

Course Reform of 3D Software Design Based on Final Examination and Scoring Mechanism

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Abstract: "3D Software Design" is a compulsory professional course for mechanical majors, which focuses on the familiarity and operation of 3D drawing software. Through the drawing demonstration and case practice of 3D software, students can train their understanding and the understanding of 3D drawing software and master the basic operation of 3D drawing software. In the final grading process of this course, the course teacher has a high level of design, and when evaluating students' design works, it is inevitable that there is a large gap in technical level, resulting in a low score. Moreover, it is difficult for the teacher to understand the real design level of students through a single design work, so the final score is difficult to reflect the real status of students, and the practical significance of the final score is lost. In order to solve the above problems, this paper gives a "three-whole scoring" mechanism based on "all staff", "whole process" and "all-round", so that every student can participate in it, and can get a true evaluation.

Keywords: Final Examination; Curriculum Reform; Three-dimensional Software Design; Undergraduate Education

1. Introduction

Final assessment is not only an indispensable part of course inspection, but also a comprehensive evaluation of each student's course learning results and knowledge mastery ability. At the same time, it is also related to the acquisition of each student's course credits, and every student is very concerned about it. Therefore, a good final scoring mechanism is particularly important. The way of final scoring is undergoing a development process from single outcome evaluation and process evaluation to full participation and whole process evaluation. It has become a general

consensus in the theoretical circle to encourage the combination of outcome evaluation and process evaluation, single factor evaluation and comprehensive evaluation, absolute evaluation and relative evaluation, and horizontal evaluation and self-value-added evaluation [1].

However, in practical practice, the current curriculum assessment and evaluation system has problems of singleness, strong subjectivity of teachers, and lack of inclusion of process results. Especially, the final assessment of some professional courses often adopts a single result assessment method, and the assessment content is more inclined to the memory of knowledge points and low degree calculation. It cannot effectively assess students' real level, nor can it reflect students' understanding of the course and personal insights [2]. In particular, the works of some software design courses can only show some pictures or animations, which is difficult to directly show their design ideas and design concepts. The assessment mechanism of such courses is in urgent need of change [3-4].

In view of the above situation, this paper takes Huangshan University as an example, takes the 3D software design course of mechanical majors as the research object, and gives a final assessment system that is more suitable for the course of 3D software design by optimizing the assessment form and evaluation mechanism.

2. Existing Assessment Methods and Problems

The course of 3D software design belongs to the course of software design, which mainly guides and demonstrates the operation process and design ideas of software. At present, the main form of assessment is still that students draw curriculum design works with software according to the design scope given by the course teacher, and the teacher then makes assessment according to the difficulty and details of the works drawn by students. However, it is difficult to have a unified conclusion and standard on the degree of difficulty and level of

design of a work, and different people have different opinions. Therefore, the unilateral evaluation by the curriculum teacher is a little one-sided, and it is difficult to directly and effectively understand the design intention and focus of students, so it is not able to grasp the design level embodied by students. Moreover, the design level of the curriculum teacher is usually much higher than that of the students. There is a problem that high-level design ideas and vision are difficult to give an objective evaluation of lower-level design [5-6].

3. Measures to Improve the Assessment Form

3.1 Basic Composition

In order to solve the above problems, the scoring mechanism based on "three full scoring" is adopted. The concept comes from "three full scoring", which is specifically manifested in "all staff scoring", "whole scoring" and "all-round scoring" [7-8]. It adopts the form of teacher-led and student participation, so that each student can act as a judge to score other students at the same starting line. In this way, when students see the design works of other students, they will compare with their own design works and give scores.

3.2 Basic Concepts

This scoring mechanism based on the "three-all scoring" is based on the concept of "three-all education". Students' final design cases are evaluated and scored openly in class, and every student can score and give corresponding evaluation on the design cases of classmates other than himself. This is "all students scoring", reflecting fairness and justice. Each student needs to introduce the initial idea of the design case, the middle process, and the late sentiment respectively. Each student's score will be composed of these three parts together, which is the "whole score", reflecting the multi-angle evaluation. The course teacher will also give the final grade according to the pre-set ratio according to each student's design case presentation, daily class performance and evaluation score given by each student. This is an "all-round scoring", reflecting the multidimensional comprehensive consideration of students. Through the "three-all scoring" scoring mechanism, every student can be involved, so that every design case can get a true evaluation, so that every final grade is more

valuable. Through the scoring mechanism based on "three full points", each student can understand the meaning of a large group, so that the results of this course are more fair and just, and also make this course more in line with the concept of "three full education".

