Application Research of Communication Theory in Computer Education Teaching in Network Times

Yiying Wang

Department of Radio and Television, College of literature , BaiCheng Normal University, Baicheng ,China.

yiying0626@163.com

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Abstract: There is no effective application of communication theory in the traditional computer education teaching, and the improvement effect of students' computer level is poor, which cannot meet the practical needs of the network times Therefore, the application of communication theory in computer education teaching in network times is studied. From the perspective of teaching plan setting, classroom interaction and students' feedback, we choose the classic communication theory to be applied in the design of computer education teaching. Applying the "agenda setting" theory to the setting of teaching plans, Applying the "common sense space" theory to classroom interaction, Apply the "use and satisfaction" theory to student feedback. Achieve the application of communication theory in the computer education teaching in network times and complete the design of the application method of communication theory in the computer education teaching in network times. The validity of the design method is demonstrated experimentally. Experimental data show that the designed method enables the communication theory to be widely used in the computer education teaching. Compared with the traditional method, the computer level of students is improved by 3.39%, which is more adapted to the practical needs of the network age and has high effectiveness.

1.   Introduction

The popularization of computer knowledge is the foundation of the transition from human society to informatization, while mastering necessary computer knowledge and skills is the basic cultural quality of contemporary college students. As the basic quality and skills of college students, computer courses have been carried out in all colleges and universities across the country, and great achievements have been made. With the advent of the network era, university computer education is faced with great opportunities, as well as severe challenges. Colleges and universities mainly train advanced professional and technical talents. After obtaining professional knowledge and necessary professional guidance in class, students usually go to the library or laboratory to study independently according to the professional situation to enrich professional knowledge[1]. However, with the arrival of the network era, the way of obtaining knowledge of college students has been greatly changed, which is mainly reflected in several aspects: the globality of knowledge, the real-time nature of knowledge, the interactivity of knowledge, and the limitations of knowledge. The traditional way to acquire knowledge is relatively narrow. In the Internet era, by virtue of the global nature of the Internet, people can access the Shared information of any location on the Internet and view its knowledge resources, which makes the acquisition of knowledge more direct. Because the network information transmission speed is extremely fast, so the knowledge acquired through the network is basically real-time. As long as new knowledge is published on the network, it can be obtained in the first time with any computer terminal, which fundamentally changes the timeliness of traditional knowledge acquisition. Traditional knowledge acquisition is often passive, while the use of network platforms can gather a wide range of people with common interests, each discussant is equal, and the content discussed can also meet different levels of needs[2]. Due to technical limitations, not all professional knowledge can be expressed through network technology,

and knowledge in some professional fields cannot be easily converted into network communication mode. As a result of this technical defect, there are relatively few BBS in the network, which to some extent limits the wide communication of professional knowledge.

From the research results of some colleges and universities, the computer teaching still remains in the traditional teaching concept and mode, which has certain influence on the cultivation of talents in colleges and universities. The traditional computer teaching mode generally has the following problems: the students' foundation gap is big, the students lack the necessary guidance, the teaching and the practice exist disconnection, the teaching and the specialized union is not close[3]. How to make the computer teaching idea proceed from the reality, develop the quality of education, train the outstanding talented person with the innovative thinking people's high attention. In view of the above problems, this paper conducts the application research of communication theory in the computer education teaching in network times, and designs the application method of communication theory in the computer education teaching in network times.

2. Application method design of communication theory in computer education teaching in network times

From the perspective of teaching plan setting, classroom interaction and students' feedback, the classic communication theory is selected for the design of computer education teaching. The corresponding relationship between the selected theory and teaching design is shown in figure 1.
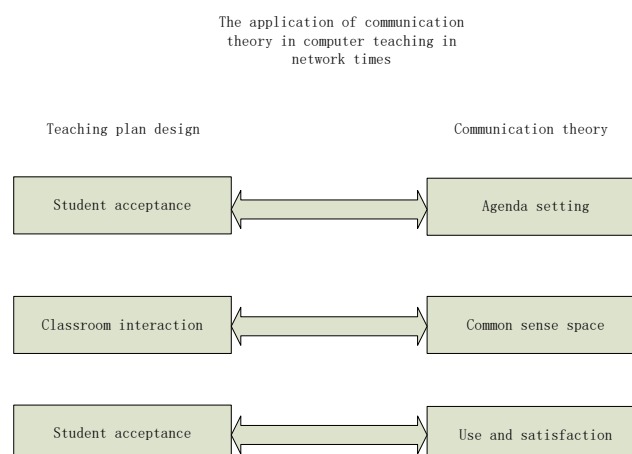

Figure 1. Correspondence between selected theories and instructional design

2.1. Teaching plan and "agenda setting"

From the perspective of teaching plan design, the "agenda setting" theory in communication theory is selected to apply communication theory to the design of computer education teaching.

