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C Language Classroom Reform Exploration Based On Learning Community Teaching Concept

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ABSTRACT: The learning of C language course is the basis for the subsequent learning of other professional courses for computer majors. C language is a course with strong logic, strong operability, many knowledge points and difficulty, so the teaching of this course is a difficult point .The reform of traditional C language classroom teaching combined with the "learning community" concept teaching can stimulate students' interest in learning, promote students' practical ability, and reduce the difficulty of teaching.

KEYWORDS: Community; C Language; The classroom reform

I. INTRODUCTION(11 BOLD)

C language is the basic discipline of computer majors. For computer majors, the foundation of most languages is C language, such as C++, Java, C#, etc. C language is characterized by strong logic, complex content, multiple knowledge points and abstraction [1]. Traditional C language classes are mainly taught by teachers, who use PPT and textbooks on the platform, while students listen to lectures carefully and take notes [2-3]. However, such a method cannot make most students understand those complicated knowledge points. Therefore, it is necessary to explore and reform the C language classroom, and the teaching concept of "learning community" emerged in recent years just applies to the C language classroom. The teaching concept of "learning community" is different from the traditional classroom teaching concept. It emphasizes interpersonal psychological compatibility and communication, and plays a role of group motivation in learning.

II. PROBLEMS IN C LANGUAGE TEACHING

C language is a popular early high-level programming language, more grammar rules, flexible use, strong operability. Because of these characteristics of C language, it is difficult for students who just learn C language to get started. At present, the problems existing in C language teaching are as follows: many students can understand the theoretical knowledge taught by teachers in class, but when doing experiments, their brains are blank and they have no idea how to start; The knowledge points taught by teachers in class are basically learned from books, while the knowledge points in books are relatively simple,which leads to many problems encountered by students in programming after learning the theoretical knowledge of C language, which still cannot be solved. In the content that the teacher taught in class, grammar details are too much, ignoring the importance of algorithm; Students have poor hands-on ability, the experiment content is relatively simple, no challenge; Students' active learning ability is poor. They listen to the teacher carefully in class and consolidate in time after class [4]. The traditional C language classroom cannot solve these problems, so it is necessary to explore the reform.

III. AN OVERVIEW OF THE "LEARNING COMMUNITY" TEACHING PHILOSOPHY

"Learning community" refers to a learner and help scholars (including teachers and experts, mentors, etc.) of the group, is based on class teaching system in the form of learning organization at the grassroots level is according to certain teaching objectives, tasks and forms to be compiled, the goal is to promote the growth of the

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collective knowledge, and through this way to learn the knowledge of individual growth [5-6]. "Learning community" has the following characteristics :(1) organizational purpose.(2) systematic organization.(3) organization order. Traditional classroom education emphasizes the learning of individual knowledge and achievements, while "learning community" mainly emphasizes the compatibility and communication of interpersonal psychology, and emphasizes the role of group motivation in common learning. The learning community is a student-centered group, with teachers playing a dominant role. Teachers must guide students in self-education, independent learning and self-management [7]. In the learning community, learners feel that they belong to a group together with other learners, that they are engaged in common learning activities, abide by common rules, and share the same value orientation and preference. Learners' sense of belonging, identity and respect from other members of the community can help to enhance learners' participation in the community and maintain their continuous and hard learning activities. Learners communicate with teachers and other learners in the group to construct and share knowledge together.

"Learning community" teaching idea into the C language classroom, make students become the main body of study, mainly through the teachers guide students by themselves or with group problem solving, can establish good relationship between teachers and students with students at the same time, it is not only for students to learn C language has a great deal of help, can also reduce the difficulty of the teacher's teaching.

