

The Application of "Ritual Sense+Personalized Evaluation" in Engineering Teaching

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ABSTRACT

With the changing demands of society, traditional engineering teaching models often focus on the presentation of professional knowledge, neglecting the improvement of students' comprehensive abilities. The current standards for talent cultivation in China have undergone a transformation. In order to cultivate innovative and practical talents, a single knowledge evaluation system alone cannot meet the requirements of modern education. Moreover, with the increasing demand for personalized development of students in the new era, the limitations of traditional teaching methods are becoming increasingly apparent, and a more targeted teaching model is urgently needed to cope with this change. Therefore, exploring new teaching models, especially combining "ritual sense+personalized evaluation", has important practical significance for improving teaching quality and promoting students' all-round growth. Based on this, the article conducted relevant research on the application of "ritual sense+personalized evaluation" in engineering teaching for reference.

KEYWORDS

engineering education; Sense of ceremony; Personalized evaluation; application

1 Introduction

The sense of ceremony can enhance the ritualism in the learning process, allowing students to feel the value of their learning behavior in every class, while personalized evaluation can provide guidance that is more in line with their development based on their different needs. The combination of the two respects individual differences of students and effectively enhances the classroom atmosphere, ensuring the diversity of teaching effectiveness.

2 Theoretical basis for ritual sense and personalized evaluation

2.1 The Importance of Ritual Sense

Ritual sense, as a cultural phenomenon, refers to the creation of a specific atmosphere through a series of normative or symbolic activities, which enables individuals to obtain emotional satisfaction and psychological recognition in the process of participation. In the field of education, especially in engineering teaching, a sense of ceremony can enhance students' sense of importance towards the learning process and also help stimulate their enthusiasm for learning. Engineering courses usually involve a large amount of theoretical knowledge, which often requires students to invest a lot of time and energy. The introduction of ritual can effectively mobilize students' emotions and make them more focused on learning in a ceremonial environment. Through the forms of course opening ceremony, pre class warm-up, group presentations, etc., the sense of ceremony in the teaching process can encourage students to feel a sense of honor in every learning activity, thereby strengthening their learning motivation. The sense of ceremony can help students treat learning as a serious and valuable activity as soon as they enter the classroom, and students can gain more internal motivation in the sense of ceremony.

2.2 The Significance of Personalized Evaluation

Personalized evaluation breaks the phenomenon of "one size fits all" in traditional education. In engineering education, students' learning situations often vary greatly, and traditional exam scores or unified evaluation methods cannot fully reflect students' actual level. Therefore, the significance of personalized evaluation becomes apparent, as it can provide targeted feedback to each student, thereby helping them identify their strengths and weaknesses. Through multidimensional observation of students' learning processes, teachers can adopt corresponding teaching strategies based on different needs. For example, in project-based teaching, teachers can comprehensively evaluate students based on their performance, thinking patterns, teamwork abilities, and other aspects at different stages, and provide substantive guidance. This evaluation method breaks through the limitations of standardization in the past, and students can continuously improve their knowledge reserves in a more personalized learning environment. And personalized evaluation can also enhance students' confidence. Through timely and specific feedback, students can understand their growth process and learning outcomes, thus having more motivation to continue moving forward.

3 Exploring the reasons for the application of "ritual sense+personalized evaluation" in engineering teaching

As a generation growing up in the Internet era, post-00s students' learning methods, psychological needs and values have changed significantly compared with the past, they are more inclined to personalized learning experience, and are more likely to be attracted by scenes with a sense of ritual. Therefore, exploring the application of "ritual sense+personalized evaluation" in engineering teaching is not only necessary for teaching reform, but also an important way to meet the needs of the new generation of students and improve teaching effectiveness.

