Exploration and Research on Practical Teaching Reform of Digital Media Technology Major under Step Mode

Zhengya Luo, Zhenghong Zhang[*]

Hunan Institute of Traffic Engineering, Heng Yang, Hunan, 421009, China

*Corresponding Author

Keywords: Step mode, Digital media technology, Teaching mode, The evaluation model

Abstract: From the perspective of combining teaching and practice, this paper analyzes the problems existing in the current digital media technology specialty, and puts forward the practice teaching mode based on STEP teaching mode and the corresponding teaching evaluation method and evaluation index.After a preliminary trial, the teaching model has achieved good results in practical application.

1. Introduction

Introduction

The goal of practical education is to equip students with a variety of knowledge and skills (including professional knowledge, social awareness and innovative spirit, etc.) needed to be successful practical problem solvers.Therefore, the task of educators is to constantly improve the quality and connotation of practical education.We are increasingly aware that, in addition to teaching knowledge, workshop teaching, team projects, open questions, experience-based learning, experiential and research-based teaching, etc. should also become an important part of a complete practical education.In this paper, the practice teaching based on STEP engineering mode is applied to digital media technology specialty in an exploratory way, and the necessary suggestions are obtained accordingly.

2. The Research Status

2.1 Teaching Mode Level

Curriculum practice is an essential teaching link in a large number of engineering courses, and digital media technology is no exception for undergraduate majors.The professional There are still many problems in the practical teaching of the course.

(1)The concept of emphasizing theory over practice still exists in some courses, and the status of practice teaching needs to be further improved.

(2)The content of the practical teaching system of part of the courses is outdated, which has a gap with the needs of enterprises and the society for the practical ability of high-level interdisciplinary talents.

(3) The team of practice teaching teachers is relatively weak, the teachers' practical ability and accomplishment is not enough, lack of practical application ability, knowledge innovation ability of comprehensive teachers;

(4) Practice teaching quality supervision mechanism is not perfect, lack of management and quality awareness, lack of a set of quality evaluation system and assessment mechanism in line with the characteristics of practice teaching, lack of supervision of the process of practice teaching.In addition, the introduction of relevant software and project-based or problem-based teaching mode in engineering undergraduate courses has not been widely used.For researchers, neither theoretical research nor engineering project implementation can be separated from the support of software tools.Digital media research and creation under the support of various software environments has

become a trend, master a variety of related simulation and creation technology has become a digital media technology practitioners essential skills.With the continuous evolution of engineering software functions, the supporting role of engineering practice teaching becomes more and more obvious.For these professional software with powerful functions, the previous scheme is expert training and so on.With the continuous improvement of the software teaching environment, it is now possible to tentatively adopt different practical promotion schemes, which will integrate the software and the whole project into the teaching process, and the effect may be better under certain conditions.

In the past few decades, the reform of practical education has been carried out in full swing all over the world, and people have tried to put forward various kinds of education and teaching Learning model, some also achieved remarkable results.More successful education mode among them has: the MIT started together with several universities in Sweden CDIO model [1], OBE engineering education mode [2], Danish red fort university put forward the mode of PBL curriculum education [3] (learning model based on questions or projects, has become the integration course mode) of the European countries as well as put forward by the British imperial college ELED model [4] (based on the experience of engineering education), etc.

The reform of practical education aims at comprehensively improving the ability of cultivating innovative talents in digital media technology and realizing the goal of building an innovative society The foundation.Adequate current although a few power (including teaching, teacher force strong, etc.) of the university implements the small class teaching, and further implement the CDIO teaching mode, but most of the colleges and universities still has more than the number of students, teachers and teaching resources, the status quo of the relatively short, to seek an effective mode of practice education is more constructive.Compared with the practical education in the first-class universities in Europe and America, the problems in the practical education of digital media technology major in our university are relatively prominent (there are examination-oriented and exam-oriented learning, etc.), so the reform of practical education is imperative.In addition, any advanced teaching concept and personnel training mode must be in line with the national conditions, school conditions, otherwise it is difficult to achieve the expected results.