The "agenda setting" theory was put forward in 1972. This theory holds that although mass communication cannot determine the audience's attitude towards specific events, it can effectively guide the audience's attention to content and discuss the sequence of events by controlling the content of information and arranging the sequence of issues transmission, thus influencing public opinion [4].

The teaching plan is designed by using the theory of "agenda setting". The composition of design method D is mainly based on the following formula:

$$D = s + c + g \quad (1)$$

In the formula, s indicates selection, the topic should be carefully selected to complete the rational setting of the topic. The premise of planning the agenda is that there are appropriate issues. The basic job of education teachers is to collect teaching information. In today's network era, information sources are more complex and richer. Teachers should collect teaching contents based on the curriculum standards. The information collected is not only limited to textbooks, but also needs to be expanded and extended a lot. With a certain amount of education teaching and

communication content, the number of quality issues in the class is greatly increased, and the importance of the issues can be analyzed after the issues are identified, and then transmitted to students after reasonable setting and arrangement[5]. In the process of spreading, we should know what students think. Often, there is a gap between the information collected by teachers and the information needs of students. After fully analyzing the knowledge level, focus of attention and cognition of students, attention resources, time resources, human resources and information resources allocated by different topics in computer education teaching are arranged.

c means control, and it should be strictly controlled, with a clear set of standards. With the advent of the Internet era, people gradually step into the information society. In the current information explosion era, all kinds of good and bad information is full of students' study and life, and at the same time, it also poses new challenges to teachers in computer education teaching. Computer teachers should be able to grasp the overall situation, process the communication content while ensuring that the communication content can keep up with The Times, get close to students' life and prepare for the challenges of the new era. Topics disseminated in the classroom are not necessarily transmitted from a positive perspective, and sometimes can be discussed from the perspective of negative information, which is easier for students to accept.

T indicates the time, it should take good control at the time when the topic is being taught. To achieve this, teachers need not only rich teaching experience, the ability to be well integrated in all kinds of knowledge, but also a certain degree of random variability. Discussing the right topic at the right time can greatly improve the teaching effect and students' acceptability to unfamiliar topics. However, discussing the topic at the wrong time can not only arouse students' interest in the topic, but also hinder students' understanding of the teaching knowledge[6]. Therefore, one of the important factors that determine the teaching quality is the timing and selection of the topic.

Through the above process, the theory of "agenda setting" is applied to the design of teaching program.

2.2.   Classroom interaction and "common sense space"

From the perspective of the design of classroom interaction, the "common sense space" theory of communication theory is selected to apply the communication theory to the design of computer education teaching.

"Common significance space" is widely used in education transmission, which means that education transmission is successful on the premise that both parties must have a common significance space. The "common sense space" in education transmission refers to the same communication symbol used by both parties. On the other hand, it means that both sides have similar cultural and living backgrounds[7].

Computer education teaching activities are the process of computer teachers' coding and communication of computer course knowledge, and students' decoding, receiving and feedback. In order to achieve good classroom results, teachers should strive to expand the common significance space between teachers and students.

This theory has important guiding significance for computer teaching activities. Classroom teaching dialogue is the interactive communication between both parties, which is the exchange of meanings between both parties. Therefore, in the specific classroom teaching process, teachers can add "common language" and expand "common sense space". The expansion of the common meaning space in computer classroom teaching can be started from two aspects: one is the common understanding of the symbolic meaning such as the language and characters used in communication, and the other is the life experience and cultural background that is generally close to each other. The construction of "common meaning space" in computer education teaching can start from the following aspects: strengthening the recessive dialogue, activating the life experience, and expanding the reading horizon [8].

