

Teaching Research on Learning Motivation of Database Course Based on Cloud Teaching Platform

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Abstract—According to results of the questionnaire of 156 students, it is found that learning motivation is the main factor affecting learning effect. In the database course, Moso Tech is adopted as the cloud teaching platform to solve the problems caused by unclear learning motivation, such as students' low interest in learning and poor learning effect. Students' learning motivations have been effectively improved and their academic performances have been significantly improved by using the following eight strategies: creating problem situation, using descriptive evaluation, giving positive evaluation, maintaining learning motivation, improving content complexity, cooperative learning, positive attribution and extracurricular learning.

Keywords—learning motivation; database course; cloud teaching platform; teaching strategies

I. INTRODUCTION

Principles and methods of database are the core technology and foundation of information management. Database course mainly introduces the definition, principles and methods of database system and, through typical case analysis, enables students to systematically master the principles and methods of database and develop the database application system which can meet certain specification by using the database technology. By attaching equal importance to theory and practicality, the ultimate goal of the course is to develop students' ability to solve problems with database technology, stimulate their desire to continue learning and research in this field and lay a good foundation for information system analysis and design and other follow-up courses and advanced database system courses.

II. SURVEY ON STUDENTS' LEARNING MOTIVATION ON DATABASE COURSE

Learning motivation is a tendency to initiate and maintain students' learning behavior to a certain learning goal^[1]. In view of the current situation that students are not clear about the learning motivation of database course, the writer designed the learning motivation questionnaires and distributed them to 156 students of software engineer in her university.

In view of question "Are you familiar with this course and what is your learning motivation?", the result shows that 15.8% of students said "This course is directly related to their

future career and they are familiar with the application of the knowledge to be acquired in this course."; 40.4% of the students said "They heard that the knowledge of this course would be required in their future career while they are not familiar with it."; 35.6% of the students "do not understand what the course is for but want to pass the exam"; 8.2% of the students do not care about this question.

Students have several problems in learning database course: 1) do not have clear learning objectives, are easy to be tempted and distracted; 2) low self-expectation and lack of motivation or perseverance; 3) do not properly understand the importance of taking classes and have an attitude problem. The basic reason of problems mentioned above lies in the unclear learning motivation of students, which results in the bad learning effect. Survey of the course motivation is shown in Fig.1.

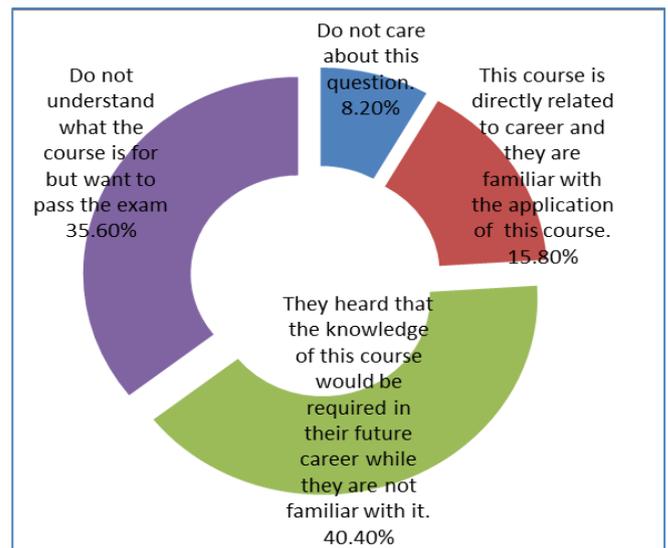


Fig. 1. Survey of the Course Motivation

III. THE SELECTION OF CLOUD TEACHING PLATFORMS

Moso Teach is a free, smart and interactive classroom teaching tool which has incorporated artificial intelligence technology. It can fully function both on app and PC. Based on the internet, it is a mobile platform to conduct real-time

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interaction between teachers and students, share learning resources and assign tasks. Its perfect incentive and evaluation system can stimulate students to learn on mobile devices on their own and the real-time record of students' learning behaviors can support the process assessment of learning and provide teachers with quality teaching research data in order to offer personalized guidance to both teachers and students based on its AI technology.

Moso AI is the technology used to collect the big data of behaviors taking place in the classroom based on the real-time interactive feedback and uses the user portrait technology to draw pictures for each teacher and learner by which it provides personalized development suggestion for them.

The AI smart teaching assistant can constantly track teaching activities and students' situation in the cloud class and provide the summary of teaching in previous week to teachers every Monday^[2]. It can also provide advice to improve teaching effects according to the types and frequency of activities conducted by teachers; it can also report teachers the most active students and ones who need extra help. The AI smart teaching assistant can also accompany students in the cloud class when they take classes, recording and analyzing their learning behaviors. It praises students when they have great academic performance and encourages them when they are left behind. The AI smart teaching assistant will organize the data of the previous week and report the learning situation of every class every Monday morning and provide relative advice.

This new cloud class with smart phones has replaced the traditional lecturing class which is considered as dull and boring. Cloud teaching platform is in line with the characteristics of curriculum and meets the need of learning motivation.

