Innovation and Practice of Learning Centered Talent Training Model: Taking the Course of Sports Medicine as an Example

Junna Zhai

Xi'an Physical Education University, Xi'an, Shaanxi, 710000, China

Abstract: The key to talent cultivation in medicine is to transform traditional experimental teaching models, promote innovation in experimental teaching methods and approaches, and enable students to transition from passive acceptance to active learning, cultivating innovative and diverse talents. In traditional experimental teaching, teachers speak, students listen, and teachers teach. Students simply mechanically and systematically conduct experiments, writing their own experimental content and reports. The "student-centered" teaching method includes two main aspects: students and learning. It emphasizes the gains of students in knowledge, abilities, and qualities, and uses their academic achievements as the basis for evaluation, covering the knowledge learned, abilities learned, and comprehensive qualities cultivated by students. To achieve this goal, it is necessary to follow the principle of "student-centered, less is more, and learning determines teaching". Changing the student-centered teaching approach can improve the quality of teaching, allowing students to experience meaningful learning and develop their creativity and hands-on abilities, thereby further enhancing their overall quality. The experimental results show that for the total score, the average score for the 2023 level (before the reform) is 81.949, while the average score for the 2024 level (after the reform) is 87.03. The T-value between the two is -2.428, and the P-value is 0.001, indicating a significant difference between the two.

1. Introduction

The course of Sports Medicine is an important course for sports medicine and rehabilitation majors. This course focuses on helping students understand and master the overall and strategic skills of sports medicine, as well as the relevant professional skills and practical environment. This article is guided by the principles of strong theory, strong application, and strong ability, and comprehensively designs the teaching content and methods of Sports Medicine. It also summarizes some problems encountered in the implementation process and the results achieved.

This article mainly explores the application of student-centered teaching mode in sports medicine courses, and analyzes and discusses the implementation effect of teaching reform. Firstly, the article introduces the shortcomings of current teaching materials and the importance of the

"student-centered" teaching philosophy in the field of sports medicine. Subsequently, discussions were conducted on optimizing teaching content, solving the bottleneck problem of "student-centered" learning, and practical operations. In the experimental preparation section, the background and implementation plan of the teaching mode reform were introduced. Then, the effectiveness of teaching reform was evaluated through aspects such as classroom effectiveness, quality of homework completion, questionnaire survey results, and grade analysis. Finally, the article summarizes the achievements of teaching reform and proposes future development directions.

2. Related Works

Experts from various education industries have conducted specialized research on the student-centered talent cultivation model. Ratnawati N N S explored the application of flipped classroom in Hindu teaching. The results show that through this method, students can better develop creative thinking and integrate moral values into their learning. Flipped classroom can meet the diverse learning methods of students, making learning more meaningful and providing a solution for student-centered teaching [1]. Aslan M explored the relationship between principal centered leadership and teacher professional learning from the perspective of Science and Arts Center (SAC). The results showed that SAC teachers have a higher understanding of learning centered leadership and professional learning. The learning vision and support in leadership can predict professional learning, while management learning plans and models cannot predict it [2]. Wright J G believed that there are significant differences in the views of principals regarding the impact of the learning centered classroom model on student performance. Through his investigation, various principals identified leadership actions related to the key processes and core components of learning centered schools in face-to-face interviews. However, Wright J G's comparative analysis found that there were differences in the responses of primary and secondary school principals to learning centered questions [3].

Qadach M explored the conceptual framework of school principal's self-regulated learning (SPSRL) and proposed a new concept based on student and teacher self-regulated learning models [4]. AKGÜN N revealed a significant relationship between principal centered leadership and teacher organizational identity from a teacher's perspective. The results show that teachers have a higher perception of learning leadership and organizational identity. Gender, working hours, and other variables did not affect this relationship, and there was a reasonable positive correlation between learning centered leadership and organizational identity [5]. Ertürk R explored the relationship between learning centered leadership by school managers and learning oriented schools. The survey results show that managers perform moderately in learning leadership behavior, while teachers have a higher understanding of learning schools. Research has shown that the learning leadership of school administrators is closely related to the school's learning transformation, and it is crucial to provide high-quality educational services [6].