IV. RESEARCH MEASURES AND APPLICATION ANALYSIS OF "LEARNING COMMUNITY" CONCEPT IN C LANGUAGE CLASSROOM

The quality of C language learning has a great impact on the subsequent learning of computer majors, and C language itself is characterized by many knowledge points and difficulty in learning. If the original teaching methods are not reformed, students' interest in learning C language will gradually decline. The "learning community" teaching concept is a new teaching concept, which can improve students' interest in learning and contribute to the learning of C language. The specific measures to introduce the "learning community" teaching concept into C language classroom are as follows:

4.1 Give students the chance to present on stage and form study groups

According to the characteristics of C language, the teaching concept of "learning community" is introduced in class. Teachers can give students more opportunities to show in class. Programming in C language is very important. You can also give the students a slightly difficult programming problem before class, let the students solve the problem by themselves or by organizing a team, and copy the solved problem code to the USB flash drive, and then show the code in class. Student teams can be fixed or variable, can be formed by students themselves, or can be formed by teachers through different standards. A team can be organized by a problem, or it can be organized by criteria such as programming ability and performance. The specific process for students to solve programming problems is shown in the figure 1:

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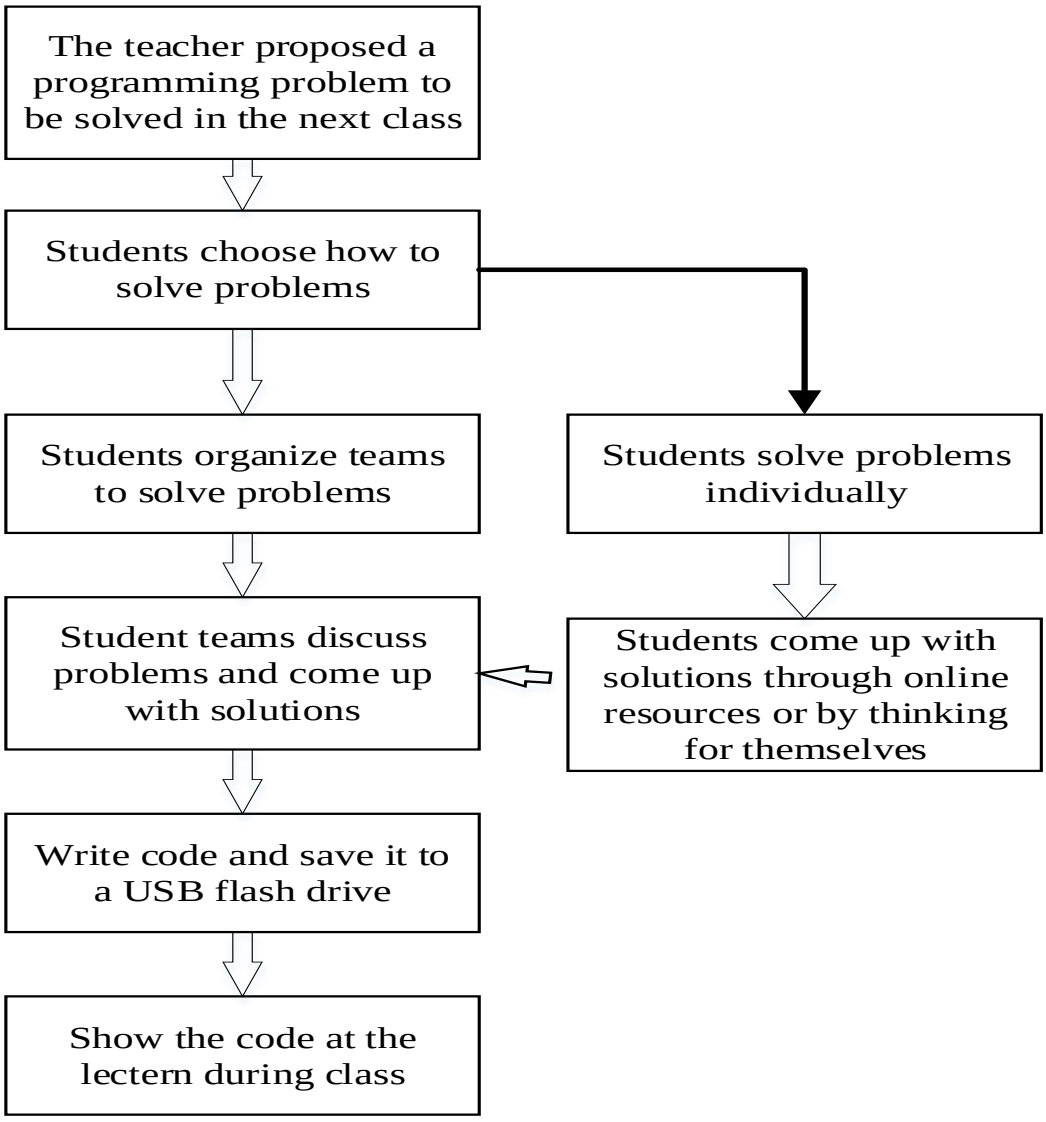

