



A Study on the Autonomous Learning and Interactive Practical Teaching on Design Software in the Context of Education Informatization

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Abstract. With the advent of the information age, the design software has been applied in modern education and been valued by college students. How to apply the software will directly affect the final design. In this case, a better teaching mode for the design software is important for improving students' study efficiency, which is also an urgent requirement under the situation asking for more professional, continuous and diverse talents. From the perspective of cultivating creative design talents in colleges and based on the teaching situation and method of design software teaching in colleges, this article analyses the psychology of the scholars studying the design software, conducts systematic and in-depth studies on the software teaching, and changes the passive learning mode of students and the lecture-style teaching mode of teachers so to improve students' learning efficiency also achieve applying what they have learnt to use. Under the premise of finding a better teaching mode, this article aims to improve the teaching quality and students' learning outcomes.

Keywords: design software; autonomous learning; interactive practice; teaching; education

1 Introduction

Education informatization has become an important driving force for the development of a country and society and one of the symbols for measuring a country's modernization and education quality. Education is always an essential point for a country^[1]. With the development of Internet intelligent technology, the traditional teaching mode is no longer adapted to the society's development and students' learning; therefore, we should break the status quo to find a new teaching and education mode.

It has been clearly proposed in China's recent education reform that students are required to change their learning mode from a passive one to an active one^[2]. In the informatization or Internet age, there is a big gap between China and foreign countries in science and technology. Specifically, China's design and education level largely lags

behind those of foreign countries. However, the quality of design depends on the accomplishment of “creativity + creativity”. A good idea can be seen through people’s eyes only when it is displayed by pictures or on the screen. Therefore, the design software is the bridge to achieve good ideas, which means the teaching of design software is important.

2 Status Quo of Professional Design Software Teaching

2.1 Problem One - Polarization

There is always a problem in teaching process, that is, different from theoretical teaching, the teaching on software requires a computer to show students how to apply the software into practice. When students do not keep pace with the teacher, it can’t be guaranteed that all the students in the class can understand what the teacher has taught. In other words, if the teacher gives the class seriously while some students pay little attention to the class, the students will fail in applying the software into practice. For example, in the process of teaching Adobe Illustrator (a vector graphics editor), after the teacher finishing the teaching on Pen Tools, some students can totally master the skill of operating Pen Tools while some students need more time and few students directly give up with less patience. If things go on like this, a kind of serious polarization will occur in the teaching, i.e. the differentiation between the teacher and students, and the differentiation on learning progress among students, which will severely impact the teaching quality and progress.

2.2 Problem Two – “Fake-Progress”

The phenomenon of “fake-progress” is very common in the teaching of design software. “Fake-progress” can be understood as the fictitious progress, in other words, it seems that the student master the skill while actually not ^[3]. For example, in the photoshop class, when the teacher finishes the teaching on how to edit the portrait with photoshop and ask students whether they understand, most of the students will answer “yes” so that the teacher believes they really get it. But, actually, some of the students just follow others and few students even pay no attention to the class. As a result, the “fake-progress” phenomenon occurs. In this case, even if the students know how to use the tool with the help of the teacher, they still feel confused in applying the software into practices. In fact, they do not master the skill thoroughly and just make fake progress.

2.3 Problem Three – Dull Lecture-Style Teaching Mode

In modern times, most colleges have started the course of design software to make their students meet the requirement of the Internet society. However, many colleges still adopt the traditional teaching mode in the software course, which means students just need to exactly follow the teacher. Modern students are with active thinking and have strong interest in new things; but, traditional teaching mode will lead to a dull and

limited learning mode of students^[4]. Consequently, students can't thoroughly master the skill after the class, in other words, they can't go on smoothly with a new type of design. As a result, it's common that students of design major with high grades in school can't adapt to their job in the society.

The informatization age brings us not only benefits but also challenges. Design skills and techniques updating fast requires students not only to master how to use the software but also to know how to apply the techniques into practices. On Practice has stated, discover the truth through practice, and again through practice verify and develop the truth. The same to the teaching on design software, students can prove they has mastered the techniques only in the practice.

