Research on Teaching Design Based on BOPPPS Mode: A Case Study of the Course "Principles of Visual Communication Design"

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Abstract. "Principles of visual communication design" is one of the important theoretical courses of visual communication design during undergraduate, it is also a basic course which combines tradition and modernity. In this paper, based on the phenomenon of "marginalization of theory courses" of art students in nowadays, we studied BOPPPS teaching mode of Canada and integrated it into teaching. We analyzed the problems that arose in the teaching process of this course optimized the teaching mode and method, explored more suitable methods for contemporary arts undergraduates to study basic theory course, it is showed that BOPPPS teaching mode has effectively improved the students' studying interests as well as the quality of homework. We hope this study could provide a reference for the education reform in the future.

1. Introduction

The Principles of Visual Communication Design is an important theoretical foundation course for visual communication design. The nature of the curriculum determines the need to export a large number of abstract concepts in the teaching process.

In the past, the traditional "blackboard + chalk" teaching, the one-way transfer of knowledge teaching mode has been unable to arouse the attention and enthusiasm of students' learning, resulting in the low participation of students in the class, which in turn affects students in practice. The theoretical knowledge learned in the classroom cannot be fully utilized.

Therefore, the traditional teaching mode has seriously affected the further improvement of teaching quality, failed to meet the need to pass knowledge in the classroom.

The BOPPPS teaching mode is a new teaching mode used by Canadian teacher skills training. The teaching mode emphasizes the student-centered, modular decomposition of the teaching process, and the strong practicality and operability make the classroom teaching arrangement more logic and rationality. This research takes the course "Visual Communication Design Principles" as a research sample and introduces the BOPPPS model to inject new possibilities for curriculum teaching innovation in the course teaching.

2. BOPPPS Model Overview

The BOPPPS teaching model is designed by Canadian Teacher Skills Training and is based on the qualifications of teachers in British Columbia, Canada. It is mainly used for the skills training of teachers. In the training, the teaching practice is used as the leading method to enhance the teaching of teachers. The effectiveness of skills and teaching (Yang Bo Tan, 2017). At present, the BOPPPS model has been
introduced and implemented in Chinese classroom teaching, which can effectively, efficiently and effectively promote students to actively participate in classroom learning while improving the quality of teaching.

The teaching design concept of BOPPPS mode is to divide the classroom teaching into Bridge in, Objective, Preassessment, Participatory learning, Post-assessment and Summary six links (Figure 1), the following describes each link.

![Figure 1. Bopppps Model figure](image)

### 2.1. Bridge-in
The bridge-in is the first link in the BOPPPS teaching mode. The main purpose is to enable visual communication design students to understand the main content of course learning and stimulate students' interest in learning. In the bridge-in stage, teachers need to focus on the design theory and value of the course, combined with design practice learning, to stimulate students' interest through a story closely related to the course learning content or successful cases, and put the cases with learned theoretical knowledge in a coherent manner, and at the same time, questions related to the teaching theme are proposed, and the students are allowed to enter the self-learning process of the core practical teaching content.

### 2.2. Object
The object emphasizes the student-centered teaching model. The purpose of design theory teaching is to enable students to translate basic theoretical knowledge into design skills and innovative creative ability through theoretical study. Through design theory learning, it is possible to obtain correct analysis objects and propose reasonable design solutions ability. Therefore, the design theory teaching objectives need to be more specific and clear. The object of a design course should be only for one or a few methods. Teachers should repeatedly emphasize and clearly explain the specific content points that should be mastered in this practical study, such as the creative performance of the design, the appreciation of the relevant design and the corresponding design methods. Obviously, the clear teaching goal is conducive to teachers in combination with the design of students encounter specific confusion in practice, better design of the corresponding teaching strategies and continuous improvement of teaching methods.
2.3. Pre-assessment
After clarifying the teaching objectives, it is necessary to pre-evaluate or explore the knowledge background and knowledge of the students. The bottoming can be carried out through various methods such as questioning, quiz or discussion. The main purpose is to quickly and accurately grasp the knowledge base of the students and the understanding of the teaching content. The teacher adjusts the teaching arrangement in time according to the needs of the course objectives and the actual situation of the students. (Danping Cao, Xingyao Yin 2016) By understanding the students' familiarity with the practical teaching content in a variety of ways, teachers adjust the curriculum in time, and could arrange more cases for students to explain or discuss according to the unfamiliar knowledge points; on the other hand, students can further understand the key contents to be mastered of the practical course through the teacher’s pretest contents, which is benefit to clear purpose in the follow-up study process, and get better study results.