Figure 1 Flow chart of students solving programming problems

4.2 Teachers manage student groups according to various factors

For each group formed by students, teachers should teach students according to their aptitude. The level of students' group is uneven, so teachers should develop different management methods for different groups to strive for the maximum development of each student's programming ability. To develop a group management method, teachers must consider the number of groups, the actual practice time of students and groups in class, and the actual level of students in the group and other major factors. The process for teachers to formulate the method of group management is shown in the figure 2:

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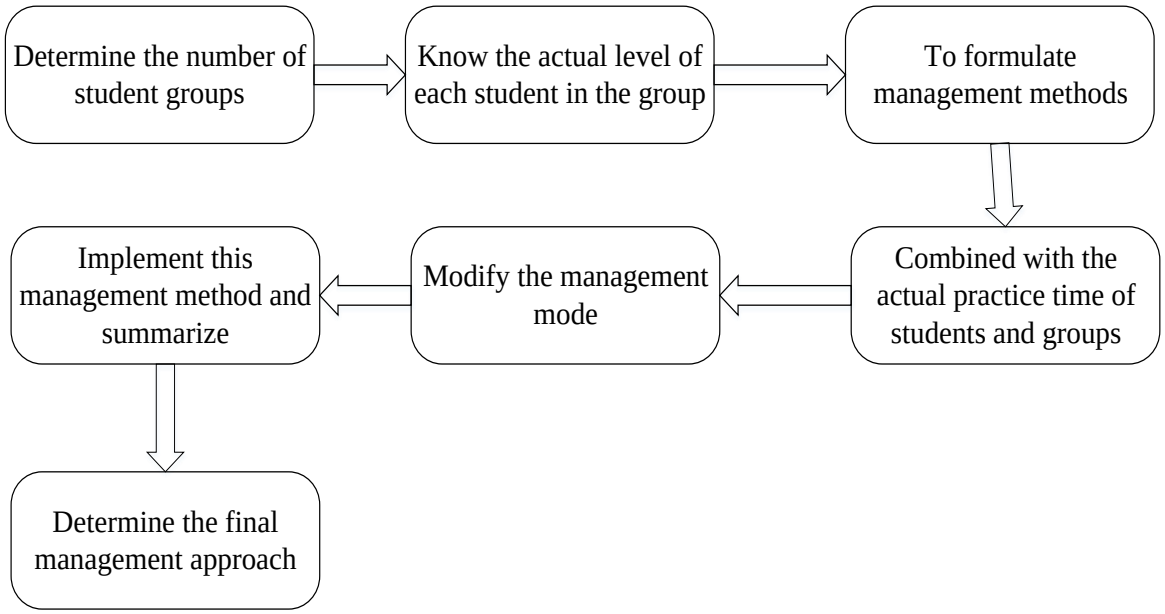

Figure 2 Teachers develop flow chart of management group method

4.3 To achieve the theory and practice of synchronization, through case teaching to stimulate students' interest in learning

C language is a course with many knowledge points, difficult to learn and strong operability. It is easy for students to forget the theoretical knowledge explained by the teacher after class if they do not timely operate and practice it. Therefore, experimental courses are required for students to solve some programming problems corresponding to the theoretical knowledge explained in class. However, in the traditional teaching method, there are many knowledge points explained in class and less content in the experimental class, which results in many students' low programming ability and reduced interest in learning. For the problem that theory and practice are out of sync, teachers can combine a case programming related to knowledge points, show the code of the case to students, and explain the knowledge points contained in the code, and then give similar topics to students on stage temporary programming. Teachers' combination of case teaching can not only make students understand knowledge points, but also improve students' programming ability and stimulate their interest in learning C language.