Zandi K's research indicates that teacher agency is crucial for school performance. He explored the mediating role of trust between learning leadership and teacher agency. The results showed that learning leadership significantly predicted teacher trust and agency, and trust is also an important predictor of agency, confirming the mediating role of trust between the two [7]. Kimball S M conducted a longitudinal analysis of teacher evaluation practices in fourteen schools across five school districts in Wisconsin. The results showed how these schools implemented evaluation measures based on the principle of learning as the center, and pointed out the existing shortcomings [8]. Ebrahimi E used the description correlation method to explain the relationship between trust in learning centered leadership and teacher professional learning. 238 Kerman elementary school

teachers participated through structural equation modeling. The results showed a positive and significant correlation between learning leadership and teacher trust, as well as teacher professional learning [9]. Smolina O V used the description correlation method to explain the relationship between trust in learning centered leadership and teacher professional learning. 238 Kerman Elementary School teachers participated. The results showed a positive and significant correlation between learning leadership and teacher trust and professional learning. Relationship trust plays a mediating role between the two [10]. Masitoh D described a review of online learning centered on college students in response to the COVID-19 emergency situation. Data collection is carried out through observation and data restoration techniques. In the curriculum of the Teacher Training Institute, learning modes such as discovery learning, collaborative learning, collaborative learning, and group discussion are adopted, effectively supporting students' online learning process [11].

An J S explored the impact of learning centered DIY (Do It Yourself) mathematics teaching on students. The results showed that compared to traditional explanation-based teaching, DIY teaching significantly improved mathematics learning performance and brought significant improvements in the emotional field. Students have positive and some negative reactions to this teaching method [12]. Kilinc A C conducted a cross-sectional survey to explore the impact of principal centered leadership on changes in teacher teaching practices, as well as the mediating role of teacher collaboration. The results show that learning centered leadership directly affects teacher practice and has an indirect impact by promoting teacher collaboration [13]. Ghafar Z N compared teacher centered and student-centered teaching methods. Teacher centered teaching emphasizes teacher authority and imparting knowledge, while student-centered teaching encourages students to actively learn and think independently. Each method has its advantages and disadvantages, but student-centered teaching is more conducive to student participation and self-development [14].

Through reference books such as "Curriculum Syllabus: A Learning Centered Approach", Assia G enabled teachers to learn how to design learner centered teaching syllabi, taking into account students' age, learning style, and needs [15]. Hendawy Al-Mahdy Y F surveyed 887 teachers and found that principal centered leadership has both direct and indirect effects on teacher professional learning. The principal plays a crucial role in creating a trusting atmosphere, inspiring teachers to invest in professional learning [16]. Alazmi A A conducted a survey of 1060 teachers in public schools in Kuwait, and the results showed that learning centered leadership influences teachers' professional learning through teacher trust and agency [17]. One of the bottlenecks faced by student-centered teaching methods in existing research is the lack of personalized consideration for different teaching scenarios and student characteristics. Although many studies emphasize the student-centered concept, there are still challenges in effectively implementing it in practice across different disciplines, grades, and student groups. In addition, teachers may need more support and training on how to implement a student-centered teaching model in the classroom to ensure that they can fully understand and flexibly apply this teaching method.

3. Methods

3.1 Optimizing Teaching Content

Currently, most of the published and distributed textbooks related to sports medicine have comprehensively elaborated on traditional theories of sports medicine, common diseases and rehabilitation, and sports injury management. However, due to the continuous improvement of China's medical management system, new technologies, new equipment, and new technologies continue to emerge. If teaching solely according to textbooks, it can inevitably lead to outdated teaching content. Sports Medicine is a comprehensive and informative course, and in order to achieve teaching objectives within a limited class time, it is necessary to continuously optimize the

course content. Under the guidance of the development policy of sports technology in China, a complete set of teaching content is developed through adding, deleting, replacing, integrating, and restructuring, and specific teaching plans and plans are formulated. The main content of the course is to highlight sports medicine issues and mainstream technologies in the current society, and to maximize their advantages in online teaching and carry out online self-directed learning. In offline classrooms, the construction of key, difficult, and doubtful knowledge is carried out to enhance the effectiveness of classroom teaching.