STEP stands for Software, Theory, Experiment, and Project.In a narrow sense, STEP can implement a process-based teaching mode for a single course, which mainly emphasizes the cultivation of practical ability.The practice teaching mode based on STEP refers to the close combination of software tools, theory teaching, experiment and project practice to realize the whole practice.When the STEP concept was implemented, it could combine knowledge with practice and put what one has learned into practice [5].In the more than 10 years since its establishment, the digital media technology major of our university has gradually formed a set of practical teaching mode in combination with the characteristics of our university, our college and our major.STEP concept into practice teaching is an exploration.From the training plan, teaching process, evaluation and other links reform, according to the actual needs of the course to implement improvement, hope to integrate this idea into the existing curriculum system and teaching mode, in order to promote students' ability to solve practical problems.

2.2 Teaching Evaluation and Index

From different perspectives, scholars at home and abroad have different opinions on the exploration of classroom teaching quality elements and evaluation system of higher education. There is no unified standard and evaluation method. From the perspective of theoretical system, element structure, evaluation thought and method, they are all in the process of development.Since the late 1970s, with the deepening of theoretical research on education, the perspective of foreign theoretical research on education began to shift from educational goal matching to educational quality system.Centra(1979) believes that teachers' teaching quality evaluation should focus on three dimensions: teaching organization, teacher-student communication and teaching ability.Chickering(1987) demonstrated teaching quality through seven aspects, namely, teacher-student communication, student collaboration, active learning, and timely

feedback.Marsh&Dunkin(1999) proposed that teaching quality evaluation includes four aspects: curriculum organization, behavior management, student performance evaluation and teacher-student relationship [6].

With the advance of the theory and practice of teaching quality evaluation, while constantly revising and improving the quality evaluation index system, domestic scholars began to study more complex mathematical model or network technology and apply it to the specific evaluation of teaching quality.At present most of the institutions of higher learning to establish the teaching quality evaluation system, but the evaluation index framework and content of various colleges and universities is not a very significant difference basically, mainly through to the teacher in the classroom teaching in the process of teaching methods, teaching attitude, teaching effect and teaching content, such as overall impression for assessment and evaluation.For example, Tsinghua University gives 11 indicators, Beijing Normal University gives 28 indicators, and Zhejiang University evaluates teachers' teaching quality according to 9 indicators.

In general, the teaching evaluation needs to match the teaching mode to reflect the actual effect of teaching correctly.Therefore, teaching evaluation matching STEP concept will be necessary.

3. Research on the Application of Step Concept in Practical Teaching of Digital Media Technology Major

Digital media technology is a cross between the natural sciences, social sciences and people The comprehensive discipline of liberal arts embodies "science, art and man"The fusion of "wen".Among them, "digital" reflects its science and technology base, "media" is strong While focusing on media, "technology" makes it clear what it is aiming atProblem solving process or application area of a service provided.The collar Domain is currently an interdisciplinary field, involving interaction design, image design Computer language, computer graphics, information and communication technology, etc Knowledge.Major areas of study include: digital imaging Science, computer graphics, digital audio and sound, UI and Interaction design,3d animation, video effects and production, Web technology, mobile applications Development, game design and production, virtual reality and augmented reality, etc.The implementation of most of the above courses involves the use of a large number of creative software. Through the application of software tools and the reform of teaching mode, we hope to achieve the goal of improving the teaching effect.

3.1 Application of Software Tools

STEP concept mainly involves the following software in the course teaching of digital media technology: Photoshop(image processing)Dreamweaver(web page editing), 3DMax(3D modeling, animation), Premiere(video and audio editing based on nonlinear editing equipment), Unity3D(3D games, interactive display and game engine), After Effects(motion image making), etc.this In addition, there are more multimedia production software, such as VR, AI and programming fields.

