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Research on the mathematical model construction of art and ideology in visual communication design teaching

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Abstract

Aims: To enhance the teaching quality in the field of visual communication design and make students to improve in all aspects of moral, intellectual and physical development, strengthen their ideological education, improve their ideological quality and strengthen their understanding of visual communication design art.

Methods: By using mathematical methods to construct models, and making appropriate selection of the literature method, practical teaching method and investigation method, the author made a comprehensive study on the artistic problems in art teaching from the aspects of definition, function, characteristics and students' ideological quality, and discusses potential solutions.

Results: It had a positive effect on teachers and on their teaching methods, so that they have a better understanding of their teaching work, to motivate themselves towards their goals, make the classroom teaching vivid and improve the teaching efficiency.

Conclusion: The art of teaching visual communication has a close relationship with the strength and quality of people's thoughts; so, we must strengthen the artistic quality of visual communication design education, to improve students' ideological quality and the art of teaching visual communication design. In our model, the motivation of teachers to create and sustain interest in students studying visual communication design is stronger when the imagination of ideological content is broad, and when the artistry is positive for right triangle and thoughtful for backward right triangle. The construction of the model is like a regular triangle and an inverted triangle combined to form a regular rectangle mathematical model. It will make visual communication design teaching like Mona Lisa so that people linger.

Keywords: visual communication design, mathematical model, artistry, teaching quality, ideological quality

Teaching is a science, art, and also an excellent, fine art. Teaching is essentially the unity of science, art and fine art. Teaching without science lacks the foundation. Science and art in art teaching are permeated into each other, and complement each other. In China, as early as in the spring and autumn period, the great educator

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Confucius implemented heuristic teaching, which reflected the superb art of teaching. Mencius inherited and carried forward the education thought of Confucius, putting forward ‘*Jiaoyiduosu Yi*’, which means ‘operation’, and also means the teaching of art. The modern educationist Yu Ziyi in his article ‘Teaching method in view of science and art view’ pointed out as follows: ‘our students, if there is no scientific basis, like blind man on a blind horse, which is too dangerous. However only knowing the scientific basis and no art processing they not deal with all the wrist, thousands of state million state, the myriads of changes of the students. Therefore, the teaching method bases on science, and art of alchemy.’ The description of the science and art of education complement each other, which is indispensable. In modern society, the art of teaching becomes an important task for every research educator. The Soviet Union educationist Ma Caren Co, a master of teaching, requests the teacher to have higher language literacy and to master a variety of tones, which are the significances of teaching. He also requests them to be good at using expression and exercising emotional control, to learn to perform and to be alert. Ma Caren Co’s successor, outstanding educator Sue Home Linsky, thinks that, ‘who wants a good leader to the course of teaching and education, he will listen to education and education of science, technique and art’. The American psychology education expert Skinner has stated that learning is a science, while teaching is an art which combines the students and teaching outline. In our country, in recent years, with lucubration of the teaching theory, research in the art of teaching also demonstrated keen interest in the study of art, and in other aspects of the art of language – such as writing on the blackboard by the teacher of the art, preparing lessons and the extensively adoption of classroom teaching to train art students [1–4]. Therefore, this paper aims to build a mathematical model in the teaching of visual communication design from the perspective of mathematical methods, so as to contribute to the effectiveness and visualisation of visual communication design teaching and improve the artistic accomplishment and ideological quality of students.

1 Definition of teaching art, visual communication design course

What is art? There are mainly two kinds of explanation. One refers to ‘the use of language, action, lines, colour, audio and other different ways to form the image to reflect the social life, a kind of social thought form and expression of the writer, the artist’s emotions’. The other refers to the method of creative work, such as the way, the art of conversation, the art of leadership and management art [5–8]. Teaching art of visual communication design (referred to using the abbreviation ‘Teaching art’) is a special art of both aspects. It is the use of artistic means, such as language, movement, sound, image teaching, teaching content and language expression specific to aid in the completion of specific teaching tasks. It is also a way of creative work, and teaching mode, which can be crested from time to time – wherever it is created.

2 The relation and difference between the art of teaching and art in general

2.1 Similarities between the art of teaching and art in general

The object of teaching and the object of art are similar. The object of Art is a rich and colourful world, in the centre of which is people, and the people’s spiritual world. The teaching object is also a person, and the young generation has abundant thoughts and feelings. Art should go deep into life, to understand and to create first-class works; teaching should make students achieve good educational results. The purpose of art is to demonstrate the purity of human thought, and to edify sentiment. The purpose of teaching is not only to impart knowledge, but also to increase people’s awareness, and thus shaping the soul of man.

The means of teaching of Visual communication design course and art are similar. The authors mainly use language art, action, lines, colour, sound, image, sound and feelings to express their thoughts and feelings, which reflect social life. Teaching also cannot do without language, action, image, colour and other means. Language (sound), action (shape) and images (colour) are the basic factors that constitute the artistic education. These

elements are based on certain rules to carry out a creative combination, which reflect the education of art and style.