The study of engineering courses often requires a long period of knowledge accumulation, but the standardized evaluation system under the traditional teaching mode lacks attention to individual learning processes, which can easily lead to students' passivity in learning. The sense of ceremony can be enhanced through carefully designed classroom atmosphere and symbolically meaningful teaching activities, allowing students to gain emotional fulfillment during the learning process and thus improve their learning motivation. For example, conducting a brief oath ceremony during the opening of laboratory classes, having students wear work uniforms for experiments, and awarding personalized "Engineering Practice Experts" certificates to students at the end of the course can strengthen students' professional identity and motivate them to explore the deep value of engineering knowledge.

Post-2000 students grow up in an era of individual expression, and they hope to gain recognition of their personal value in the learning process. Therefore, engineering teaching can be combined with various ways to carry out personalized evaluation, such as teachers providing guidance based on students' interests, so that each student can receive positive feedback in their own strengths. For example, in engineering design courses, teachers can develop personalized project evaluation criteria based on students' different interests, allowing students' creative thinking to be more fully demonstrated. When the sense of ceremony is combined with personalized evaluation, students can gain more emotional investment in the learning process and enhance their confidence through personalized feedback.

4 Application Path of "Ritual Sense+Personalized Evaluation" in Engineering Teaching

4.1 Enriching Course Design

At the beginning of each semester, teachers can guide students into a learning state and create a formal learning atmosphere through a short and solemn opening ceremony. Through the opening ceremony, students can have a clear understanding of the content and objectives of the course, as well as feel the solemnity of academic learning. For example, teachers can explain the learning objectives of the course, the difficulty level of the course, and the expectations for students during the learning process at the beginning of the class, helping students adjust their mentality and establish a sense of respect for the course. The opening ceremony can create a sense of ceremony, making students realize that this semester's learning is not just about preparing for exams, but also an in-depth academic exploration.

And classroom ceremony is a concrete manifestation of incorporating a sense of ceremony into each classroom teaching. In laboratory classes, teachers can require students to wear work uniforms to create a formal engineering practice atmosphere, allowing students to establish a sense of professional belonging psychologically, feel the rigor of the engineering process, and thus develop a sense of awe towards their major. At the beginning of the course, a solemn oath ceremony is held to make students aware of their responsibilities and strengthen their understanding of engineering professional ethics. During the teaching process, teachers can combine interactive activities such as group discussions and project presentations to encourage students to actively express their views, share different ways of thinking, and provide targeted feedback through personalized evaluations, so that each student can find a suitable growth path for themselves.

4.2 Embedded project-based and flipped classroom teaching methods

In engineering teaching, project-based teaching is a common teaching method. Through the design and implementation of practical projects, students can apply the theoretical knowledge they have learned to practice and exercise their problem-solving abilities. However, previous project-based teaching often had problems such as students' lack of active participation, and the integration of ritual can significantly enhance students' learning motivation. At the beginning of each project, teachers can hold a small ceremony to clarify the meaning, goals, and task requirements of the project through a clear project initiation ceremony. At the beginning of the project, teachers can set up a formal discussion session to provide direction for the smooth implementation of the project and enhance students' attention to the project. During the project implementation, teachers can provide guidance on students' progress by setting up regular project review sessions. At the end of the project, teachers can organize a section to showcase the project results, giving students the opportunity to showcase their achievements to teachers and classmates, further strengthening their

recognition of their work, and improving themselves through collective evaluation and teacher feedback. The beginning and end of each project can be designed with a sense of ceremony to enhance students' commitment to the project and make the entire teaching process more goal oriented. By incorporating a sense of ceremony into project-based teaching, students can receive clear guidance and feedback at each stage of the project, and gain a sense of achievement when completing tasks at each stage. This approach effectively enhances students' initiative and helps them better integrate into teamwork, improving the actual effectiveness of the entire teaching process.

