

The implementation of project-driven teaching model of core competency-based teaching in internal medicine nursing teaching

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Keywords: Project driven teaching mode; Core competencies; Internal Medicine Nursing; Educational effectiveness

Abstract: With the increasing demands of the modern medical system on the abilities of nursing staff, how to cultivate students' core competencies has become a key issue in nursing education. The project-driven teaching model, as a student-centered and practical teaching method, has received increasing attention in recent years. This study aims to explore the implementation effect of project-driven teaching mode in the teaching of internal medicine nursing, and analyze its impact on the cultivation of students' core competencies. Research has found that the project-driven teaching model can effectively improve students' critical thinking, teamwork, and practical operation abilities. Students can better integrate theoretical knowledge with practice in real project practice, and cultivate their core competencies. However, there were also some challenges encountered during the implementation process, such as a shortage of teaching resources and insufficient time. The project-driven teaching model provides an effective tool for internal medicine nursing education, which helps to cultivate students' core competencies. However, during the implementation process, it is necessary to consider potential challenges and adopt appropriate strategies to address them.

1. Introduction

With the rapid reform of the medical system in the 21st century, the education model of nursing is undergoing a profound transformation. Among them, the teaching mode based on core competence, especially the project-driven teaching mode, has attracted more and more attention from educators and researchers. This teaching mode aims to cultivate students' critical thinking, teamwork and practical operation ability through real project practice, so as to meet the needs of modern medical system[1]. In the traditional nursing education model, the emphasis is usually placed on the teaching of theoretical knowledge, while the cultivation of students' practical operation skills and core competence is neglected. However, with the complexity of the medical system increasing, modern nursing staff not only need to have solid theoretical knowledge, but also need to have a high degree of critical thinking and teamwork ability[2]. Therefore, how to combine theory and practice in teaching and cultivate students' core competence has become an important topic in nursing education. Core competence refers to the basic ability that an individual needs to complete a specific job or task. In the field of nursing, core competencies usually include: critical thinking, teamwork, communication skills, practical operation ability, etc. These abilities are not only the basis for students to study at school, but also the key for them to provide high-quality nursing in clinical practice in the future[3-4]. Therefore, cultivating students' core competence is of great significance for improving nursing quality and meeting the needs of modern medical system. Project-driven teaching mode is a student-centered teaching method, which emphasizes the cultivation of students' core competence through practical project practice. The theoretical basis of this teaching mode comes from constructivism and social and cultural theory[5]. Constructivism holds that knowledge is not passively accepted, but is constructed through interaction and practice with the environment. Socio-cultural theory emphasizes the importance of social interaction in knowledge construction. Although the project-driven teaching model has been applied in many disciplines, there is relatively little research in the field of internal medicine nursing[6]. The existing

research mainly focuses on the design and implementation strategy of project-driven teaching mode, but there is still a lack of in-depth discussion on its actual effect and challenges in the teaching of internal medicine nursing. Therefore, this study aims to fill this gap and deeply study the implementation effect and existing problems of project-driven teaching mode in medical nursing teaching[7-8]. This paper discusses the implementation effect of project-driven teaching mode in medical nursing teaching, especially its influence on students' core competence. At the same time, it will also analyze the main challenges encountered in the implementation process and their solutions, which will provide valuable reference for future teaching practice[9-10].

2. Method

2.1. Research design

This study adopts a mixed method research design that combines qualitative and quantitative data collection and analysis. Through a hybrid approach, we can gain a more comprehensive understanding of the application and effectiveness of project-driven teaching mode in the teaching of internal medicine nursing, as well as the improvement of students' core competencies.

2.2. Research subjects and samples

This study selected three representative medical colleges as the research subjects. Randomly divide these 120 students into an observation group and a control group, with 60 students in each group. In addition, we randomly selected 10 internal medicine nursing teachers for in-depth interviews to collect their views and feedback on the project-driven teaching model.

2.3. Data collection and processing methods

The collection of quantitative data is mainly through questionnaire surveys. The questionnaire design revolves around students' learning motivation, self-assessment of core competencies, and satisfaction with project-driven teaching models. The questionnaire was designed using the Likert scale to ensure the reliability and effectiveness of the data. For qualitative data, we use a semi-structured interview method to collect it. The interview guidelines include an understanding of the project-driven teaching model, difficulties and challenges encountered in teaching, and opinions on improving students' core competencies. In terms of data processing, quantitative data is analyzed using SPSS software, including descriptive statistics, T-tests, analysis of variance, etc. Qualitative data is encoded and analyzed through Nvivo software to ensure objectivity and depth of the data.