3.2 Teaching Mode

The teaching mode based on STEP concept refers to the close combination of software tools, theoretical teaching, experiment and project practice with certain internal logic in the teaching process.It emphasizes to promote students' skill development in practical application environment;

(2)Learners' involvement in the process of self-exploration and solving practical problems;Design the real task.Emphasis on the cultivation of practice ability in the complex, meaningful problem situation, through the learners' autonomous exploration, construction and cooperation, to solve practical problems, stimulate students' innovation ability, thus indirectly stimulate student's entrepreneurial passion, make its master the hidden behind the problem and only by the original is not easy to master the practical skills of teaching way, to form the skills and the ability of autonomous learning to solve the problem.Its advantage lies in that it can effectively improve students' ability of knowledge reorganization, inquiry and application, while the process learning method can also improve students' ability of systematic practice.The disadvantage is that it is easy to destroy the integrity and sequence of theoretical knowledge system, resulting in the

fragmentation of student knowledge retention.Although the STEP teaching mode incorporates project-based teaching, it is not equivalent to project-based teaching itself.Here are some thoughts on this teaching model.

3.2.1 The Core of the Project Setting

In the four steps of STEP teaching, project setting is the core and also the key for students to gain knowledge understanding, application and even innovation.But setting up programs, especially for students, isn't easy.The requirements are as follows: (1) the integrity of the project, the ideal project can be the theoretical knowledge of the subject to organize together;(2) The authenticity of the project, from the actual project project can more attract students' interest in independent learning;The project is closely related to the theoretical knowledge. The project with appropriate difficulty (depth) and comprehensiveness (breadth) can be deeply matched with the theoretical teaching and matched with the students' nearest development area.

3.2.2 To a Certain Extent, It Can Promote Scientific Research

From real research projects and through reasonable decomposition and transformation, it finally evolves into several sub-projects closely related to the teaching content (respectively It can be transformed into the subject of teaching content or the subject of students' extracurricular training according to needs.By integrating the real project into each teaching link and implementing it one by one and simultaneously as the teaching process, the students can get the complete training of scientific research cycle.

3.2.3 Still Need to Emphasize the Importance of Knowledge System in Course Teaching

The project should not be the subject of knowledge, but an effective case for students to master knowledge.Compared with graduate courses, most undergraduate courses have established a relatively mature knowledge system, which is undoubtedly of great significance for students to master systematic knowledge and further study.

3.2.4 Can Be Targeted At a Single Curriculum, Curriculum Group and Professional Curriculum System

Or in the whole professional curriculum system, or even in the integrated teaching in the future.There is a close knowledge structure between courses in digital media technology Cohesive, many courses have the characteristics of relevance, advancement, extensibility and so on.From the point of view of project setting, it is difficult to realize scientific research projects with a certain depth through a single undergraduate course, which is determined by factors such as the level of knowledge and ability at that stage.However, a moderately difficult scientific research project can be decomposed into tasks or indicators in multiple courses. Such one-to-many or many-to-one project setting can effectively improve students' overall grasp of knowledge and application ability.

The digital media technology major of our school is divided into two research directions: media resource development and media information processing respectively. The content of the project can be further subdivided into more categories based on the two categories.Based on the above analysis, this study has been refined and verified repeatedly, and through repeated demonstration, the "366" mode suitable for practical education of digital media technology specialty has been obtained.

This mode constructs a three-level practical teaching system with innovation layer as the target, application layer as the starting point and basic layer as the support The new layer consists of concentrated practical teaching, independent and personalized credit training, innovation and entrepreneurship, and discipline competition.The application layer consists of graphic design experiment, digital audio and video production experiment, virtual simulation resource development experiment, animation production experiment, game production experiment and software and platform development course experiment.The basic layer consists of basic experiment of information technology and basic experiment of digital media technology.According to the characteristics of this professional strong practicality, asked the students according to their own

direction in four years to complete at least six (a digital media application management software, a virtual/augmented reality work, a game works, an intelligent interactive media, a digital audio and video works, an animation) design and development, and as the main line to set up the corresponding experimental platform and laboratory sessions, study achievement oriented practice ability training system is established.Overall, adhering to the "theory and practice, technology and art, information and media, innovation and inheritance, professional and market" principles,The course system is constructed in the integration of multi-disciplinary fields, highlighting the characteristics of the major, and finally the course content system based on the STEP concept of interdisciplinary integration is formed.