With the development of quality education in modern society, the education and teaching started to follow the guidance of the people-oriented concept. In the 1960s, studies on the autonomous learning has started. The autonomous learning means students learn knowledge actively and independently, cultivating students' awareness of active learning to promote their self-improvement and self-development. However, only the autonomous learning mode is not enough and make students feel boring. To achieve the expected outcomes of learning goals, students should combine the autonomous learning mode with interactive practices to master the skill flexibly^[5].

3 Theoretical Basis

3.1 Values of Autonomous Learning

Autonomous learning is the core of quality education which is an essential task of cultivating students' learning consciousness, habits, ability and methods.

At present, colleges still need to pay more attention to achieve autonomous learning in their teaching. Although the traditional lecture-style teaching mode has failed in attracting students' interest, most colleges still can't throw off the traditional teaching mode.

The traditional lecture-style teaching mode focuses on the teacher, in which students learn knowledge through teachers' teaching and guidance, that is to say, teachers are transmitters while students are receivers in the traditional mode. Since students born after 2000 have the awareness of independent thinking and do not study just through eyes and ears, autonomous learning mode can help them to know their own characteristics and choose correct cognitive strategies based on their abilities. Besides, the autonomous learning mode is able to improve students' initiative and self-awareness, promoting students to develop good learning habits, make correct and objective assessment and finding unsolved problems.

Teachers in colleges should adopt a unique, independent, interactive and practical teaching mode which emphasizes the subjective initiative of the student, encouraging the student to be actively involved in the learning process. It is believed that teachers play an irreplaceable role in the learning process, which, however, does not contradicted with the autonomous learning mode. The autonomous learning mode does not ignore teachers' function in the learning process but means teachers should change the role of teaching skills to a role with various functions in the new-type teaching mode^[6].

Higgs (1988) has noted, “the teacher should act as a manager of the learning program and a resource person in autonomous learning in which the learner works on a learning task or activity and is largely independent of the teacher^[7]”.

3.2 Interactive Practical Teaching Mode

To adapt to the Internet age and social and economic changes, David A. Kolb, an Emeritus Professor of Organizational Behavior in the Weatherhead School of Management, Case Western Reserve University, America, has put forward the “experiential learning mode” in 1970s, also known as “experience-based learning”^[8]. This kind of mode helps the teacher achieve the interactive practical teaching based on experience.

The interactive practical teaching mode combines the autonomous learning with teachers’ guidance. For example, the teacher sets up a practice program based on students’ problems in autonomous learning, and then, under the guidance of the teacher and program mentor and based on the autonomous learning mode, students complete the program with skills related to design software, the interaction between students and the teacher, the communication among students, and the requirements of social market. In this case, students can not only finish the coursework but also make progress in skills and practice. Based on practices, the interactive practical teaching provides motivation for students to make actions, improves students’ skills, and cultivates their emotion and cooperation awareness, achieving the humanistic education. As is shown in Figure 1.

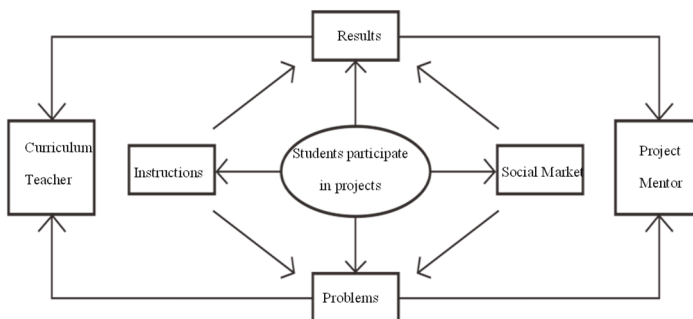


Fig. 1. Flowchart of students’ practical project

The constructivist believes that the learner should acquire knowledge with the help of teachers, good learning habits and necessary learning materials under certain social backgrounds and by constructing in a social context. They advocate the learning mode, under which the student study independently under the guidance of the teacher. In this case, both the learner’s role of cognitive subject and the teacher’s influence of guidance are important. In the design class of colleges, teachers should help students to construct knowledge rather than inculcate knowledge to students; and students should be the primary part of information processing, actively constructing knowledge rather than

playing a passive and receptive role^[9]. Modern education is gradually changing towards this trend.

