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Exploration of Innovative Practical Teaching Methods for Landscape Engineering Budgeting and Final Accounting Courses

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Abstract: This paper aims to explore the innovation of practical teaching methods for the landscape engineering budgeting and final accounting course, to enhance students' practical skills and overall quality. Through literature reviews and case studies, we analyze the shortcomings of traditional teaching methods and propose an innovative practice-based teaching approach. This approach includes case analysis, on-site practice, teamwork, and the use of information technology, aiming to stimulate students' interest and motivation in learning. After the trial of the program, students' budgeting and final accounting skills significantly improved, making them more adapted to future career demands. This study provides a useful reference for teaching methods in landscape engineering budgeting and final accounting courses.

1. Introduction

Budgeting and final accounting in landscape engineering is one of the important courses in the landscape engineering major, aiming to cultivate students' abilities in project budgeting, final accounting, and engineering management in practical work. However, traditional classroom teaching methods fall short in developing students' practical operational capabilities and comprehensive qualities. This paper explores innovative practical teaching methods for the landscape engineering budgeting and final accounting course. By adopting teaching methods such as case analysis, on-site practice, teamwork, and information technology, it aims to improve students' theoretical knowledge and practical engineering pricing capabilities in budgeting and final accounting, meeting the demand for training practical talents in the landscape engineering cost industry.

2. Problems with Traditional Teaching Methods

2.1. Overview of Traditional Teaching Methods

Traditional teaching methods for landscape engineering budgeting and final accounting courses typically focus on lecturing theoretical knowledge in the classroom, emphasizing theoretical and conceptual learning. Students acquire knowledge by attending lectures, reading textbooks, and

completing written assignments. While this method has certain advantages, such as providing systematic theoretical knowledge, it also has clear drawbacks.[1]

Firstly, traditional teaching methods lack practicality. Budgeting and final accounting in landscape engineering is a highly practical subject, but traditional methods often fail to provide students with opportunities for hands-on experience. Students are limited to listening to lectures and reading books, lacking real project experience, making it difficult for them to handle practical work issues and challenges.

Secondly, traditional methods lack interactivity and student participation. In traditional teaching, students are usually passive recipients of knowledge, with teachers dominating the teaching process. This method struggles to stimulate students' interest and motivation for learning and does not cultivate their teamwork skills.

Lastly, traditional methods lack flexibility. Knowledge and technology in the field of landscape engineering are constantly evolving, but traditional teaching methods often fail to keep up, resulting in students not acquiring the latest information and skills, thereby limiting their professional development.

2.2. Analysis of Problems

2.2.1. Insufficient Practicality

One of the main issues with traditional teaching methods is their lack of practicality. Landscape engineering budgeting and final accounting is a course that emphasizes hands-on operation and skills, but traditional classroom teaching often overlooks this aspect. Students need to independently perform project quantity calculations and pricing in actual work, but traditional methods do not provide them with opportunities for systematic cost engineering practice and skill development.[2]

2.2.2. Lack of Interaction and Student Participation

Traditional teaching methods typically use a one-to-many teaching model, where the teacher imparts knowledge in the classroom, and students passively receive it. This model limits student interaction and cooperation, as well as their enthusiasm for participating in the teaching process. Students often passively listen to lectures without opportunities to ask questions, discuss, or share their insights.

2.2.3. Lack of Flexibility

The field of landscape engineering is continuously updating its knowledge and technology, necessitating timely updates in teaching content. However, traditional teaching methods often use static textbooks and syllabi, making it difficult to adapt flexibly to new trends. This results in students not acquiring the latest information and skills, which can adversely affect their future career development.

In summary, traditional teaching methods in landscape engineering budgeting and final accounting courses face problems such as insufficient practicality, lack of interaction and student participation, and lack of flexibility. To address these issues, it is necessary to explore new practical teaching methods to enhance students' engineering pricing abilities.[3]

3. Innovative Scheme of Practical Teaching Methods

3.1. Learning and Analysis of Engineering Cost Case Studies

Case analysis is one of the practical teaching methods in the landscape engineering budgeting and final accounting course, providing students with a significant learning opportunity. Through case analysis, students can apply the theoretical knowledge learned in class to actual landscape engineering projects, cultivating the engineering cost talents needed by society.

Firstly, the key is to choose appropriate cases. These cases vary in size and cover different types of landscape engineering projects, allowing students to learn progressively. The study of cases should simulate real project scenarios, applying learned knowledge such as norms, rules for calculating engineering quantities, and price conversion to solve problems.

After case analysis, students engage in discussions and feedback sessions, sharing their views and solutions, and discussing with classmates and teachers. This interaction helps students view problems from multiple perspectives, broadening their thinking and cultivating teamwork and communication skills.[4] Teacher feedback is crucial in helping students improve their analytical and problem-solving abilities.

Overall, case analysis is a comprehensive educational method that, by integrating theoretical knowledge with practical situations, fosters students' habits of active thinking, analysis, and problem-solving in engineering costs, laying a solid foundation for their future work in this field.

