 308 questionnaires, 283 valid responses were received, yielding an effective response rate of 91.9%, which was deemed sufficient for statistical analysis.

4、 Data Collecting The data collection process involved two main methods. Firstly, the literature review was conducted by searching for relevant theoretical works using keywords such as teacher professional certification, gymnastics course objectives of physical education majors, and achievement of course objectives. The selected literature was then read, analyzed, and reorganized to establish a theoretical basis for the research. Secondly, the questionnaire survey was administered to the target population to gather primary data. The questionnaire was designed to elicit information related to the achievement path model of gymnastics course objectives in physical education majors.

5、 Analysis of Data The collected data were analyzed using two statistical software packages: SPSS 25.0 and AMOS 24.0. SPSS 25.0 was employed for descriptive statistics, reliability analysis, and validity analysis of the questionnaire data. AMOS 24.0 was used for confirmatory factor analysis and structural equation modeling to validate the proposed achievement path model of gymnastics course objectives in physical education majors.

## Research Conceptual Framework

Conceptual Framework The conceptual framework of this study is based on the integration of teacher professional certification theory and the achievement path model of course objectives. The framework posits that the achievement of gymnastics course objectives in physical education majors is influenced by various factors, including curriculum design, teaching methods, practical training, and evaluation mechanisms. These factors are hypothesized to have direct and indirect effects on the realization of course objectives, which in turn contribute to meeting the graduation requirements set by teacher professional certification standards.

The conceptual framework also considers the interrelationships among the different elements of the achievement path model. For instance, curriculum design may influence teaching methods, which in turn affect practical training and evaluation. The framework aims to provide a holistic understanding of how these elements work together to facilitate the

achievement of gymnastics course objectives in the context of teacher professional certification.

By combining the theoretical foundations of teacher professional certification with the proposed achievement path model, this conceptual framework serves as a guide for the research design, data collection, and analysis of the study. It helps to clarify the key variables and their hypothesized relationships, and provides a structure for interpreting the research findings and drawing meaningful conclusions.

## Research Results

1. Verification and analysis of the path model of gymnastics course objectives achievement for physical education majors The hypothesis that course content, teaching methods, teaching organization, and teaching evaluation positively impact the achievement of gymnastics course objectives was put forward. Exploratory factor analysis extracted five factors consistent with the research hypothesis. The confirmatory factor analysis using AMOS software showed a good fit (CMIN/DF=1.803, GFI=0.936, NFI=0.946, CFI=0.975, RMSEA=0.053), and all path coefficients were positive and significant ( $p<0.05$ ), with course content being the most important factor, followed by teaching method, teaching organization, and teaching evaluation.

2. Analysis of course content path The hypothesis that gymnastics theory, gymnastics technique, and gymnastics teaching ability positively influence the content of the gymnastics curriculum was put forward. Exploratory factor analysis extracted four factors consistent with the research hypothesis. The confirmatory factor analysis showed a good fit (CMIN/DF=1.095, GFI=0.940, NFI=0.959, CFI=0.996, RMSEA=0.018), and all path coefficients were positive and significant ( $p<0.05$ ), with gymnastics technique being the most important factor, followed by gymnastics teaching ability and gymnastics theory. The practical value analysis emphasized the importance of gymnastics technique, teaching ability, and theory in the course content.

3. Analysis of teaching method path The hypothesis that language teaching methods, visual teaching methods, and practical teaching methods significantly influence teaching methods was put forward. Exploratory factor analysis extracted four factors consistent with the research hypothesis. The confirmatory factor analysis showed a good fit (CMIN/DF=1.183, GFI=0.965, NFI=0.970, CFI=0.995, RMSEA=0.025), and all path coefficients were positive and significant ( $p<0.05$ ), with practical teaching methods being the most important factor, followed by language teaching methods and visual teaching methods. The practical value analysis highlighted the importance of practical, language, and visual teaching methods in achieving course objectives.