3.2 Bottleneck Problem of "Student-Centered"

"Student-Centered" is a new educational concept that requires reform in teaching methods. A successful teaching reform should be a process that combines concepts and processes. Any good classroom should combine form and content. The so-called "form over content" refers to teachers paying more attention to teaching methods, means, processes, etc. During execution, only attention was paid to the completeness of each link, while neglecting the actual teaching effect. For teachers, their focus is on designing teaching plans and multimedia production, which creates a similar classroom teaching method, without spending most of their time on learning and researching teaching content. From the perspective of students, "student-centered" emphasizes the full play of their subjectivity, enabling them to actively and proactively engage in learning. At the same time, it also puts higher demands on students, such as having them read books in advance and actively participating in discussions in the classroom. It should be said that its design was originally intended to be good, but due to the excessive emphasis on interaction in the "Sports Medicine" classroom, the teaching time was greatly shortened. Allowing students to participate in discussions without sufficient learning and mastery of the necessary knowledge has resulted in many seminar classes becoming mere formality. The students did not engage in in-depth thinking, but only explored for the sake of exploration [17].

3.3 Practical Operation of Student-Centered Talent Cultivation

The learner centered teaching model highlights the subjectivity of learners. The teaching philosophy of "student-centered" aims to cultivate students' abilities of "autonomy", "independence", "cooperation", and "reflection". It empowers students with more autonomy in learning, encourages them to actively explore learning, independently set learning goals, choose learning content and methods, and self monitor learning progress and evaluate learning outcomes. Under the questions set by the teacher, students provide diverse solutions through grouping, classroom discussions, and other means. Outside of the classroom, independent learning can be conducted based on specific teaching plans and tasks.

Learning oriented teaching advocates that teachers play a leading role in the learning process. In classroom teaching, teachers play a role in organizing and guiding. Compared to traditional teaching methods, teachers can no longer play the role of "knowledge imparters". Teaching activities are based on organizational participation and inquiry, using project-based teaching methods, task driven methods, etc., to guide students to actively learn and explore problems, and achieve learning goals in the process of thinking and problem-solving. Communication inside and outside the classroom can create a good educational atmosphere of "learning and teaching happily".

Sports medicine is an interdisciplinary field that combines sports science and medicine, aiming to study how to promote health, prevent and treat sports injuries through exercise. In order to enable students to systematically master the theory and application of sports medicine, this course integrates existing experimental teaching platform resources and uses multimedia, simulation software, and practical case analysis methods to visualize abstract physiological and medical

concepts, helping students understand complex theories. The course encourages students to participate in experimental design, data analysis, and result discussion. Through homework, subject competitions, and graduation projects, students can enhance their practical skills and problem-solving abilities. The student-centered teaching philosophy provides abundant self-learning resources and regular feedback, promoting students' profound understanding and recognition of sports medicine related theories and methods. Through this curriculum reform, students can not only master the basic theories of sports medicine, but also apply these knowledge in practice, improve professional abilities and comprehensive qualities, and lay a solid foundation for future development.

4. Results and Discussion

4.1 Experimental Preparation

The teaching of the "Pharmaceutical Factory Design" course for students majoring in biopharmaceuticals in 2023 is currently in the midst of the epidemic, and a combination of online and offline teaching modes is adopted. Based on the teaching situation of the 2023 level, after the end of the epidemic, a scenario case-based "student-centered" teaching reform can be carried out for the 2024 level students. The classroom effects before and after the reform can be compared and analyzed in order of homework completion, student feedback questionnaire survey results, and course grades.

4.2 Survey Results

Compared with the traditional teaching mode of the 2023 level, after the reform of the 2024 level teaching mode, students have shown more active classroom performance, more frequent teacher-student interaction and communication, and significantly improved the quality of homework completion.

SPSS 23.0 was used for statistical analysis of the data, with "mean ± standard deviation" representing the measurement data. Independent sample t-test was used to compare the two groups of data, and $P<0.05$ was considered statistically significant; The questionnaire content is considered reliable with a reliability coefficient of a>0.7 and a validity value of KMO>0.6.