3.2. Selecting Representative Engineering Projects for Practical Pricing

Pricing practice on engineering projects is another crucial teaching segment in the landscape engineering budgeting and final accounting course. It aims to involve students directly in calculating and pricing landscape engineering projects, applying their theoretical knowledge to practical work. The core goal of this method is to enhance students' engineering costing abilities and develop their professional skills.

Firstly, choosing suitable engineering projects is key. These projects should vary in difficulty to ensure that students can price small and medium-sized projects. In selecting projects, the knowledge level of students should be considered to ensure they are capable of handling assigned tasks. Moreover, the projects must be representative, enabling students to grasp the procedures and solve common problems in landscape engineering pricing.[5]

Secondly, students play various roles in on-site practice, such as project manager, budget officer, and data clerk, helping them understand the cooperation and coordination of different functional departments in the project. Tasks include preparing budgets for landscaping, civil construction, and hydropower, requiring collaboration to address various costing issues and produce budget reports.

Finally, students need to summarize and reflect on their practical experience. This can be achieved through writing internship reports, group discussions, etc. Sharing their outcomes and pricing processes, discussing challenges encountered in actual projects, and how to solve these problems, this reflection process helps students gain more knowledge and experience from practice, preparing them for future career development. Such comprehensive practical experience provides in-depth cost knowledge and reinforces their engineering budgeting knowledge and pricing capabilities.

3.3. Simulating Real Project Pricing Scenarios and Reasonable Task Allocation

Due to the extensive workload in actual landscape engineering project pricing, which requires team collaboration, students must have clear roles and learn from each other for effective improvement in project cost capabilities. Here are the key points for teamwork:

Firstly, students can form teams themselves, dividing the project into construction, landscaping, and hydropower parts for task allocation. This simulates real project pricing scenarios and helps cultivate cost talents that meet employer requirements.

Secondly, team members need clear roles and tasks to ensure everyone's participation. Regular meetings to discuss project progress and jointly solve existing problems are necessary to ensure project completion as planned. Effective communication is crucial in teamwork, requiring information sharing, opinion exchange, and problem-solving skills.

Lastly, tracking and evaluating the team's practical process is essential to assist students in resolving issues and enhancing their engineering cost abilities, laying a solid business foundation for students who will engage in related work after graduation.[6]

3.4. Utilizing Information Technology to Access the Latest Cost Information and Trends

Information technology is an indispensable avenue for landscape engineering pricing. Students need to master the latest cost information and material prices to improve work efficiency and accuracy. Information technology includes the application of cost software, engineering quantity calculation software, market material price updates, etc., used for engineering quantity calculations, applying norms, material substitution, and price updates to enhance the accuracy and timeliness of pricing.

Data analysis and visualization tools are used for project management and decision-making to better analyze project data, formulate budget strategies, and present results visually. Virtual reality and simulation technologies help students simulate real project scenarios. Online resources and learning platforms aid in theoretical learning and consolidating engineering cost knowledge. Information technology facilitates teaching in landscape engineering budgeting and final accounting and improves teaching effectiveness.

In summary, we have explored innovative practical teaching methods for the landscape engineering budgeting and final accounting course, including case analysis, on-site practice, teamwork, and the use of information technology. The combined application of these methods can improve students' practical operation abilities and engineering pricing levels, better preparing them for future career demands.

4. Implementation and Effectiveness Evaluation

The implementation of new practical teaching methods is a carefully planned and organized process. In this chapter, we discuss the implementation process of the new practical teaching methods in landscape engineering budgeting and final accounting, including method introduction, student participation, and teaching assessment.

4.1. Implementation Process

Implementing new practical teaching methods in the landscape engineering budgeting and final accounting course requires careful planning and organization. Here are the key steps in implementing new methods:

4.1.1. Introduction and Background of Methods

Teachers first need to introduce students to the background and significance of the new methods. This includes the origin, historical background, and reasons for adopting these methods. By clearly conveying the background information of the new methods, students can understand the importance of their theoretical knowledge in real work and how to apply it, thereby stimulating their interest and attention to the new methods.

4.1.2. Guiding Student Participation and Inspiring Interest

Active student participation is crucial for the successful implementation of new methods. Teachers need to stimulate students' learning interest and encourage them to actively participate in pricing exercises for various projects. This can be achieved by providing real cases, initiating problem discussions, and showcasing practical application scenarios of new methods. Teachers can also help students clarify their roles and tasks in the project to ensure they understand their learning content and application.

4.1.3. Seeking Cooperation with Enterprises for Resources and Information Support

The implementation of new methods requires support from enterprises, including case materials for case analysis, resources for on-site practice projects, the latest prices of materials, and software required for information technology.

4.1.4. Providing Timely and Effective Guidance and Supervision

The implementation of new methods requires teachers to effectively guide and supervise the teaching process. Teachers should regularly communicate with students to understand project progress and student needs, and solve problems in a timely manner. Meanwhile, teachers need to provide necessary guidance and feedback and adjust teaching strategies as needed to ensure students complete tasks as planned.