Through the above process, the theory of "common sense space" is applied to classroom interaction design.

2.3.   Student feedback and "use and satisfaction"

From the design perspective of students' feedback, the "use and satisfaction" theory of communication theory is selected to apply the communication theory to the design of computer education teaching.

"Use and satisfaction theory" is based on the audience, analyzing the usage motivation of the audience media and obtaining satisfaction to observe the influence and effect of mass communication on the audience.

The "use satisfaction" theory changes the previous mode of thinking from the perspective of communicator and begins to shift the research focus to the audience. The audiences selectively contact and receive media information according to their own satisfaction and needs. Therefore, the analysis of audience media usage needs can help understand the audience and improve the communication effect [9].

The theory of "use and satisfaction" explains the social and psychological motivation and needs of the audience to contact the media. Students also have their own social and psychological motivation to receive information in the classroom. Analyze the needs of students to accept knowledge, and the main classification is shown in figure 2.
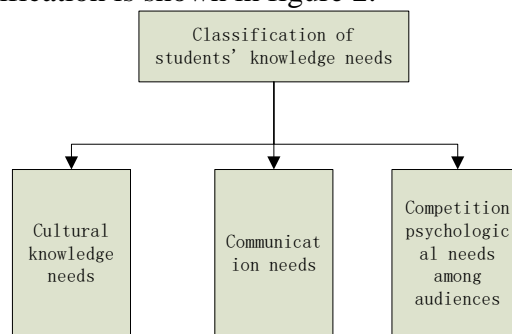

Figure 2. Classification of students' knowledge needs

The knowledge imparted in education teaching is a kind of cultural skill, which meets the students' demand for cultural knowledge. The wide application of computers in the network era makes the mastery of computer knowledge inseparable from daily communication. Therefore, the education teaching process meets students' needs for communication. At the same time, there is a competition among the students who receive education teaching. Therefore, the education teaching process meets the psychological needs of the audience.

To make use of this theory, we need to start from the following aspects. First, focus on the subject initiative of the audience. The theory of "use and satisfaction" suggests that we should think deeply about the motivation and demand of media contact behavior and explore the audience's subjective initiative. For classroom teaching, a large group of students should be the object of attention. The improvement of the function of classroom communication media and the innovation of classroom teaching communication methods should focus more on the needs of the audience, so as to enhance the communication effect and attract the audience's attention on the original teaching communication effect. Second, the audience should have good insight and grasp the needs of the audience. Before class, teachers and students should have effective communication, determine the purpose and focus of this teaching, understand the needs of the audience, and timely adjust the teaching information. During class, teachers should be good at catching students' answers to questions, group discussions, classroom atmosphere, students' expressions and other information, so as to make a comprehensive judgment on whether the teaching content is appropriate and whether it meets the needs of the audience. Ensure the audience's demand for watching and learning is met, make the education teaching process of the computer more interesting and improve the learning experience. Finally, students should explore the motivation to learn. Motivation is the intrinsic motivation for students to learn. Therefore, educators should pay attention to cultivating and

guiding their intrinsic motivation and improve students' enthusiasm and initiative to participate in computer education teaching [10].

Through the above process, the theory of "use and satisfaction" is applied to the design of student feedback.

2.4. Realization of the application of communication theory in computer education teaching in network times

In this paper, from the perspective of teaching plan setting, classroom interaction and students' feedback, we choose the classic communication theory to be applied in the design of computer education teaching. Applying the "agenda setting" theory to the setting of teaching plans, Applying the "common sense space" theory to classroom interaction, Apply the "use and satisfaction" theory to student feedback. Achieve the application of communication theory in the computer education teaching in network times and complete the design of the application method of communication theory in the computer education teaching in network times.

3. Experimental demonstration and analysis

In order to ensure the effectiveness of the application method of communication theory designed in this paper in computer education teaching in the network era, the design experiment demonstrates and analyzes the effectiveness of this method. During the experiment, the design method of this paper and the traditional education teaching method of computer were respectively used to carry out education teaching for students with the same learning level by teachers of the same teaching level. Taking the computer level improvement of two groups of students as the experimental object. Due to the progressive nature of learning itself, the experiment time is set as 6 months to get a clearer result. Record the computer level improvement of students after 6 months of teaching experiment and observe the experimental results.