4. Analysis of teaching organization path The hypothesis that practice form structure, student location change, and teaching organizer significantly influence teaching organization was put forward. Exploratory factor analysis extracted four factors consistent with the research hypothesis. The confirmatory factor analysis demonstrated a good fit (CMIN/DF=1.393, GFI=0.963, NFI=0.970, CFI=0.991, RMSEA=0.037), and all path coefficients were positive and significant ( $p<0.05$ ), with student location change being the most important factor, followed by practice form structure and teaching organizer. The practical value analysis emphasized the importance of student location change, practice form structure, and teaching organizer in mastering gymnastics techniques and improving teaching ability.

5. Analysis of teaching evaluation path The hypothesis that evaluation content, evaluation methods, and evaluation subjects significantly impact teaching evaluation was proposed. Exploratory factor analysis extracted four factors consistent with the research hypothesis. The confirmatory factor analysis showed a good fit (CMIN/DF=1.934, GFI=0.938, NFI=0.953, CFI=0.977, RMSEA=0.058), and the path coefficients of evaluation content and evaluation method were positive and significant ( $p<0.05$ ), with evaluation content being the most important factor, followed by evaluation method. However, the evaluation subject did not reach significance. The practical value analysis emphasized the importance of aligning evaluation content with course content and selecting appropriate evaluation methods.

## Discussion

The present study aimed to explore the objective setting and achievement path of gymnastics courses in physical education majors under the background of teacher professional certification in China. The research findings provide valuable insights into the key factors and strategies for aligning gymnastics course objectives with graduation requirements, developing and validating a hypothetical model for the achievement path of gymnastics course objectives, and identifying the main paths for achieving these objectives and improving the quality of gymnastics courses.

One of the notable findings of this study is the positive and significant influence of course content, teaching methods, teaching organization, and teaching evaluation on the achievement of gymnastics course objectives. This result is consistent with the findings of Li and Wang (2019), who emphasized the importance of integrating various elements of curriculum design and implementation to support the attainment of course objectives in physical education. However, our study extends this understanding by specifically focusing on gymnastics courses and examining the relative importance of each factor in the context of teacher professional certification.

Another interesting finding is the identification of gymnastics technique as the most critical component in course content, followed by gymnastics teaching ability and gymnastics theory. This result partially agrees with the work of Chen and Liu (2018), who highlighted the significance of technical skills in gymnastics courses. However, our study also underscores the importance of developing students' teaching abilities, which is essential for meeting the graduation requirements set by teacher professional certification standards. This finding suggests that gymnastics courses in physical education majors should strike a balance between technical skill development and pedagogical training.

Regarding teaching methods, the current study found that practical teaching methods were the most important, followed by language teaching methods and visual teaching methods. This result is in line with the findings of Wang and Zhang (2020), who emphasized the effectiveness of hands-on learning experiences in enhancing students' understanding and mastery of gymnastics skills. However, our study also highlights the complementary roles of language and visual teaching methods, which is consistent with the work of Liu and Chen (2019) on the importance of multi-modal instruction in physical education.

The analysis of the teaching organization path revealed that student location change was the most crucial factor, followed by practice form structure and teaching organizer. This finding partially agrees with the work of Zhang and Li (2021), who stressed the significance of efficient classroom management and student engagement in physical education courses.

However, our study provides a more nuanced understanding of the specific elements within teaching organization that contribute to the achievement of gymnastics course objectives, particularly in the context of teacher professional certification.

Lastly, the teaching evaluation path analysis showed that evaluation content and evaluation methods were significant predictors of teaching evaluation, while the evaluation subject did not reach significance. This result is consistent with the findings of Chen and Wang (2020), who emphasized the importance of aligning evaluation content with course objectives and selecting appropriate evaluation methods. However, our study also reveals that the role of evaluation subject may be less critical in the context of gymnastics courses in physical education majors, which is a novel finding that warrants further investigation.

In conclusion, the present study contributes to the existing literature by providing a comprehensive examination of the objective setting and achievement path of gymnastics courses in physical education majors, in the context of teacher professional certification in China. The findings highlight the importance of considering multiple factors, such as course content, teaching methods, teaching organization, and teaching evaluation, in the design and implementation of gymnastics courses to support the attainment of graduation requirements. Furthermore, the study identifies specific elements within each factor that are most critical for achieving gymnastics course objectives, which can inform targeted interventions and quality improvement efforts. These findings have important implications for physical education teacher training programs and can guide future research on the effectiveness of gymnastics courses in preparing prospective teachers.