3.3 Differences among the Autonomous Learning Mode, Interactive Practical Teaching Mode and Other Modes

Different from other teaching modes, the autonomous learning mode and interactive practical teaching mode focus on the student, encouraging students to obtain knowledge through practical activities. Specifically, students construct knowledge under situations that the teacher creates based on students’ hobbies. In this case, the teacher can know the process of students’ learning; and the student can thoroughly understand the teaching content, solve problems with the teacher’s pertinent guidance, and participate in the practical project to finish the final task. Both of these two modes require the interactions among students and between students and teachers, achieving emotional resonance. As is shown in Figure 2 and Figure 3.

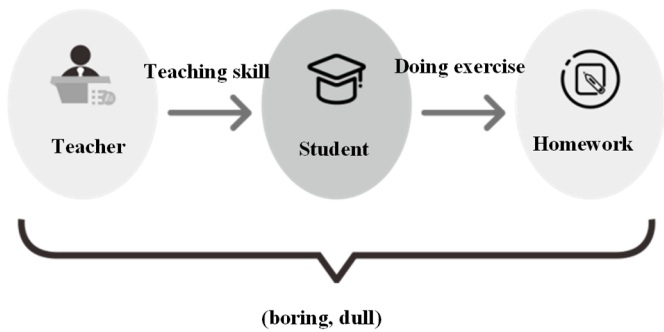


Fig. 2. Traditional Teaching Mode

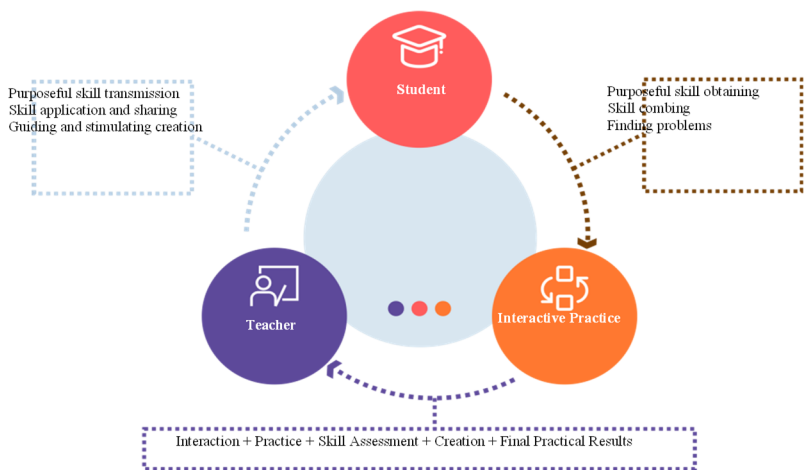


Fig. 3. Interactive practical teaching mode

The teaching process requires for cultivation and clearness. Poems and songs in The Book of Songs represent various aspects of the life through typical images and express someone's ambitions and emotions by singing different scenes and objects. Similarly, in the learning process, students can better understand the expert knowledge and skills by imagination, becoming more sensitive and active with their rationality and emotions being cultivated; and their brain is developed properly through the clearness in the teaching. Besides, the teaching environment also becomes friendly with the participation of students^[10]. For example, entertainment facilities in colleges allow students to participate in the design, draw the design with design software, and explain their ideas and drawing process, which is the context creation. In this way, the teaching on design software in colleges can combine the psychological needs, daily life and qualities of students with the teaching, and is no more a permanent and boring mode.

4 Course-Design Strategies of Autonomous Learning and Interactive Practical Teaching

4.1 Autonomous Situated Teaching System

The autonomous situated learning activities can be classified into problem-based activities and project-based learning activities^[11].