2.2 The differences between art of teaching and art in general

The similarities between teaching and art reflect that they are interlinked, and teaching is also an art. However, teaching is a special art. Art teaching as a special field of artistic endeavour is manifested in the following aspects: it is special creation, performance and appreciation of teaching arts. Particularity of the teaching of art creation, the teacher is the subject of creation and creation is the product of effective teaching process. The art of teaching performance ('performance') is the comprehensive expression of appearance and behaviour, containing all the language and non language factors, and performance to consider the ethical value, to impart knowledge and educate people and to facilitate students to accept the artistic way. Special appreciation in teaching, namely the teacher's involvement in the teaching process for a subject that allows students to appreciate the existence of art, is called for; at the same time, teachers themselves teaching art appreciation is encouraged. To the perceiver, teacher appreciation of the object is limited to appreciation of the teaching process; the object is the successful growth of knowledge and abilities of the students.

The art of teaching art is more complex than the average, and more excellent, mainly in the benefit and comprehensive points. Art is about benefits, and teaching benefit as the highest standard. In actual teaching, the teaching of art is very strong, but not strong enough to improve the teaching quality of 'beauty', which is a mere formality associated with flower shelf. The art of teaching is comprehensive, and encompasses teaching content, method, emotion, educational tact and the proper use of crystal. Variation in teaching methods means comprehensive teaching. This is also the other art that can not be compared, and teaching is a kind of highly integrated art.

2.3 Concepts of teaching art

Rich knowledge is the foundation and premise of teaching art for the growth of knowledge itself. However, it is not equal to the art, and teachers with high knowledge level are not necessary for teaching art level which is high. The teaching method is a teaching art skeletal context, but the teaching method is not equal to the education of art, for some frequently used methods, which do not constitute the art of teaching high level. Inspiration and enthusiasm both constitute the soul of art, but the inspiration and passion are sometimes seemingly empty, floating and pageantry. The emotion itself is not equal to the art of teaching; teachers in the use of language, movement, expression, sound and image are the teachers responsible for creation of means to teach art, but the approach itself is not equal to the art of teaching. The use of bad approaches makes the teaching exercise become 'showy' and burdensome. The definition of teaching art is the teacher in the teaching activity, the use of language, movement, expression, colour, music, images and other means, creating teaching situation, creative teaching organisation, knowledge and aesthetic combined, so that students can efficiently learn exquisitely through teachers who use these teaching skills. Essentially, teaching art lies in combining the regularity and the originality of the perfect teaching methods.

3 Features and functions of art teaching in art

Teaching is an art; it must have the artistic characteristic. But the art of teaching is different from the general art; it is to train people in complex art shaping people's mind.

3.1 Characteristics of the art of teaching

3.1.1 Image of the art of teaching

The image is an important characteristic of the art of teaching. In the process of teaching, teaching to turn the abstract theory into image makes easy learning possible for students, so that they readily accept artistic knowledge, which needs the help of language, facial expressions, movements, visual means of teaching contents, image description, explanation and demonstration, which is the primary condition for students to understand and accept the knowledge. The image is using language, facial expressions, movements, painting, sound etc., for a variety of phenomena studying the objects of the outer and inner worlds of description, the abstract knowledge being an easy medium through which students can accept the knowledge. Image teaching is very important to cultivate students' imagination. Known as the Pearl on the crown, to stimulate the

3.1.2 Affective of teaching art

Affective teaching art is another feature of the art of teaching. Teaching is a common activity of both teachers and students; teaching is not only the transfer of knowledge and information awareness activities, but also includes the emotional communication between people. On the teachers' teaching ways, teachers should accomplish the task of teaching, not only to Daniel, Daniel and educating people, but also to move, with emotion. By placing attention on feeling, the feeling comes out through sense combination; this is the art of teaching requirements; teaching has an important condition of being infectious. Teachers should be full of emotion, with sincere feelings to infected students, considering the impact on students' mind. From the students' point of view, emotion is the learning motivation, and learning is as the music school. Student learning is not a solitary cognitive activity; emotional activity accompanies the whole learning process; it dominates the learning behaviour, which restricts the learning results. Sue Home Linsky said: 'there is no a poetic feelings and aesthetic Qingquan, there can be no comprehensive intellectual development of students.' Learning which achieves excellent results, and makes the students' spirits full of spirit, will produce higher learning enthusiasm and desire for knowledge.

