The Research of Using Multimedia Technology in Architecture Teaching

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Abstract: Using multimedia technology in architecture teaching process makes the demonstration vivid, intuitive, and can be effectively time-saving. It is beneficial to the understanding of key, difficult and doubtful points, as well as useful to the cultivation of the students’ learning interest and observation ability. It is necessary to train the effective interaction between teaching processes through multimedia teaching, which effectively promotes class atmosphere. This article discusses the principle of effective interactions of teachers and students by the way of multimedia technology as teaching tool, and furthermore involving the specific teaching interactions in class.

Introduction

Along with unceasing development and progress of science and technology, the teaching process also involves more and more modern teaching means, so as realizes the optimization of the teaching effect. Especially in the specialty of architecture, multimedia teaching in class is not only makes the presentation more convenient, intuitive, and also effectively promotes the development both of teaching and learning. The improvements of two aspects of enthusiasm in teaching and learning make the teaching processes more vivid and lively, also strengthen the teaching vigor. This article explores the demonstration and interaction in the architecture field.

The Effect in Use of Multimedia in Demonstration

Architecture is stereo, but drawings are flat. Drawings can't become three-dimension just through imagining, but multimedia can change this situation. It can show plane, also present stereo. No doubt, multimedia makes teaching demonstration become flexible and be shown from different sides. As a result, abstract words become intuitive and vivid, avoiding boring, of course easy to be accepted.

Especially regarding to housing construction, such as the various parts of the structure, the three sides of the orthographic projection of the different architectural drawings and processes of construction work, it is difficult to demonstrate experiments which we cannot conduct. In this situation, you can use multimedia tools to simulate the specific aspects, so that students can "personally" understand easily. In this way, imparting knowledge becomes enjoyable, as well as inspire students more professional and technical interest. It is conducive to break through the teaching key and difficult points. For example, the standard system of profiles, sectional drawing, and the knowledge of "building construction" as well as series of architectural drawings, are summed up. More students can understand the professional knowledge, as a key breakthrough to overcome the difficulty.[1]

Another advantage of multimedia is beneficial to train the students’ observation habit and imagination ability, which is an indispensable part of the architectural ability in the future.

Multimedia teaching is direct-viewing teaching method, which can conduct students to observe the building houses carefully. Through their own eyes, students only can see various types of construction by multimedia. Thus, it can be very intuitive to let the students observe the detailed structure, building materials and construction technology. Due to careful observation, the students...
will recognize windows and doors, roofs in building comprehensively. On the basis of understanding, thinking of the characteristics of buildings, students will have a basic perceptual knowledge for buildings. In analysis of the beam and column’s structure, intuitive perception is raised to deeper rational knowledge. So that students have a deep understanding of building characteristics. The multimedia can realize buildings to students, rather than the pure language from teachers.

For architecture-learning students, there is the superficial understanding of the buildings’ internal structure. Therefore, as the first impression, observation is quite important. If these structures can be presented according to the construction sequence, it is very beneficial to their understanding. For housing construction, every student living in the house has the basic understanding. In the multimedia presentations, by understanding the structure and principle of buildings, they will involuntarily remind his own family, some buildings around the house, even all kinds of ancient or modern, Chinese or foreign famous buildings. By understanding the principle and method of door window switch, students want to have working-field observations. Naturally they also will associate with ordinary door window and professional doors, such as fire doors, water doors, security doors, and so on. In this process, the student’s vision has been expanding, and knowledge also got further widened.

Life is the basis of association and imagination. Any image comes from life, also housing construction. In teaching, we must not only cultivate the habits of students’ observation of house construction and construction site, but also the abilities to relate their own homes to ancient and modern, Chinese and foreign famous buildings. These habits and abilities have great advantages of recognitions of construction drawings and construction site. Through the means of multimedia teaching, it helps to develop students' ability of reading construction drawing what originally needs rich imagination.

The Necessity of Multimedia Technology in Teaching

The multimedia can stimulate the students' interest in study. The famous American philosopher, psychologists and educator, one of the founders of pragmatism philosophy, the John Dewey thinks, education is a process of experience growth and reorganization, which contains two basic factors: personal psychological factors and the social factors around. From the former, it is the main body of individual experience growth and restructuring. Psychological factors is the individual’s ability, interest, habits, which is also to understand and explain how indispensable the significance of individual experience growth is. Their formation and development will change with experience and activities. Especially the individual talent and interest to the exploration, it is absolutely the psychological basis of education.

It goes to show that, the key of whether to encourage and train students' learning motivation is the novelty, diversity and interesting of education content and methods. As an excellent architecture professional English teacher, the first job is to be good at using various existing methods of teaching to guide and train student the interests of studying. Therefore, in professional English teaching we should consider to use video, audio, multimedia and other modern tools, in order to fully exploit the vivid and intuitive features, such as arousing and improving student's study enthusiasm, as well as the thirsty for knowledge.