4.3 Increase the sense of ceremony in corporate settings

In practical courses of school enterprise cooperation, teachers can simulate the company's onboarding ceremony, allowing students to wear work uniforms, receive company badges, and enter the laboratory as formal employees to experience the professional atmosphere of engineers. At the project kickoff meeting, enterprise mentors can lead students to take a team goal oath, emphasizing the rigor of engineering projects and the importance of teamwork, allowing students to deeply understand the sense of responsibility in engineering work. In the practical process, teachers can introduce standardized meeting procedures for enterprises, allowing students to summarize stages in the form of engineering reports and cultivate their professional expression abilities. In the project acceptance stage, formal review meetings are held to allow enterprise experts to evaluate students' achievements and provide targeted career development suggestions based on personalized evaluations, so that students can gain industry recognition and enhance confidence during the learning process. At the end of the class, a "quasi engineer award ceremony" can be set up to allow students to truly experience the sense of achievement in the engineering profession while obtaining their certificates.

4.4 Personalized Reviews

In engineering teaching, personalized feedback is not only a feedback on students' learning outcomes, but also a motivational tool that can help students discover their strengths, make up for their weaknesses, and enhance their sense of professional identity. In classroom discussions, experimental operations, project presentations, and other activities, teachers can provide targeted feedback based on students' performance. For example, after the experiment, teachers can give specific feedback based on students' hands-on ability, problem analysis thinking, and team collaboration, rather than vague "good completion" or "room for improvement". In project courses, teachers can evaluate students' design ideas, feasibility of solutions, and engineering expression abilities from the perspective of engineers, like enterprise mentors. They can emphasize students' strengths and provide improvement suggestions, allowing students to receive guidance on their growth direction through personalized evaluation. In the presentation section, teachers can set up messages to provide personalized development suggestions for students, such as "Your innovative thinking is strong, it is recommended to strengthen the ability to implement plans in future learning" or "Your expression logic is clear, you can try more interdisciplinary cooperation projects". At the end of the class, teachers can customize "engineering ability growth files" for students, summarize their progress in written or video form, and give students a ceremonial learning review.

5 The Application Model of "Ritual Sense+Personalized Evaluation" in Engineering Teaching

To construct an application model of "ritual sense+personalized evaluation" in engineering teaching, a systematic integration should be formed in curriculum design, teaching process, and evaluation system. The entire model can be divided into three core modules, namely curriculum ritual shaping, personalized learning path construction, and so on. As shown in Figure 1. Firstly, in terms of shaping the course ceremony, a course opening ceremony can be set up before the start of the course, allowing students to wear work uniforms and receive experimental manuals. In the process of course learning, task driven teaching is introduced to encourage students to participate in projects as engineers. Through methods such as groundbreaking ceremonies, stage reports, milestone celebrations, etc., every learning node is filled with a sense of ceremony, and students develop a sense of mission towards professional learning. Secondly, in terms of constructing personalized learning paths, modular teaching is adopted based on students' interests and career planning, allowing students to choose their own learning pace. Here, online learning platforms can be used to record students' learning situations, and with the guidance of teachers, course content can be dynamically adjusted to make the learning process more targeted. Thirdly, in the multidimensional evaluation feedback mechanism, a combination of process evaluation and summative evaluation can be adopted. In addition to the traditional written examination, dimensions such as experimental operation scoring, group collaboration evaluation, and enterprise mentor evaluation can be added to make the evaluation more in line with the characteristics of engineering practice. At the same time, each student can

receive a personalized growth report, which includes written feedback from teachers, peer evaluations, and self reflection, providing students with suggestions for improvement in the future.

The Application Model of "Ritual Sense+Personalized Evaluation" in Engineering Teaching

In terms of shaping course rituals

Personalized Learning Path Construction

Multidimensional evaluation
feedback mechanism

Figure 1 Application Model

6 Conclusion

Overall, in today's educational environment, engineering education aims to cultivate innovative and practical talents. Traditional teaching methods cannot fully meet the needs of education in the new era, especially in terms of personalized development of students. The integration of "ritual sense+personalized evaluation" is an innovative exploration in response to the demand for talent cultivation in the new era. With the continuous development of educational philosophy, we have reason to believe that this model can bring more far-reaching impact on engineering education, and provide valuable enlightenment for later teaching reform.

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