3.1.3 Teaching of art creativity

Creativity is the art of teaching life, is the essential attribute of the art of teaching – no creation, no teaching art. Clyde E Curran said: 'meets certain requirements of the creative work is art.' Our writer, educator Su Lingyang also said: 'the teacher is called the artist, because teachers labor itself is a creation, but is more creative than the artist's creation.' Teaching of art creativity is called the 'difference' and 'original' factor. In teaching practice, teachers teaching art with high level of teaching makes the big difference and various teachers have their own unique style. 'The fundamental difference between the teacher and the teaching of the artist' lies in the fact that there is no originality. Like Mason, as in the chart 'construction', using buildings of similar design and mastery over sculpture, sculptures can be made to accommodate different exercises with respect to one's inventive mind and place. The teaching of art creativity is in addition to the 'difference' factor and the 'factor, original' and 'stress, tuning' two-factors. 'Stress' – that is, teaching in the face of unexpected events – can quickly make the best choice, and is called 'education wit'. 'Tuning' of art refers to effectively expanding the opportunities created by college students. The creative process involves materials. The teacher processing materials, processing the script as director, must go through a hard re-creation process. In the preparation of teaching materials, teachers should pass the originality of the idea, delving into the experience, to truly master the needed knowledge and skills, grasp its realism and richness, and realise the essentials. Through the study of textbooks, those who have cultivated their own unique insights can be handy, harness the best of both worlds; this is fascinating, because students reap the actual benefit. To implement creative solutions, during the teaching procedure, the situation should often change, and it often happens that some beat all things, which requires teachers to organise the teaching process flexibly according to the specific circumstances of the time; opportunistic processing problems can be adjusted in time according to the feedback information, and bring the teaching more closer to the reality of students, to ensure the smooth implementation of teaching plan. It also requires the teachers' creative quality.

3.2 The function of teaching art

3.2.1 Educational function of teaching art

The art of teaching role, first of all, reflected its effect on development of the students' moral emotion generation. The art of teaching comes with emotion characteristics. The art of teaching is actually between the teaching and studying of a kind of emotional exchange. The emotion is conveyed to the students, and arouses students' emotions; emotion infection from the teacher to the students is great (especially in the lower grade students). If the teacher to teach content has profound moral cognition and a strong moral emotion, students will be affected by this emotion, and produce the same moral emotion, so as to help students to strengthen the moral knowledge, and cultivate students' moral behaviour. If the teacher's communication is certain to embody the moral cognition, moral emotion and moral image in a way that infects students, this would arouse students' emotional resonance, will enhance the moral cognition and moral emotion of students and foster good moral character in life and learning. Second, the art of teaching can not only cultivate students' emotion but also can train students' will. A strong will is the important condition to gain success in the learning of students and the formation of good moral behaviour. As regards the art of teaching teachers, we often pay attention to the development of students' interest, and strengthen the students' emotion experience. The students have strong interest to learn the content emotion; this will produce a strong will.

3.2.2 The aesthetic function of teaching art

Teaching art is the function of aesthetic education, and the key lies in the art of teaching encompassing the whole teaching process and becoming the main melody's namesake. With superb art teaching and high level of art teaching, students can become aesthetic objects, and arouse their aesthetic experience correspondingly. If the students listening to the teacher feel that it is a kind of beauty to enjoy, students having this kind of experience accept that it is the teacher's teaching as the object of aesthetics and appreciation, and this helps students form the aesthetic idea. Teaching using melting language, successful action, modelling and the sense of hearing art as a furnace, both the teachers and students develop their language, visual and auditory senses, but the development of the aesthetic perception of teachers and students is also a consequence. With the art of teaching teachers, it can be perceived, cultivation of artistic merit and wit is as a melting furnace, enabling students to understand the lectures dealing with scientific beauty and artistic beauty, natural beauty and social beauty, life beauty, language beauty and beauty of words. In the teaching process, language beauty and beauty of teacher behaviour is made up of the two most important factors of teaching art. A teacher was teaching art masterfully; after his speech changes speed, rhythm, tone and stress, this will give students a kind of beauty to enjoy. The beauty of teachers' behaviour lies in making the observation that blackboard writing is beautiful, graceful; standing and sitting gestures will give students the influence of the United States. To enrich the students' aesthetic sentiment, improve aesthetic judgment ability and gradually form their aesthetic creativity, we should develop their noble aesthetic ideal.

4 The construction of artistic and ideological mathematical models in visual communication design teaching

Ideological quality determines the poor artistry of visual communication design. People with different ideological quality have different requirements and expressions for visual communication design. For example, the aesthetic function of art has different views and requirements for people with different ideological qualities. Therefore, to improve, train and cultivate students' ideological quality is also to improve students' aesthetic ability.