2.4. Analysis Tools and Techniques

This study mainly used several analytical tools and techniques as shown in Figure 1.

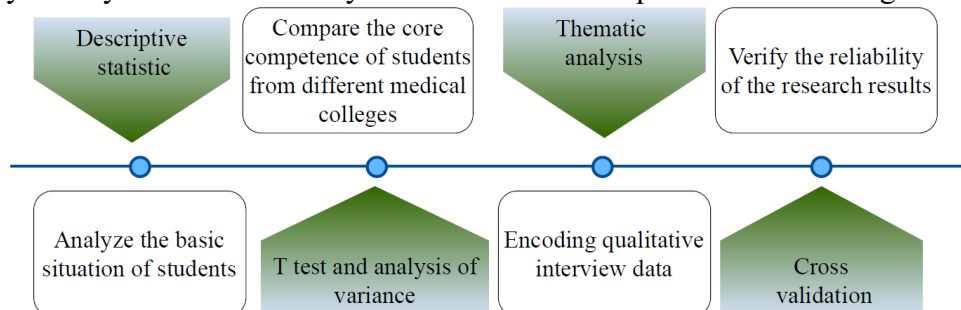


Figure 1 Analysis Tools

Through the analysis of the above figure, it can be found that descriptive statistics are used to analyze students' basic information, such as age, gender, and years of study. T-test and analysis of variance are used to compare the differences in core competencies and satisfaction with project-driven teaching models among students from different medical colleges. Theme analysis encodes qualitative interview data to extract core themes related to project-driven teaching mode and core competency development. Cross validation is to verify the reliability of our research results, and we

conducted cross validation on some data. For example, by comparing students' self-evaluation with teachers' evaluation, we can verify the improvement of students' core competencies.

3. Result

3.1. Improvement of students' core competencies

The traditional teaching methods are boring, and the operability is poor. It is difficult for students to integrate basic knowledge and basic skills, which leads to their lack of interest in learning and limits their initiative in learning. Therefore, this paper will expand the project-driven teaching mode to improve. In the three medical colleges, students' core competence under the project-driven teaching mode has improved significantly. Compared with the students in the control group, the average scores of the students in the observation group in theoretical examination and practical examination are higher ($P > 0.05$). See Table 1 for details.

Table 1 Comparison of theoretical and practical achievements between two groups of students

Group	Number of people	Average score of theoretical examination	Average score of training assessment
Observation group	60	88.5±5.8	88.1±4.7
Control group	60	66.8±2.7	62.5±3.3
T value		23.54	26.13
P value		<0.05	<0.05

Compared with the students in the control group, the proportion of students in the observation group who have significantly improved their learning interest, self-study ability, learning efficiency, coordination ability, knowledge internalization ability, problem analysis ability, communication ability, thinking ability and teamwork ability is higher, while the proportion of students who have improved somewhat and those who have not improved is lower ($P < 0.05$). See Table 2 for details.

Table 2 Comparison of learning effects between two groups of students

Project	Observation group		Control group		P value
	Improve markedly	No improvement	Improve markedly	No improvement	
Self-study ability	51	3	30	11	<0.05
Coordinate ability	45	9	27	18	<0.05
Thinking powers	49	3	26	15	<0.05

3.2. Acceptance and implementation effect of teaching mode

Through frequency distribution and percentage description, more than 80% of the students indicated that they had a higher acceptance of the project-driven teaching mode, and thought that this mode was more helpful to their learning. The results of thematic analysis of teachers' interviews show that most teachers think that project-driven teaching mode can better stimulate students' interest and initiative in learning, but at the same time, they also point out some difficulties in the implementation process, such as resource allocation and time management. Applying this teaching method to the teaching of case analysis of internal medicine nursing can bring practical problems that students may encounter in their future work into the classroom, and find solutions to the problems through scenario simulation, thus broadening students' thinking of solving problems and cultivating their creative thinking.

3.3. The main challenges and solutions

The main challenges encountered in the implementation of project-driven teaching mode include: 1) students' adaptation issues when first exposed to project-driven teaching; 2) The shortage of some teaching resources; 3) Insufficient project implementation time, etc. In order to address these challenges, the school has adopted a series of strategies, such as strengthening early student training, seeking external partners to provide teaching resources, optimizing course structure to ensure

sufficient project implementation time, etc. The implementation effect of these strategies is shown to be positive through descriptive statistics.