IV. ADOPT SCIENTIFIC TEACHING STRATEGIES TO ENHANCE LEARNING MOTIVATION

In the process of classroom teaching, teachers should stimulate students' learning motivation to improve learning effect.

A. *Stimulate students' learning motivation by heuristic teaching to create problem situation.*

The key of heuristic teaching is to create the difficult problem situation^[3]. The writer stimulates the students' learning motivation by distributing "preview guide forms" to students before the class, introducing cases highly related to the following class and creating the problem situations. According to Yerkes-dodson's law, when level of motivation is too high, performance decreases. Therefore, cases of moderate difficulty should be provided to students who can handle them with little effort. Cases, either too easy or too difficult, fail to stimulate students' motivation. How well teachers can control the difficulty of cases depends on how well teachers are familiar with the teaching content and the students' existing knowledge level and structure.

B. *Give descriptive evaluations*

Teachers should evaluate students according to their performance in the process of learning and doing homework.

This feedback, based on the outcome of learning, has a positive impact on learning effects. Therefore, students can adjust their learning activities and improve their learning strategies according to the evaluation results of teachers and meanwhile, students enhance their learning motivation in order to get better grades or avoid making mistakes again and thus maintain their initiative and enthusiasm in learning. Evaluation cannot be undertaken simply by "A,B,C or D, but instead, should be undertaken by using descriptive words according to students' performance which can state the specific strength and weakness of their learning. Evaluation will be meaningless if it fail to help students realize their problems.

C. *Build a well-balanced academic evaluation system*

In a well-balanced academic evaluation system, the evaluation elements of students' learning achievement must be diversified, which mainly includes two aspects: evaluation of students' learning achievement must cover multiple elements; in this evaluation system, the percentage weight of each element must be proportional. This evaluation system should focus on both the cultivation of students' lower cognitive ability and higher cognitive ability; attach equal importance to outcome evaluation and process evaluation; and pay attention to the evaluation of learning and the evaluation of promoting learning. This well-balanced academic evaluation system, based on the feedback, plays a key role in facilitating students to conduct a Full level, whole process, all - round learning.

D. *Maintain learning motivation*

In order to keep the learning motivation of students at a reasonable level for a long time, it is necessary to make students achieve success continuously in the learning process, and let students experience the joy of continuous success through reasonable learning efforts so that students can consciously maintain their learning behavior^[4]. Therefore, more positive motivation should be adopted when evaluating the learning effect of students.

E. *Enhance the complexity of academic content*

Compared to learning of professional courses, interdisciplinary courses can naturally increase the burden of study for students, which can stimulate their learning motivation more effectively. The database course teaching can integrated other courses to ensure it is not confined to traditional professional education, such as programming, algorithms, software engineering, information management and information system.

F. *Build collaborative classrooms*

Students' learning behavior is mainly carried out in class, and cooperative learning in class is an important factor affecting learning motivation. Project groups with cooperative learning as the goal can enable students to strive for their role and status in the group along with stimulating direct motivation, so as to effectively stimulate indirect motivation. Cooperative learning can also encourage students to work together to build a positive interdependence between students through which they work together, solve problems in the case, and share learning experience. After assigning the tasks, teachers walk among groups, listening to, guiding and correcting students, to truly achieve the student-centered teaching.

G. Positive attribution training

Changing the attribution style of the subject can affect the future behavior of the subject. When students finish a certain task, teachers should guide students to make attribution of success or failure. Teachers should not only guide students to find out the real cause of success or failure, that is, correct attribution, but also make positive attributions according to the advantages and disadvantages of each student's past academic performance, which benefits the future learning.

Positive attribution training plays an important role in the transformation of underperformed students who often attribute their failure to inadequate ability, which leads to a sense of helplessness and insufficient learning motivation. Therefore, it is necessary to make them learn to attribute the cause of failure to efforts through a certain attribution training, to get rid of the state of disappointment. The author has conducted attribution training for some students with poor academic performance and low self-confidence. During the training, they were asked to answer some questions. When they got correct answers, they were told it was the result of hard work. When they failed, they were told it was because they didn't try hard enough. After a period of training, not only students learned to attribute success to efforts, but also their confidence has been enhanced and academic and study performance has been improved effectively.

H. Guide students to invest more energy in learning outside the classroom

Learning is a continuous activity. Classroom learning is important, but so is extracurricular learning. Empirical research shows that increasing the amount of time spent outside the classroom has a positive effect on the improvement of academic performance^[5]. Therefore, extracurricular reading and writing should be intensified. After researching on the frontier of the subject and students, teachers should assign literature reading and essay writing to students which match their capabilities and acceptability. Meanwhile, incentives for innovation, entrepreneurship and social services outside the classroom should be increased. Importance to the cultivation of college students' ability of practice, innovation and entrepreneurship should be attached. Students should be required to fully apply the professional knowledge and skills they have learned to innovation, entrepreneurship and social services, where they can find, analyze and solve problems^[6].

The class process using these strategies is showed as Fig.2.