In the purpose of teaching English in architecture specialty, the vocabulary is one important annulus. But in the practical teaching, teachers often feel hard to make the clear explanation of English specialized terms. If there is unsatisfactory of students for architecture specialty, they remember words only by rote, completely unable to put things associated with language. Let alone apply their knowledge. The multimedia technology can solve this problem very well (its biggest characteristic is concise language, controlled picture). For example, in the teaching section of roof
structure, the multimedia can show visually to students the levels of roof building methods and the combination method of each layer of material. And at the same time we link the prepared English dubbing on the picture of various structural level, so take the professional English with physical contact together to form a clear and accurate representation, profoundly branding in the mind of students.

There are all kinds of images, rich comics and animation resources, accompanying with video and sound in multimedia demonstration. By these means, the interpretation of teaching content goes much easier and direct. In multimedia, static knowledge appears vivid, making class content simpler and more specific. Nevertheless, because teaching process puts emphasis on showing relevant content, teachers neglect students' interaction and communication in the certain extent. The class goes unilateral teaching, for example, students are forced to listen, and teaching effect is discounted greatly. In this way, interaction between teachers and students is necessary.

In the teaching activities, effective interaction between teachers and students let the teacher receive feedbacks in study participants, and then make the corresponding processing, so as to correct teaching defects. Secondly, the effective interaction can convey students’ feels to the teacher in class and feedback the master degree of imparting knowledge. According to the received information, the teacher makes the necessary adjustment, which can obtain the ideal effect. The effective interaction between teachers and students creates good teaching environment, and help students to absorb the knowledge in high efficiency.

Effective interaction between teachers and students drives the class atmosphere and helps students improve study interests. Of course, it is also helpful for modern teaching means. But anything has a degree, such as teachers demonstrate and explain blindly to the related content, not giving students space and time to think independently. So students will lose study enthusiasm and initiative slowly, the classroom will become a dead pool, with inevitable tedious.

The Principles of Using Multimedia in Teaching and Learning

In the traditional educational thinking, education is transmitting the organized knowledge from a generation to the next generation. Education is formed from the outside and inside (firstly, the external purpose and principles of education are to guide the teachers' teaching and students' learning: the students form the external moral objectives; beforehand all the learning of proper materials is organized and ordered). This kind of understanding makes education become the ready of future life, lead the purpose of teaching and learning is not only for now, but for the future, disregarding for the desire, purpose and interests of learner itself.

There exists some principle for effective interaction between teachers and students to follow. The first is media teaching. Teaching and learning have bidirectional relationship, which is a kind of interactive teaching methods. The whole process of teaching should be: impart knowledge—receive feedback—correct information effectively. In this link, the teacher requires to react quickly. When teachers find the existing problems and doubt in time during teaching process, amend inappropriate parts in courseware or method, it can fundamentally promote teaching, and improve the students' knowledge degree.

Second, the interaction between teachers and students follows the principle of independence. In the multimedia teaching process, students watch the multimedia demonstration; control computer and browse teachers design text, pictures, video, and audio and so on independently. Thus through these, students can form the initial knowledge structure, and then consolidate knowledge in teachers' help and counseling after discussion. This process also reflects that the student is the main body, the teacher is just on status of counsel, inspire and help. The teacher is more like a host, just guide the teaching activities. The effective interaction between teachers and students also needs to follow the principle of cultivating creative thinking. The multimedia teaching has the characteristic
of rich information, large capacity, and un-limited teaching material. These advantages help
develop the student's thought and realize the innovation, which indirectly broke through the
limitations of books.

There are a variety of ways of effective interaction between teachers and students. Teachers
should choose the most appropriate method according to the specific circumstances by detailed
analysis. For example, when a teacher gets questions method choice, it should go different from the
traditional question method. Using the multimedia tools, questions must be multi-direction, not only
between teachers and students, also between students themselves, which is quite infrequent in
traditional classroom. Take discussion method as another example. In teaching, the discussion
always goes in team unit. At the end of the discussion, the leader of the group will report the
conclusion to the teacher [5]. According to received report, the most representative problems and the
most common problems will be taken as key analysis and explanation.

Role exchange method and joint learning method are also bright spots of the multimedia
teaching. Let the students participate in the teaching process, be the master of the class, so that the
teacher is avoided the monotony of stand-up sing in the same time. A spectacle of analysis not only
promotes students' creation, also gives teachers the opportunity to be questioned. The both side of
teaching and learning get promoted and progressed commonly. The best teaching effects can
achieved as a result.

Conclusion

In short, due to the rich information of multimedia teaching, it is advantage to quickly demonstrate
the teaching contents, and thus save class time. Because of the teaching process being smooth and
fresh, it makes full use of the characteristics of multimedia, such as the visualization, diversify, and
vivid. Multimedia teaching pays attention to the connection of knowledge, as well as the teaching
flexibility and interactivity. All activities of the class should take the students as the main body,
through the combination of multimedia audio-visual and three-dimensional teaching method. It
arouses student's every sense in the maximum way, combined with inspiration and induction. This
kind of teaching method guides the student to carry out the creative language practice, and
stimulates students' imagination and innovation ability. So, multimedia class can become the
wisdom world of teachers and students.

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