4. Discuss

4.1. Result analysis

In the teaching process of internal medicine nursing projects, teachers are the organizers and guides of learning, consultants and helpers, project and scenario designers, teaching resource preparation and developers. Nursing students are no longer passive recipients or indoctrinators, but active learners, active explorers, and constructors of knowledge and skills, with equal teacher-student relationships. Teachers need to constantly delve into their business, consciously improve their professional knowledge structure, strengthen their professional skills, enhance their teaching abilities, innovate teaching methods, and thereby improve teaching effectiveness and achieve mutual learning between teaching and learning. The implementation of project-driven teaching mode significantly improves students' core competencies, which is consistent with existing educational psychology theories. According to Vygotsky's socio-cultural theory, students are more likely to reach their "potential areas of development" through "real activities" in the context of collaboration with others. This explains why students can make progress in teamwork and critical thinking. The results of this study indicate that compared with the control group, the observation group students have higher scores in theoretical exams and practical training assessments. Among them, the proportion of students who have significantly improved in learning interest, self-learning ability, learning efficiency, coordination ability, knowledge internalization ability, problem-solving ability, communication ability, thinking ability, and team cooperation ability is higher. The proportion of individuals with certain improvement and those without improvement is relatively low.

4.2. Comparison and Reflection on Existing Literature

Through the analysis of the above content, we can find that the project-driven teaching model can improve students' learning interest and initiative. However, we have encountered more challenges in terms of teaching resource allocation and project implementation time. This may be due to cultural and institutional differences, and further exploration is needed in future research.

4.3. The practical significance and value of project-driven teaching mode in the teaching of internal medicine nursing

In the process of applying task-driven project teaching method to students' case analysis teaching of internal medicine nursing, teachers should play a guiding role and correctly guide students to learn relevant knowledge. Medical nursing emphasizes the combination of practical skills and theoretical knowledge. Task-driven project teaching method can help students deepen their understanding of learning content, improve their interest in learning, and combine theoretical knowledge with practical operation by arranging tasks for students before class, guiding them to discuss in class and conducting scenario simulation. Project-driven teaching mode just meets this demand, which enables students to apply what they have learned in practical projects and cultivate their problem-solving ability. In addition, through the project, students can also cultivate communication skills with patients and medical teams, which is very important in actual clinical practice.

4.4. Research limitations and future research direction

This study is mainly limited to three medical colleges, and there may be selection bias. Future research can increase the sample size and the number of participating schools to improve the external effectiveness of the research. In addition, this study mainly focuses on short-term effects, and follow-up research can be considered in the future to explore the influence of project-driven teaching mode on students' long-term development. Project-driven teaching mode provides a new idea for medical nursing education. Educators should consider how to combine local culture and

resources to design and implement projects that meet students' needs, so as to cultivate their core competence. This study provides evidence for the effectiveness of the project-driven teaching model for the teaching of internal medicine nursing, but it also points out the problems that need attention in the implementation process. It is hoped that future research and practice can further improve this teaching mode and provide students with better educational experience.

5. Conclusions

This study explores the implementation effect of project-driven teaching mode in the teaching of internal medicine nursing, especially its impact on students' core competencies. Firstly, the research results indicate that the project-driven teaching model has significant effects on improving students' core competencies, especially in areas such as teamwork, critical thinking, and practical operation abilities. This is consistent with Vygotsky's socio-cultural theory, emphasizing the value of students learning in collaborative situations with others. This teaching model encourages students to apply theoretical knowledge to practical situations, thereby better cultivating their practical skills and problem-solving abilities. Secondly, although the project-driven teaching model has been widely welcomed by students and teachers, it has also encountered some challenges in the implementation process, such as a shortage of teaching resources and insufficient project implementation time. This requires educators to develop appropriate strategies tailored to the local situation, such as collaborating with external partners to provide the necessary teaching resources. Overall, the project-driven teaching model provides a powerful tool for internal medicine nursing education, which helps to improve students' core competencies. But in order to achieve its maximum educational value, it is necessary to consider the challenges that may be encountered during the implementation process and adopt corresponding strategies to respond. I hope this study provides valuable reference for future research and practice.

Acknowledgements

The authors acknowledge the 2021 Shandong Xiehe University teaching reform project: the implementation of project-driven teaching model of core competency-based teaching in internal medicine nursing teaching (Project Number: 2021XJ30).

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