3.3 The Improvement of Teaching Effect

Combined with the characteristics of higher education, this research is proposed based on the teaching goal and resource constraints of higher education STEP structure influence elements of classroom teaching quality, students will be learning ability of cognition and value perception as the core competence factors into colleges and universities teaching quality evaluation, is for the final 20 indicators is given priority to, set by the overall evaluation model.

3.3.1 Student Competency Elements

Students' ability is mainly reflected in three aspects. The first is the curriculum knowledge foundation that students have before learning.Second, students have the learning talent, ability;The third is the students' preference or interest in the course knowledge.

3.3.2 Elements of a Teacher's Competence

Teacher competence is usually reflected in the following two aspects: the first is the teacher's understanding of curriculum knowledge, which is generally reflected in the teacher's understanding and mastery of the depth and breadth of curriculum knowledge;The second is the teacher's ability to express the curriculum knowledge.

3.3.3 Elements of Teaching Atmosphere

Teaching atmosphere is a kind of overall atmosphere or state formed by the integration of teachers' knowledge transfer and teaching environment.It's usually two Content at the level: teaching "hardware" environment and "software" interactive atmosphere Whether students study in a good and harmonious teaching environment is directly related to students' learning efficiency and effect;Whether teachers can create a fair and interactive atmosphere will also affect learning efficiency.Teaching atmosphere is an interactive element that integrates environment and process.

3.3.4 Teaching Process Elements

Classroom teaching is an experiential process in which teachers learn students' knowledge effectively face-to-face.This process generally includes several aspects. The first is the process of knowledge transfer by teachers, that is, the process in which teachers transfer their knowledge system to students through appropriate expression and effective teaching methods (such as PPT, cases, games, projects, etc.); the second is the process of knowledge transfer by teachers.Second, students' knowledge learning process, that is, students' ability and knowledge reserve into the process of knowledge understanding and learning.These three (teachers, students and teaching atmosphere) work together to form the final teaching results.

The evaluation mechanism proposed in this study evaluates the actual teaching effect in a more objective and reasonable way, and then feeds back the results in real time to change the original teaching process.After the completion of a round of teaching, the overall implementation effect will be evaluated objectively and adjusted accordingly. Then, it will be tested again in practice and repeated.This evaluation model and its elements and indicators are also determined after repeated and adjusted.

4. Conclusion

This paper explores the essence, purpose, rules, skills and corresponding teaching strategies of professional practice teaching, and puts forward the practice teaching mode under the STEP concept that meets the current teaching needs, hoping to provide ideas for the teaching reform of other similar majors.This model combines the basic characteristics of higher education, condenses the influencing factors in STEP teaching under the condition of teaching objectives and resource constraints, introduces the ability factors with students' cognitive ability and application ability as the core into the multi evaluation framework, and meanwhile provides a more detailed evaluation process and indicators.The problems that deserve further study and exploration in the future include: the internal mechanism of applying STEP concept to professional teaching needs further in-depth study;The scope of professional implementation needs to be expanded and extended to other similar professions.

References

[1] SvanteGunnarsson. Automatic Control Education in aCDIO Perspective, IFAC-PapersOnline, Volume 50,Issue 1, July 2017:12161-12166

[2] OriahAkir, Tang Howe Eng, SenianMalie would andLearning Enhancement Through Outcome - -based Edu □ cation Structure and Technology e - Learning Support. Procedia - Social and Behavioral Sciences, Volume 62,24 October 2012:87-92

[3] Gerry Geitz, Desireejoosten-ten Brinke, Paul A. Krschner. Changing Learning behaviour:Self-efficacyand goal orientation in PBL groups in highe reducation. International Journal of Educational Research, Volume 75, 2016:146-158

[4] Cui Jun, GU Luwen. Experience-oriented: The new Trend of engineering Education learning Mode in Imperial College [J].Coal Higher Education,2014 32(5):11-16

[5] Yu Jingjun, GUO Weidong, Chen Diansheng.STEP Teaching Model for Engineering Education [J]. Research on Higher Engineering Education,2017.4:73-77

[6] Marsh h.w., Dunkin, M.J. Students' evaluation of university would a multidimensional perspective [J] who Edu □ cation: faced of research and practice (Vol. 8). New York: Agarhon Press, 1999