2.4. Participatory learning
Participatory learning is one of the other major links in the BOPPPS model. This stage is mainly through multiple forms of teacher-student interaction, repeated questions and answers, so that students can acquire new knowledge and master new skills in the interaction.

The main task of the teacher is to select the theme according to the goal of this teaching. After grouping the students, they will communicate with different groups and make basic plans for design through investigation, design and data reading. After each group completes the preliminary plan, each group of students will conduct detailed communication and report to discuss the design plan of the group. At this time, the teacher can raise questions according to the student's report situation and guide the students to think further. The arrangement of this method is completely different from the previous design theory lesson, which avoids the traditional cramming mode of teaching, making the students become learning subject of the class. In the process of communication, students not only exercise their ability to think, express, and cooperate, but also deepen students’ understanding of the theory and their own unique understanding, so that knowledge can be more deeply impressed.

2.5. Post-assessment
The post-assessment is to test the students' mastery and understanding of the classroom knowledge through a targeted evaluation method, and fully understand whether the students really learn the knowledge and ability and achieve the set teaching goals. Through the feedback of learning effects, further adjustments to subsequent teaching content and methods are guided. The teaching of visual communication design principle can be to ask questions or short paper writing, to the classroom content as the topic for students to analyze and answer, to supplement the students’ learning missing or weak knowledge points. The main purpose of this test is to let students truly understand the omissions and deficiencies in their learning. From the point of view of teachers, teachers can continuously correct and improve the teaching content and methods through post-assessment results, enhance the effectiveness of teaching, and strive to achieve the best teaching objectives.

2.6. Summary
The final summary is a summary of the content in class, which plays as a connecting link between the preceding and the following class. The student’s feedback on the mastery of the learning content, and the teacher also sorts out and summarizes the content of the teaching. Evaluation and feedback is the central link, can let teachers fully summarize the advantages and disadvantages in the teaching process, in order to improve the BOPPPS teaching model in the "Visual Communication design Principles" course of the application.

3. Teaching design of BOPPPS in visual communication design principle
This study introduces the BOPPPS teaching model into the course of visual communication design principles, and introduces the curriculum design through the bridge-in, learning objectives, pre-test,
participatory learning, Post-assessment and Summary (Figure 2). The following sections explain each stage.

(1) Introduction phase (Bridge-in). Played an advertising video, proposing that “eyes are active machines” to bring out teaching content, and to stimulate students’ interest with a direct sensory experience.

(2) Learning Objective. The learning objective refers to the objective of student learning and the objective of teacher teaching, which can be used as an evaluation standard for testing learning effects (Weiwei Chen 2014). The learning objectives are reflected under what conditions, what will be learned and what level will be achieved.

The third chapter of the Principles of Visual Communication Design reflects the following objectives:
1 three elements of the visual process;
2 the process of producing visual phenomena;
3 visual psychological content.

(3) Pre-test. The class uses the following questions to test before class:
1. Why can one person see an object? (Graphic description, student induction, get feedback)
2. What is the process of visual production? (thinking about the production process)
3. Why do the same objects feel the same for everyone? (Thinking about visual psychology)

(4) Participatory learning. Participatory learning enables students to actively participate in the teaching process and change the way of passive learning in the past. The use of activity-driven teaching methods can effectively motivate students to learn.

Case 1: When talking about the light in the visual physiology, use the two master paintings to let the students separately express the expressions. On the left is the sketch of Georges Seurat, and on the right is the sketch of Anger, by watching the works of Georges Seurat. Feel the different results of the light in the transmission of information, clear light can see the clear image results of Angel's works, and can distinguish the details of the object, which is called resolution; and when the light is blurred or weak, only see When an object exists and cannot see the details of the object, it is called perception.