4.2. Teaching Effectiveness Evaluation Methods

To assess the effectiveness of new practical teaching methods, teachers can use various evaluation methods to fully understand students' learning situations and continuously improve teaching methods. Here are some effective evaluation methods:

4.2.1. Assessment of Student Task Completion Outcomes

Student performance assessment is a common method, implemented through case analysis reports and on-site practice results. This method can be used to evaluate students' practical operation abilities, problem analysis and solving skills, as well as teamwork and communication skills. Student outcomes provide insight into their knowledge mastery and engineering costing capabilities.

4.2.2. Peer Evaluation

Professional cost personnel can provide guidance and reviews of students' assignments and practical reports. They focus on verifying the accuracy of engineering quantity calculations, norm application, and material conversion, providing professional guidance and corrections to produce budgets or quotes close to industry standards.

4.2.3. Process Evaluation

Teachers can assess students' learning outcomes and abilities based on their performance, participation, and assignment quality. Through observation and assessment of the process, students can receive targeted feedback to better understand knowledge and improve.

By comprehensively applying these evaluation methods, teachers can obtain multidimensional data to understand students' learning situations more comprehensively, providing a strong basis for improving teaching methods, meeting student needs, and enhancing teaching quality. This helps

ensure the effectiveness and sustainability of the new practical teaching methods.

4.3. Results Analysis

After implementing the new practical teaching methods for a period, it is necessary to comprehensively analyze and summarize the effects, gaining insights into the strengths and weaknesses of the methods, and drawing lessons to improve the teaching process. Firstly, comparing student grades and performances under the new and traditional teaching methods can objectively assess the actual effectiveness of the new methods. Secondly, student feedback is crucial and can be actively collected through surveys, interviews, and group discussions, including their satisfaction with the new methods, difficulties encountered, and suggestions. Feedback from professional cost personnel is also important; they evaluate the strengths and weaknesses of the new methods based on observations and experience, offering suggestions for continuous optimization of the teaching process. By comprehensively analyzing the above data and information, conclusions about the new practical teaching methods can be formed, helping to improve teaching methods, enhance educational quality, and meet the future career needs of students.

5. Sustainability and Development of Teaching Methods

5.1. Sustainability Strategies

The sustainability of teaching methods is crucial for ensuring their long-term success. After implementing practical teaching methods in the landscape engineering budgeting and final accounting course, a series of sustainability strategies must be formulated to ensure the effectiveness of the methods and their continuous improvement. Firstly, strengthening cooperation and joint teaching between teachers, enterprises, and professional cost engineers is essential. It enhances teachers' teaching levels and professional skills, keeping them abreast of the latest developments and technologies in engineering costing, to better train students. Secondly, updating educational resources is vital for the sustainability of the method, including regular updates of case analysis materials, practical project resources, and information technology tools, to ensure that the teaching content keeps pace with industry developments.

Finally, active participation and feedback from students are key factors for method improvement. Therefore, students should be encouraged to actively participate in the design and implementation of teaching methods and their feedback should be collected timely for continuous improvement and deepening students' understanding of costing knowledge.

In summary, sustainability strategies, including strengthening exchanges between teachers and professional cost engineers, updating educational resources, and active participation and feedback from students, will help ensure the long-term improvement and effectiveness of landscape engineering budgeting and final accounting teaching methods.

5.2. Directions for Reform in Landscape Engineering Budgeting and Final Accounting Teaching

Teaching in landscape engineering budgeting and final accounting must closely follow new trends and demands in the costing industry to cultivate talents adaptable to industry changes. Specifically, the following aspects are particularly critical:

Firstly, emphasizing sustainability and practicality. Education should focus on fostering students' sustainable learning consciousness and skills in applying knowledge, including the production of budgets or quotations, to achieve employment readiness upon graduation and meet employer demands.

Secondly, fully utilizing information technology. Information technologies like virtual reality, online learning platforms, and data analysis tools offer more flexible, interactive learning methods and rich educational resources, meeting diverse student needs and enhancing the learning experience.

Additionally, interdisciplinary and international exchanges will become increasingly important. Landscape engineering budgeting and final accounting projects often require knowledge and skills from multiple disciplines. Encouraging students to participate in interdisciplinary and international projects will enable them to handle international engineering costing projects.

In summary, teaching in landscape engineering budgeting and final accounting needs to focus on sustainability, the application of information technology, interdisciplinary collaboration, and international education to cultivate professionals with strong practical abilities and high comprehensive qualities. Teachers should closely follow industry trends, continuously improve teaching methods, and establish feedback mechanisms to adapt to the ever-changing industry environment.

6. Conclusion

This study, through innovative exploration of practical teaching methods in the landscape engineering budgeting and final accounting course, identifies problems with traditional teaching methods and proposes an innovative, practice-based teaching scheme. During implementation, students' practical operational abilities and overall qualities have significantly improved, better preparing them for future professional demands and developments. Therefore, this research provides a beneficial reference for teaching methods in the landscape engineering budgeting and final accounting course and also offers insights and inspiration for teaching method innovation in similar fields. In the future, we will continue to explore more teaching methods and strive to enhance education quality and cultivate landscape engineering cost talents with stronger practical capabilities.

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