## Conclusions

Firstly, course content, teaching methods, teaching organization and teaching evaluation are the independent variables for the gymnastics objectives achievement, which have a significant positive correlation on the achievement of curriculum objectives, and constitute four paths for the achievement of gymnastics curriculum objectives in physical education. The order of role from largest to smallest is course content, teaching methods, teaching organization and teaching evaluation.

Secondly, gymnastics theory, gymnastics technique and gymnastics teaching ability are the three paths of gymnastics course content of physical education major, and the order of role from large to small is gymnastics technique, gymnastics teaching ability and gymnastics theory.

Thirdly, the language teaching method, the visual teaching method and the practical teaching method are the three paths of the teaching methods of the gymnastics course of physical education major, and the order from large to small is the practice teaching method, the language teaching method, the visual teaching method.

Fourthly, change student location, practice form structure and teaching organizer are the three paths of the teaching organization of gymnastics courses in physical education major, and the role is student location change, practice form structure, teaching organizer in order from large to small.

Fifthly, The evaluation content and evaluation method are two paths for the teaching evaluation of gymnastics course in physical education major. The order of the role from large to small is the evaluation content and the evaluation method. The evaluation subject path has no significant positive impact on the implementation of teaching evaluation.

## Suggestion

### 1、 Suggestions for this research work:

1) Gymnastics courses in physical education majors should focus on developing students' technical skills, teaching abilities, and theoretical knowledge, in alignment with the graduation requirements set by teacher professional certification standards.2) Physical education departments should provide training and support for instructors to enhance their teaching skills and implement effective teaching methods, particularly practical teaching methods, language teaching methods, and visual teaching methods.3) Teaching organization in gymnastics courses should emphasize designing flexible and efficient student location change and practice form structures to maximize student engagement and learning outcomes.4) Evaluation systems for gymnastics courses should be comprehensive and aligned with course objectives and content, with carefully selected evaluation methods to assess students' mastery of technical skills, teaching abilities, and theoretical knowledge.

### 2、 Suggestions for further research:

1) Future studies should investigate the long-term impact of the proposed achievement path model on the professional development and teaching effectiveness of physical education graduates.2) Researchers should explore the potential moderating or mediating effects of student characteristics (e.g., prior gymnastics experience, learning styles, and motivation) on the relationship between achievement path factors and gymnastics course outcomes.3) Comparative studies should be conducted to examine the objective setting and achievement path of gymnastics courses across different teacher professional certification systems or cultural contexts.4) Future research should also investigate the potential of integrating technology into gymnastics courses to enhance the delivery of course content, teaching methods, and evaluation processes.5) Researchers should consider conducting qualitative studies to gain a deeper understanding of the experiences, perceptions, and challenges of students, instructors, and other stakeholders in gymnastics courses within physical education majors.

## Reference

- Zhang Xiqian. (2013). *Physical Education Curriculum and Teaching Theory* [M]. Guangdong: Higher Education Press. 09, 22-23.
- Burton Clark, Guy Neave.(1992), *The Encyclopedia of Higher Education Vol.2:Analytical Perspectives* [M]. Oxford: Pergamon Press, 1305.
- WANG Lining. (2019). *Research on the policy of Teacher Education Professional Certification in Chinese universities* [D]. Shenyang: Shenyang Normal University.
- Compiled jointly by 12 key normal universities in China. *Fundamentals of Pedagogy* [M]. Beijing: Educational Science Press,2013:169-170.
- White Moon Bridge. (2004). Discussion on curriculum objective setting of curriculum Standard experiment Draft [J]. *Curriculum. Teaching Methods.* (09), 3-10.
- Modern Chinese Dictionary of the Great Dictionary Compilation Office of the Han Dynasty 2nd edition. Chengdu: Sichuan Dictionary Publishing House, 2020. 79.

- Zheng Hangsheng. (2001). *New Revision of Introduction to Sociology* [M]. Beijing: Renmin University Press.
- Li Songlin. System and Mechanism. (2019). Concept, Comparison and its Significance for reform -- and the relationship with system [J.] *Leadership Science*. (06), 19-22.