Table 1: Analysis of the results of the implementation of teaching reform in the course of sports medicine

Indicators	Grades	Mean 95% confidence interval					t	p
		Average value	Lower limit	Upper limit	Minimum value	Maximum value		
Final exam results	2023	78.509	71.168	85.424	63	95	-0.3696	0.5395
	2024	78.503	71.43	86.712	51	95		
	Average	78.506	71.299	86.068	57	95		
Overall grade	2023	81.949	77.312	86.938	71	95	-2.428	0.001
	2024	87.03	81.503	91.726	65	95		
	Average	84.49	79.41	89.33	68	95		

The article observed significant differences in the effectiveness of the teaching reform implementation of the Sports Medicine course in Table 1. In terms of final exam scores, the average scores for the 2023 and 2024 levels are 78.509 and 78.503, respectively. The T value between the two is -0.3696, the P value is 0.5395, and the difference is not statistically significant. However, for

the total score, the average score for the 2023 level is 81.949, while the average score for the 2024 level is 87.03. The T-value between the two is -2.428, and the P-value is 0.001, indicating a significant difference between the two. Therefore, the overall improvement in student performance after classroom reform indicates that teaching reform has achieved positive results in improving student academic performance.
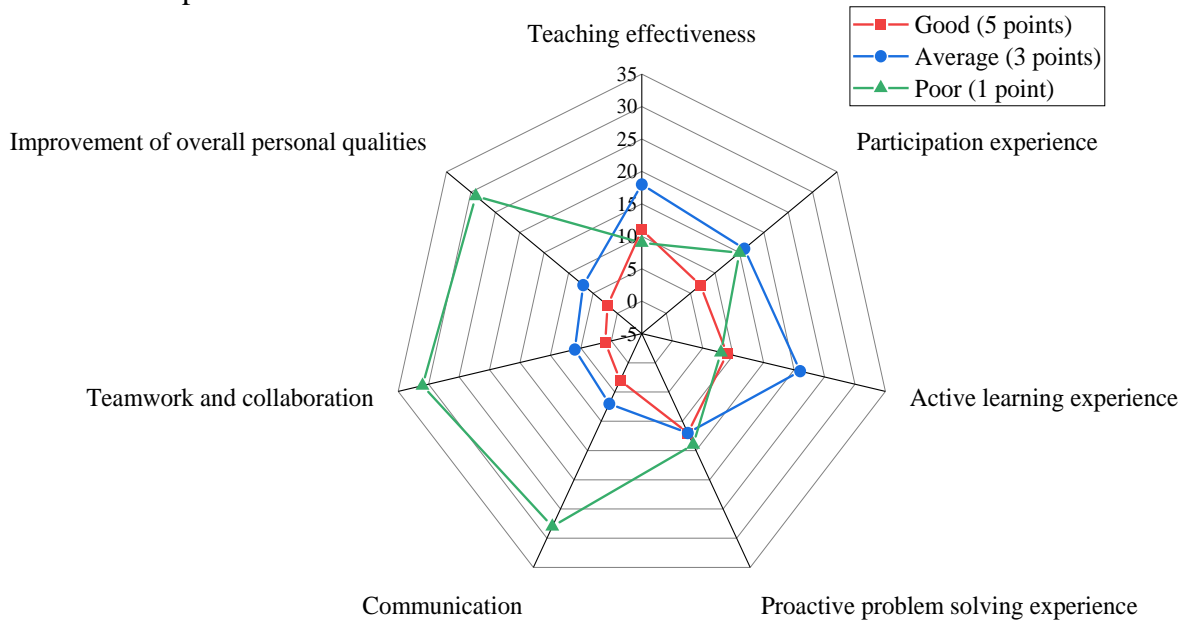