4.1.1 Problem-Based Learning Mode.

The problem-based learning mode means that, teachers set up the content and context, and then students have discussions in groups to find problems. In the problem-solving process, students should first collect necessary information to try to solve the problem rather than asking the teacher for solutions. In the process of autonomous learning and teachers' instruction, teaching content, stories in the context and clues are included; and, in students' discussion, exploring, explaining and cooperation abilities are developed. Finally, the teacher and students are making progress as a whole, as shown in Figure 4. In the process of cooperation, the teacher can have a basic understanding on students' potential abilities and weakness by studying their characteristics so as to achieve the teaching goals successfully^[12]. As for the student, they can better understand the content and find problems in the autonomous learning process, becoming more active and cooperative, which will promote the learning outcomes.

4.1.2 Project-Based Learning Mode.

The project-based learning mode means students master knowledge and skills as well as find their deficiencies in practical projects when they are involved in the process of finishing valuable tasks and studies, and then they will communicate with the teacher frequently and keep that in mind, as shown in Figure 5. Different from general extra-curricular activities and in-class instruction, project-based learning is a new kind of learning mode, during which, students need to give full play to their potential of autonomous learning and improve the knowledge application and innovation abilities^[13].

Under this mode, the teacher becomes the facilitator while the student changes from the follower and listener into the doer and dominator, thus arousing students' enthusiasm for learning, cultivating the innovation ability, enriching the learning process and promoting the efficiency of learning the skills of design software^[14].