There are various ways and means to stimulate and maintain students' learning motivation. As long as teachers effectively use the above means to mobilize students' enthusiasm for learning, students are likely to learn actively and effectively.

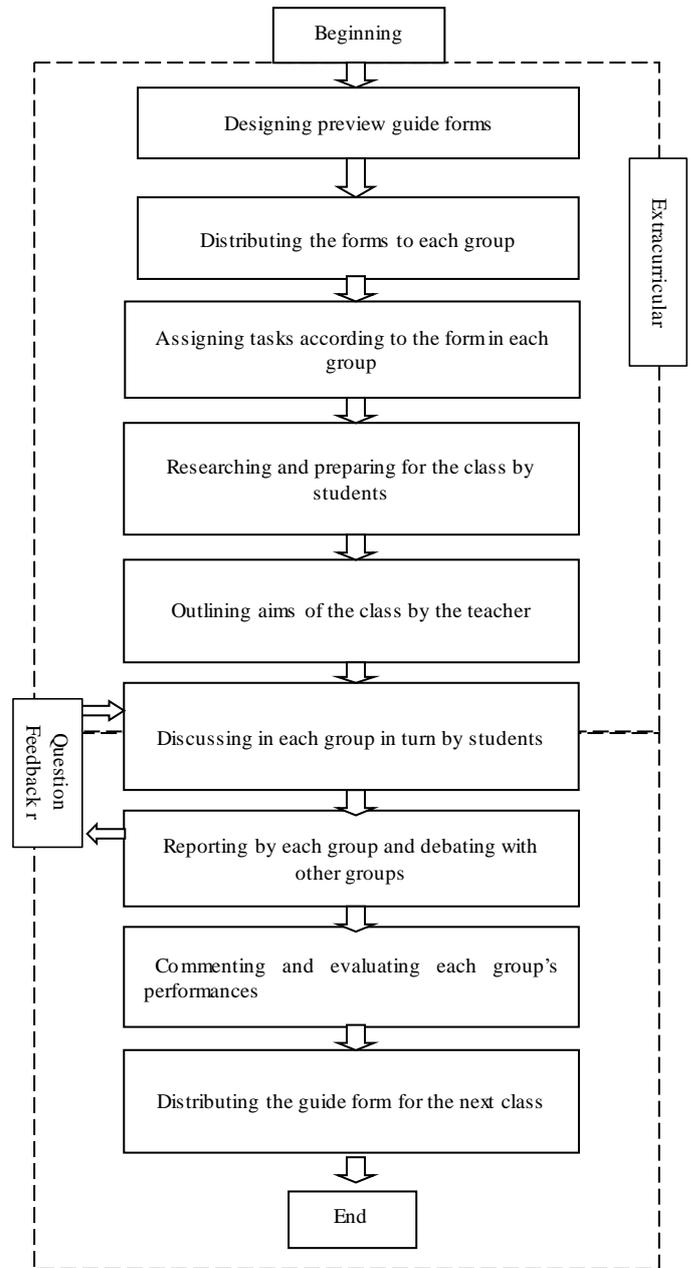


Fig. 2. Class Process

V. EFFECT ANALYSIS

By stimulating and maintaining the learning motivation of students at a certain level, their learning effect has enhanced significantly, which is mainly reflected in the following two aspects.

A. Students' learning initiative in class has been significantly improved

The writer has been using Moso Teach as the learning platform to stimulate students' learning motivation and it is

found that their daily learning initiative has been significantly improved, mainly reflected in the following aspects: 1) The attendance rate is maintained at a high level, which is 15.2%

higher than before, and the attendance rate reaches 94.6%; 2) The enthusiasm of students' participation in class has been significantly improved, and most of them can listen to the teacher carefully under the guidance of the teacher. The enthusiasm and accuracy of the class presentation are gratifying; 3) Students perform well in cooperative learning. For complicated cases, students can take the initiative to cooperate and solve problems in most cases.

B. Analysis of examination performance distribution

In the fall semesters of 2016 and 2017, the average score of students in this course is 72.3 and 73.9 respectively, and the failure rate is 15.6% and 14.2% respectively. After adopting this teaching strategy in 2018, the average score is 82.6 and the failure rate is 5.3%. The learning effect has been improved significantly with the average score of the students increased by about 10 points and the failure rate reduced by about 10%.

The role of motivation in learning activities is complicated. For teachers, understanding and mastering the types and characteristics of students' learning motivation has a positive impact on effective teaching. Students' learning motivation can be cultivated through the process of education and teaching. Students' motivation should be stimulated and maintained to guarantee their learning needs to be further boosted, such as using the cloud teaching platform to facilitate their autonomous learning, adopting novel and dynamic teaching methods, using situational approach to inspire students' positive thinking, and properly carrying out learning competitions, etc.

VI. SUMMARY

In conclusion, the role of motivation in learning activities is very critical. Motivation plays a role of reinforcement in

learning. In the teaching process, it is necessary to adopt a variety of strategies to stimulate students' learning motivation. The eight strategies given in this paper can effectively stimulate the learning motivation and significantly improve the learning effect.

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