Through the comparison and appreciation of the works of the two artists, the students participated in the discussion of the difference between the two paintings and the influence of light on the vision. Through this kind of problem-driven approach, students will think independently, continue to study in depth, and fully grasp the knowledge points of light in visual physiology.

Case 2: In the visual psychological knowledge point, visual perception is a proactive visual activity, which includes grasping the basic characteristics-shape. At this knowledge point, a classroom activity...
is designed, the outline of the class teacher is depicted, and the live demonstration is performed. The evaluation draws the most similar one. Through this activity, the concept of visual experience is guided. The visual features of each person's visual experience are different.

(5) Post-assessment. Responding to the learning objectives, designing test questions for different goals. In this course, the effect evaluation is done by short essay writing. The short essay topic is combined with the knowledge points of the courses and the contents of the students' practical courses, such as "poster design". The application of visual psychology in the book, "Analysis of the application of optical illusion in poster design", etc., use visual communication to convey the principles of design principles to illustrate classic works or students' own works.

(6) Summary. Review the teaching content of the classroom, review the thinking methods to solve the difficulties and emphases, expand the practical cases of visual perception, and put the principle of visual perception into the four elements of communication mentioned in the previous course, which is the part of the subject. Finally, the content format tower theory of the next class is predicted, and the related extracurricular expansion reading is arranged.

4. Effect of contrast
Through the comparison of the teaching effect between the class using BOPPPS mode and the regular class, it is concluded that the class based on BOPPPS mode improves the students' enthusiasm, classroom atmosphere and teacher-student interaction

4.1. Students' evaluation on the application of this teaching method
The results the results of the questionnaire show that the teaching method based on BOPPPS mode is diversified, the case is properly applied, the writing is improved, the students' learning interest is improved, and the teaching efficiency is improved. At the same time, the teaching mode closely combines the theoretical part of the teaching content with the practical operation, corrects the previous teaching concept of paying more attention to theory and less attention to operation, and is recognized by most students.

| Survey projects | Identity n % | Basic identity n % | Don't agree with n % | Recognition rate % |
|-----------------|--------------|--------------------|---------------------|--------------------|
| Boost your motivation | 18 62.07 | 7 24.14 | 4 13.79 | 86.21 |
| Teacher-Student interaction | 19 65.51 | 7 24.14 | 3 10.34 | 89.66 |
| Combination of theory and practice | 20 68.97 | 3 10.34 | 6 20.69 | 79.31 |
| Active classroom | 22 75.86 | 5 17.24 | 2 6.90 | 93.10 |
| Atmosphere Writing skills | 20 68.97 | 6 20.69 | 3 10.34 | 89.66 |
| Ability to think independently | 23 79.31 | 3 10.34 | 3 10.34 | 89.66 |

4.2. Final examination results
In the final exam results, better data results can be obtained for the experimental class based on BOPPPS mode.

| Class | Score (100 Score) | Basic knowledge (60 score) | Thesis Writing (40 Score) |
|-------|-------------------|---------------------------|--------------------------|
| Classes | 81.12±6.98 | 48.67±4.56 | 32.45±3.02 |
| Control classes | 76.53±7.65 | 45.92±5.79 | 30.61±3.84 |
5. Summation
This study uses multimedia courseware to assist classroom teaching. Through the creation of a situation, through a video advertisement, the concept is guided to the students, and then guide students to compare and analyze the visual content, using continuous heuristic and problem-driven teaching methods to promote Students actively think and learn actively. And can effectively guide students to sum up the role of discriminating visual perception in learning communication. The visual communication design principle is a relatively boring theoretical foundation course. This study initially introduces the BOPPPS model into the instructional design, and finds that the student's participation in learning is significantly improved, and the number of students including late arrival and absenteeism is also improved. The completion of the payment on time, the results show that the use of BOPPPS teaching mode can improve student participation, improve teaching quality, achieve effective teaching, and provide an effective teaching method for improving teaching.

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