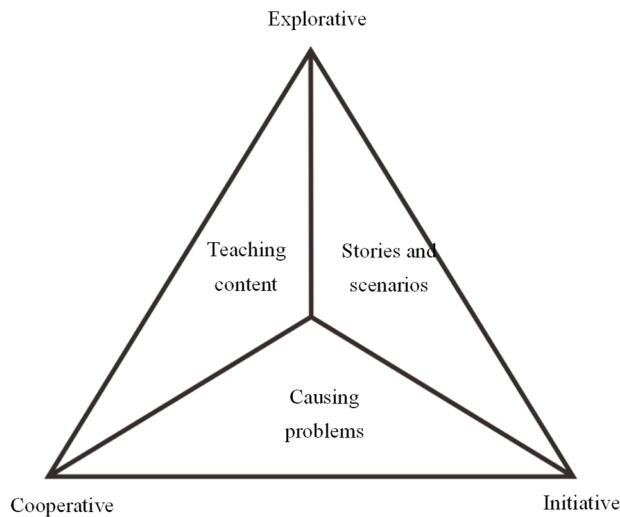


Fig. 4. Problem-based learning mode

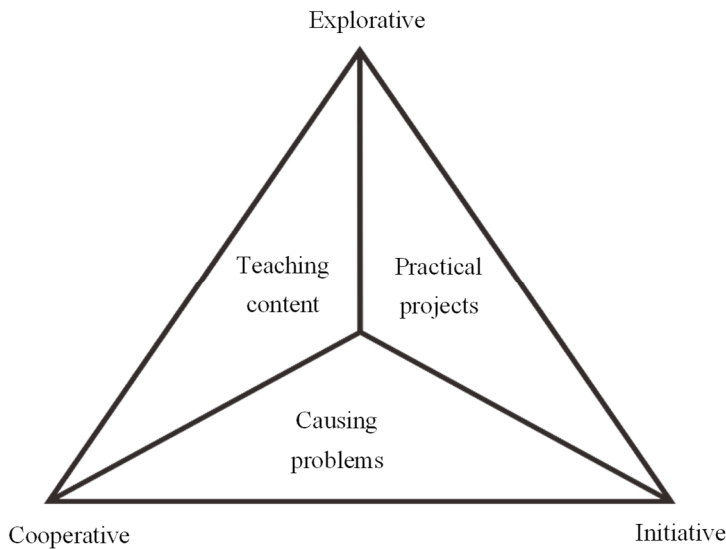


Fig. 5. Project-based learning mode

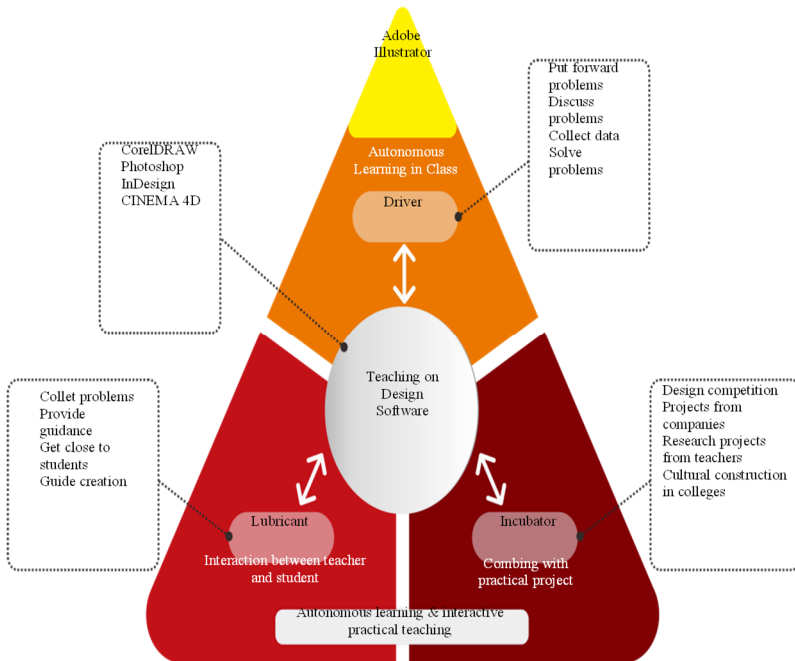


Fig. 6. Autonomous learning and interactive practical teaching

4.2 Presentations of Autonomous Learning and Interactive Practical Teaching

As shown in Figure 6, the student, teacher and interactive practices shape a triangle with the teaching on design software as the core. The triangle is extremely stable with the three points supporting each other. Based on the social requirement for talents, the autonomous learning mode and interactive practical teaching mode aim to achieve final teaching goals and improve the education quality^[15]. For example, in the process of learning the Adobe Illustrator, one kind of design software, a new teaching mode combining the autonomous learning mode with the interactive practical mode has been built by analyzing students' learning psychology and knowledge on design software, and based on practical projects and communications between teachers and students. As for the three points of the triangle, students' autonomous learning is like the driver; the interaction between teachers and students is the lubricant; and the practical project is the incubator. Based on above three points, a stable, active and valuable teaching mode is produced. This kind of teaching mode can systematically connect the design with class, and teachers with students, to make great effects on students' learning^[16].

The teaching on design software cannot be realized by just an individual^[17], which is achieved based on students, classrooms, practical applications and other resources. In this case, all aspects should build good relationships so that student can realize the importance of design software during the autonomous learning process and become more active to find solutions for completing the final practical project. Consequently, the old

passive mode which is for finishing the classwork and getting good grade can be abandoned; and the new mode is in purpose of improving students' initiative, cultivating the self-thinking, self-suggestion and self-critical thinking, motivating them to undertake the responsibility of learning and finally achieving their values^[18].

5 Conclusion

For the teaching on design software, the new teaching mode combining the autonomous learning mode with the interactive practical mode requires the cooperation between teachers and students. This new mode can not only help students to accomplish the design task autonomously but also strengthen the connection between learning and practices, improving students to learn skills more actively after participating in practical projects. The new teaching mode can help to achieve the successful teaching. Scenarios set in the earlier stage and psychological suggestion generated from autonomous learning facilitate students to improve their skills so as to finish the task successfully in the interactive practical teaching stage which will produce a well-off learning and teaching atmosphere. Students start goal-directed learning and the learning resonates with practices, which are the eye-catching points of the new teaching mode. To meet colleges' requirement for talent cultivation, it is necessary to apply the new teaching mode into practice. Only cultivating the talents with high requirements and standards, can the talent contribute to the development of the nation and society. It is hoped that above ideas can enrich the theoretical system of education in China.

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