4.1 Psychological quality training for art normal students to overcome strangeness

The teaching process is a two-way information exchange process; so, interns should understand all aspects of students through various channels before class, such as the overall situation of the class, the original basic knowledge, as well as the interest for and demands of the course [9]. Only by doing this can we have a definite aim and start teaching from the perspective of the reality of students. Otherwise, we are unfamiliar with each other and it is difficult to carry out two-way communication and cooperation in class. The most nervous time for interns is when the bell rings in class. During the period from the office to the classroom, the ‘strange’ experience leads to the generation of nervous psychology (that is, one of the three in front). Therefore, interns don’t have to wait for the bell to ring before they go to the classroom. They can go to the classroom a few minutes before class, walk to the platform, get familiar with the classroom environment and make a psychological preparation; you can also go to the students to talk, and let the students get familiar with themselves, in order to shorten the psychological distance with the students, so that after the first stage, there will not be too much of strange feeling; the mental state will naturally be much easier; when the bell rings, a lot of the tension has been eliminated.

4.2 Self identification of teachers’ role and training of psychological self-confidence

From interns to students to teachers, not only the identity has changed. Furthermore, we should realise that we are already teachers, educators and organisers of students, not students. Only in this way can we consciously enter the role of teachers and produce the behaviour of teachers’ role, so as not to be afraid of students. Most interns who are nervous also lack self-confidence and worry about being laughed at because of bad lessons. Only in this way can we have a sense of sureness in the heart and the courage to overcome all difficulties, so as to eliminate the tension [10].

4.3 Understand the contents of the teaching materials thoroughly before class and do a good job in psychological preparation training

A good lesson preparation is the premise of a good lesson. As an intern teacher, an individual should not only digest the teaching content and make it a part of his cognitive structure, but also integrate his thoughts and feelings into it. He should write a detailed teaching plan, such as the content and key points of the teaching process, the difficult points and even the opening remarks and some terms of teaching organisation etc., which can also be written into the teaching plan in case going to class tense (i.e. two of the first three), makes him forget the ‘lines’. In this way, although the lecture may not be scripted, he can produce a ‘case to rely on’ calm feeling. On this basis, interns should be familiar with the teaching plan and practice teaching. That is to say, after the teaching plan is written, interns should read it silently for many times until they are familiar with the logical structure and main contents of the teaching plan. On this basis, interns can find a secluded place to speak and practice. They can also let students as the audience to give a trial lecture, or close their eyes to speak and practice in silence through imagination. Through this kind of teaching ‘rehearsal or training’, interns can become more familiar with the teaching content, and experience the teaching process; it is easy to enter the role of teachers, resulting in teacher role behaviour, without excessively strong tension [11].

4.4 The teaching process should be carefully considered and carefully designed

As the saying goes, ‘everything is difficult at the beginning’, the opening speech of interns is often bad, and the quality of the opening speech directly affects the teaching mood. If the opening words are not proper, or stammer, or result from shyness, it will increase the tension, uneasy state of mind and produce adverse effects on classroom teaching, so as to result in defeat psychologically [12]. Therefore, before class, the opening remarks should be carefully designed to be kind, natural and attractive, as well as humorous. This can not only shorten the psychological distance between teachers and students but also allow teachers to calm down and better complete the classroom teaching work.

4.5 Establishment of artistic and ideological mathematical models in visual communication design

With the rapid development of China's society, there is further deepening of the commercialised economy. Visual communication design is playing an increasingly important role in this process. An excellent visual communication designer can make the target product artistically processed, give people a direct visual impact and then improve the commercial value of the product. For the visual communication design major in colleges and universities, however, certain problems can arise in the teaching process; the author, on the basis of a lot of practice, in light of the characteristics of visual communication design in colleges and universities and the insufficiency, carried on thorough research, and has come out with some creative design teaching method, inspiring researchers to hope for a certain degree of enlightenment.

We compare the artistic quality of visual communication design to an upright triangle, and the ideological quality to an inverted right triangle. Then, the combination of artistic quality and ideological quality in a mathematical model is a regular rectangle, as shown in Figures 1–3. It will make visual communication design teaching like Mona Lisa so that people linger.

Fig. 1 Artistic forward right triangle.

Fig. 2 Ideological reverse right triangle.

Fig. 3 Mathematical model of artistry and ideology in visual communication design.

5 Concluding remarks

In this paper, the following aspects are discussed: the art of visual communication design of problems in the course teaching, analysis and discussion from the definition and the function of teaching art, characteristics of teaching art and art in general and their similarities and differences, the teacher is not a simple teacher, the teacher's work is the work of art, for a higher level of discourse teachers are the engineer of the human soul that hold the key to problems faced by people, art teachers have the ability to cultivate high quality talent, actively engage in teaching art research and promote the positive role of teaching.

The teaching art of visual communication and the strength and quality of people's thoughts have a close relationship with stronger artistry, and makes thoughtful imaginary space more broad; so, setting up a mathematical model in the visual communication design helps to strengthen the cultivation of the students' thought quality training to improve students' ideological quality, and this can improve students' aesthetic ability and artistic thinking.

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