3.3 Assessment Process and Form

The core of the scoring mechanism based on "three points" is "all points", "whole points" and "all-round points", which improves the phenomenon that the final assessment results are too dependent on the course teachers. The scoring mechanism based on the "three-all scoring" is to make the scoring rules of design cases led by the course teacher, as well as the composition elements and proportion distribution of the final score. Each student can act as a judge to score the design cases of other students, so that each student can grade each other at the same height. It can optimize the subjective bias caused by teachers standing on a relatively high level to evaluate students' design cases. In addition, all students can evaluate the design cases from multiple angles and dimensions to get more realistic scores. Then, combined with the comprehensive assessment of students' classroom performance by teachers, the final assessment results that are fair, fair, reasonable, real and effective can be given to the greatest extent.

In order to realize the above assessment form more effectively, in the final assessment process, students should explain the key points and highlights of their own design while displaying their design works. After the exhibition, teachers and other students will give scores in secret and remove the highest and lowest scores for students. The final scores of students are shown as follows:

$$\text{Student score} = \text{Normal score} \times 30\% + \text{Teacher score} \times 50\% + \frac{\sum_{i=1}^n (A_1 + A_2 + \dots + A_n)}{n} \times 50\% \dots \dots \dots (1)$$

In the formula, A₁, A₂ and A_n represent the scores given by different students. (Remove highest score, lowest score)

4. Assess Key Points and Their Implementation Effects

4.1 Key Points of Assessment

In order to better implement the above "three-all

scoring" scoring mechanism, we need to pay attention to two key points, one is fairness and anonymity. In order to ensure the authenticity and reliability of students' mutual evaluation scores, students need to be warned of the scoring rules before scoring, and all anonymous scoring is adopted to prevent the situation of communicating with each other in advance and giving each other low scores and high scores. This is not only unfair and deviate from the fundamental concept of "three points", but also easy to bring contradictions between students, losing the significance of the implementation of this scoring mechanism. Secondly, the scope of design cases should be defined in advance. Students' design works should be selected from common things in daily life, and unfamiliar and strange design cases should be avoided as far as possible. In this way, students can have a certain understanding foundation of design cases, effectively understand the design content and judge the difficulty of design according to their own level. Such as mobile phones, laptops, bicycles, machine tools, robots, etc., such design works have quite a lot of design characteristics, can truly and effectively reflect the design level of students.

The above measures are mainly adopted because the traditional scoring mechanism of such courses is similar to that of theoretical courses. However, due to the particularity of design, its design level is difficult to be directly and truly expressed through a single work, and it is easy to be affected by subjective factors of raters, which is prone to unfairness. Secondly, in the teaching process of limited class hours, it is difficult for teachers to accurately grasp the average design level of all students, and they are also susceptible to the influence of their own design level, resulting in wrong estimation of students' design level. Through this kind of student mutual evaluation scoring mechanism, students can evaluate classmates' design works from their own perspective, which is more realistic, fair and participatory.

4.2 Implementation Effect

Through the implementation of the scoring mechanism based on "three all scoring", I deeply feel the important role and guiding significance of curriculum ideology and politics. From the concept of "three all educating people" to the scoring mechanism of "three all scoring", the

assessment effect of the course can be improved, and the fairness and credibility are greatly enhanced. At the same time, through this assessment, students' attitude towards things is further improved, and they understand that everything should be vigorously pursued for fairness and justice, and all aspects should be considered. Maybe the score of the final assessment does not bring anything, but in this process, each student gets a satisfactory score, and each student can see that their works are recognized. This plays a crucial role in enhancing their confidence and love of professional knowledge.

In addition, through the implementation of the scoring mechanism based on "three points", students' enthusiasm for class participation has been increased unprecedentedly, and they are highly satisfied with the final results, reaching the goal of the final score assessment. At the same time, I can learn the strengths of others when grading each other, think in others' shoes and experience the feeling of grading others, understand the work content of teachers, and provide practical opportunities for future work and study, which is a rare opportunity to exercise.

5. Conclusion and Perception

Through the implementation of the scoring mechanism based on "three complete scoring", students have a high enthusiasm to participate, the classroom atmosphere is very harmonious, and students are very satisfied with the final score, achieving the real role of the final assessment. Moreover, they have a high acceptance of this relatively new scoring mechanism, and can put forward their own opinions and opinions.

As a teacher, I can also find the problems in the course more effectively, and further understand the fundamental significance of the final assessment. The assessment score represents the level of a certain student among all students, rather than the level of his ability in the mind of the course teacher, which is crucial.

Of course, in the implementation process of this assessment mechanism also encountered difficulties and difficult to solve problems, the first is the scoring software for anonymous scoring, but it is still difficult to directly eliminate the problem of mutual communication and collusion scoring in advance. Secondly, it is difficult to fundamentally avoid the problem of

plagiarism in design works. At present, the Internet information is sufficiently developed, and a very small number of students buy works, hire professional designers to modify them, and then change them into their own works after learning and modifying them, which is difficult to distinguish only through classroom display. These problems still need to be solved, in order to better realize the scoring mechanism based on the "three all scoring", reflecting the true fairness and justice.

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