Figure 1: Survey on the Experience of Students majoring in Pharmacy in 2023

According to the data analysis of the 2023 pharmacy major student experience survey in Figure 1, it can see that students face significant challenges in expressing communication and teamwork spirit. Specifically, 28 people gave negative feedback, expressing that more training and guidance are needed in communication to improve students' communication skills. In addition, 31 people gave negative feedback, and more attention and strengthening are needed in terms of team spirit and collaborative ability. The improvements in these two aspects can have a positive impact on the overall learning atmosphere and team collaboration.
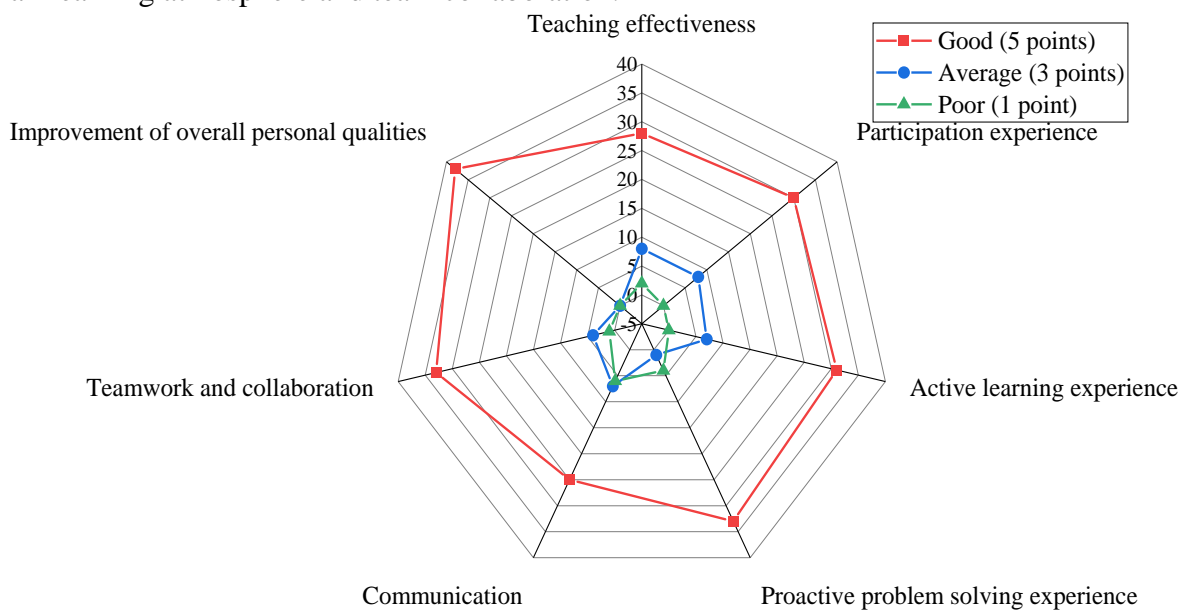

Figure 2: Survey on the Experience of Students majoring in Pharmacy in 2024

Figure 2 investigates the experience of pharmaceutical students in the 2024 cohort, comparing the experience survey data of pharmaceutical students in the 2023 and 2024 cohort. It can see that in terms of teaching effectiveness, participation, initiative in learning, problem-solving ability, expression and communication, team spirit and collaboration ability, as well as personal comprehensive quality improvement, 2024 students generally have higher evaluations, and in comparison, their performance is more outstanding. Especially in terms of personal comprehensive quality improvement experience, compared to students in the 2023 level, students in the 2024 level have a more positive evaluation.

Table 2: Comparison of Assessment Scores for Group Students (Score, $\bar{x} \pm s$)

Group	Basic knowledge	Case analysis	t	P
Class 2024	43.13±7.36	41.45±6.56	3.111	0.5134
Class 2023	39.45±7.1	31.15±7.85	4.812	0.0262

According to the experimental data provided in Table 2, it can be seen that in terms of basic knowledge, the average score of students in the 2023 level is significantly lower than that of students in the 2024 level (t=3.111, p=0.5134). In terms of case analysis, the average score of students in the 2023 cohort was significantly lower than that of students in the 2024 cohort (t=4.812, p=0.0262). This indicates that the 2024 students who have undergone teaching reform have performed relatively well in basic knowledge and case analysis.

5. Conclusions

With the rise of new engineering education concepts, student-centered teaching models are increasingly being valued. In professional fields such as sports medicine, cultivating innovative and diverse talents has become an urgent task. The traditional experimental teaching model is difficult to meet this demand, so innovation and practice are needed to promote students' active learning, improve teaching quality, and cultivate their problem-solving abilities. Through the practice and reform of the student-centered teaching model in the course of Sports Medicine, the article has achieved some significant results and discussions: the reform and practice of the course have achieved certain results through the student-centered teaching model. This not only improves students' academic performance, but also promotes the improvement of their overall quality and abilities. However, teaching reform still needs continuous exploration and improvement to better meet the learning needs of students and improve teaching quality.