3.1. Data preparation

To ensure the accuracy of the experimental results, control the experimental variables. This paper tests the effectiveness of the application method of communication theory in computer education teaching in the network age. It is necessary to control other variables besides teaching methods, such as the teaching level of the teachers themselves and the learning ability of the students receiving the teaching, so as to prevent the accuracy of the experimental results. In order to prove the effectiveness of the teaching design in this paper, the comparison experiment was conducted and the control group was selected. In order to get the result of improving students' computer level, the computer rank examination papers were randomly selected to test students' computer foundation before the experiment. The test results are shown in table 1.

Table 1. Results of students' computer proficiency test

Content	Value	Average score
C	20	12.4
C++/JAVA	20	11.2
VFP/Access	20	12.3
VB	20	11.7
Office	20	13.5
Total score	100	61.1

3.2. Comparison test results

Set up contrast experiment and use different teaching methods to conduct computer education teaching. After continuous 6 months, the computer level of the students was tested again, and the improvement of the computer level of the two groups were recorded respectively. The results of the computer level test of the students after half a year of teaching were shown in table 2.

Table 2. Results of students' computer proficiency test after half a year

Content	Value	The average score of the designed in this paper	The average score of the traditional method
C	20	13.4	12.7
C++/JAVA	20	13.3	12.4
VFP/Access	20	13.3	13.1
VB	20	12.8	12.6
Office	20	14.3	14.1
Total score	100	67.1	64.9

Through the above test content, the improvement effect of the two methods on students' computer level is calculated, and the comparison chart is drawn. The comparison results are shown in figure 3.
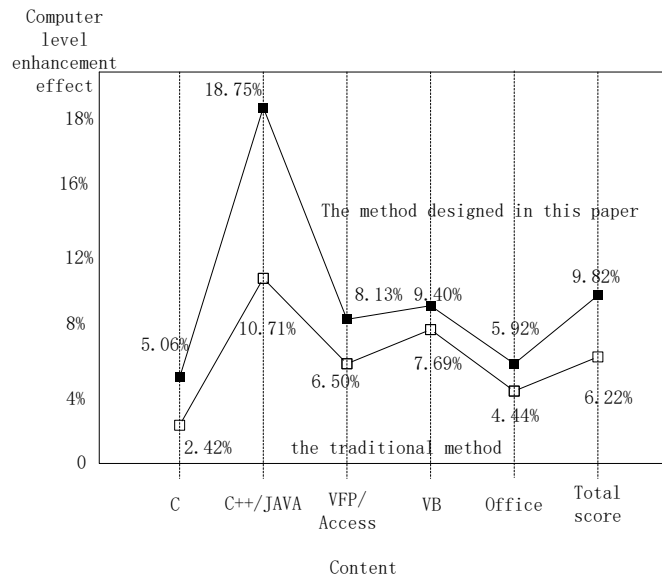

Figure 3. Comparison of computer level enhancement effect between the two methods

It can be seen from FIG. 3 that, compared with the traditional method, the application method of communication theory designed in this paper in computer education teaching in network times has obvious advantages in improving students' computer level. Compared with the original computer level of students, the design method in this paper can improve the C language level by 5.06%, C++/JAVA level by 18.75%, VFP/Access level by 8.13%, VB level by 9.40%, Office level by 5.92% and Total score level by 9.82%. However, the traditional method can improve the C language level by 2.42%, C++/JAVA level by 10.71%, VFP/Access level by 6.50%, VB level by 7.69%, Office level by 4.44% and Total score level by 6.22%. Compared with traditional methods, the design method in this paper can increase the C language level by 5.51%, C++/JAVA level by 7.26%, VFP/Access level by 1.53%, VB level by 1.59%, Office level by 1.65% and Total score level by 3.39%.

To sum up, compared with the traditional education teaching method, the design method in this paper can improve the computer level by 3.39%. It shows that the application method of communication theory in computer education teaching in network times designed in this paper has high effectiveness.

4.   Conclusions

The application method of communication theory in computer education teaching in network times designed in this paper has been proved by experiments to be able to effectively improve the computer level of students, and has high effectiveness.

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