Acknowledgement

References

[1] Ratnawati N N S. Implementation of Flipped Classroom as Student-Centered Learning Implementation in Awatara Learning of 7 Grade At SMP Negeri Satap 2 Kintamani[J]. International Journal of Multidisciplinary Sciences, 2023, 1(1): 56-68.

[2] Aslan M, Arısoy E, Gören T. The relationship between learning-centered leadership and professional learning: A study on SAC teachers [J]. Journal of Theoretical Educational Science, 2023, 16(1): 142-162.

[3] Wright J G, Hallam P R, Bowles W B. Learning-Centered Leadership: Exploring How Distinguished Learning-Centered Principals Apply Key Processes of Learning-Centered Leadership[J]. NASSP Bulletin, 2023, 107(2): 93-119.

[4] Qadach M, Schechter C, Da'as R. School principal's self-regulated learning: a conceptual framework of

learning-centered leadership[J]. International Journal of Educational Management, 2022, 36(5): 812-827.

[5] AKGÜN N, TABAK I. The Relationship Between Learning-Centered Leadership and Teachers' Organizational Identitiy Perceptions[J]. Bartın University Journal of Faculty of Education, 2023, 12(1): 97-110.

[6] Ertürk R. The relationship between school administrators' learning-centered leadership behaviors and learning schools according to teacher perceptions[J]. E-International Journal of Educational Research, 2022, 13(1): 161-182.

[7] Zandi K, Derakhshan M, Sadeghi S. The Relationship between Learning-Oriented Leadership and Teacher Agency: The Mediating Role of Trust[J]. Industrial and Organizational Psychology Studies, 2023, 10(2): 261-274.

[8] Kimball S M, Arrigoni J, Marlin D. Learning-Centered Teacher Evaluation[J]. Leadership and Policy in Schools, 2023, 22(2): 480-508.

[9] Ebrahimi E, Azari H. Explaining the Role of Trust in the Relationship of Learning-Centered Leadership with Teachers' Professional Learning[J]. Journal of Managing Education in Organizations, 2023, 12(1): 99-121.

[10] Smolina O V, Bogdanova E A, Rumiantseva E V. A Learning-Centered Approach As A Factor Facilitating Foreign Language Learning In Digital Educational Environment[J]. Современное педагогическое образование, 2022 (4): 114-119.

[11] Masitoh D. Pembelajaran Daring Berbasis Student Learning Centered Di Perguruan Tinggi: Tinjauan Pembelajaran Di Masa Pandemi Covid 19. Jipkis: Jurnal Ilmiah Pendidikan dan Keislaman, 2022, 2(1): 22-26.

[12] An J S. The effect of academic achievement and affective domain on learning-centered DIY mathematics instruction[J]. East Asian mathematical journal, 2022, 38(2): 215-240.

[13] Kilinc A C, Bellibas M S, Polatcan M. Learning-centred leadership and change in teacher practice in Turkey: exploring the mediating effects of collaboration[J]. Educational Studies, 2022, 48(6): 790-808.

[14] Ghafar Z N. The Teacher-Centered and the Student-Centered: A Comparison of Two Approaches[J]. International Journal of Arts and Humanities, 2023, 1(1): 18-23.

[15] Assia G. Developing a Learner-Centered Syllabus for Diverse Classes: Generations Z and Y[J]. Revue algérienne de la recherche et des études, 2022, 5(04): 269-281.

[16] Hendawy Al-Mahdy Y F, Hallinger P, Emam M. Supporting teacher professional learning in Oman: The effects of principal leadership, teacher trust, and teacher agency[J]. Educational Management Administration & Leadership, 2024, 52(2): 395-416.

[17] Alazmi A A, Hammad W. Modeling the relationship between principal leadership and teacher professional learning in Kuwait: The mediating effects of Trust and Teacher Agency[J]. Educational Management Administration & Leadership, 2023, 51(5): 1141-1160.