4.4 Establish a good relationship between teachers and students

The establishment of a good teacher-student relationship between teachers and students is not only beneficial for students to learn C language, but also helpful for teachers to understand the differences among students and reform the classroom teaching to adapt to each student. C language learning is difficult. No matter it is the study of theoretical knowledge or the practical operation of programming, students have encountered many problems that cannot be solved at their current level, and it is difficult for them to further study without solving these problems. Therefore, teachers should communicate more with students to understand the problems encountered by students, and solve the problems encountered by students in a targeted way, so that teachers can better further teaching. If teachers ignore the relationship between teachers and students, only to complete the teaching tasks and not to communicate with students, then no matter how to reform the classroom is futile. Therefore, the reform of traditional classroom teaching should emphasize that teachers should attach importance to the establishment of a good teacher-student relationship.

4.5 Adopt reasonable and scientific teaching methods

At present, most college teachers teach C language in the same way as the traditional way, which is not new. The research has proved that the traditional teaching method is not feasible for C language teaching and should be reformed. For the course of C language, there are many knowledge points and the course time is tight, so it is not realistic for the teacher to complete and explain all knowledge points just by taking advantage of the class time. With the progress of The Times, more

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and more APP appear online teaching, teachers can choose a few recommended good platform for students, and arrange some content to let the students themselves after class in class learning in online classes, and then give the corresponding programming topics in class to let the students came to temporary programming, on the basis of investigation the situation of the students through online learning. For the reform of classroom teaching, teachers should start from the reality of students, and at the same time, they can use media resources for teaching to find suitable ways for students to learn.

4.6 Reform the way of assessment and evaluation

In the past, the assessment method of students is that the usual score accounts for 30%, the experimental class plus the final exam score accounts for 70%.The examination form of the final exam is written exam instead of computer exam, which has caused many students in class at ordinary times not serious, not hard, but in the final exam as long as the period of time before the exam back textbooks theory knowledge can also get good grades. For this phenomenon, the examination form of the final exam can be changed into a combination of written test and computer programming test, so that the final exam not only tests theoretical knowledge, but also tests programming ability. This assessment method not only solves the problems caused by the previous assessment method, but also enables students to have certain pressure in the process of learning, so that students pay more attention to the learning of C language, so as to make C linguistics better and more solid.

After the implementation of the above measures in C language class, the situation of students before and after the introduction of "learning community" in three classes was analyzed in different semesters. There are many factors influencing the classroom reform, mainly the actual practice time of student groups. The number of groups and the actual level of each student also have a certain degree of influence on the classroom reform. By analyzing the influence of each factor on each class, the proportion of these factors in the classroom reform was obtained. The following table 1.

Table 1 The actual proportion of each factor in the classroom reform

Influence Factor	The number of groups	Student group classroom practice time	The actual level of each student	Other factors
Percentage	20%	45%	25%	10%

Before the introduction of the "learning community" teaching concept, an analysis was made of the students' learning of C language in each class, and it was found that most of the students generally had a low grasp of both theoretical knowledge and programming of C language. The following table 2. (low score means <=50, high score means >=90)

Table 2 An overall analysis of the results of each class before the introduction of the "learning community" teaching concept

Class	Minimum final grade	Highest final grade	Average scores	Pass rate	Low percentage of students	High percentage of people	Students' general programming ability
Class A	45	90	65.3	65.6%	2.3%	12.3%	Lower
Class B	47	93	68.9	71.3%	1.5%	10.6%	Commonly
Class C	40	91	70.3	69%	3%	9.4%	Commonly

After introducing the concept of "learning community" into the C language classroom, this paper analyzes the C language achievements of the students in these classes by combining various influencing factors. Compared with the traditional C language classroom, students' grades and programming ability have been improved. The amount of different influencing factors also has a

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certain influence on students' grades and programming ability. The following table 3.

Table 3 After the introduction of the "learning community" teaching concept, the results of each class were analyzed by combining all factors.

Class	Average number of groups	The proportion of group practice time in class	Minimum final grade	Highest final grade	Average scores	Pass rate	Low percentage of students	High percentage of people	Students' general programming ability
Class A	5	50%	62	93	75.3	80%	1%	21.4%	Medium above
Class B	7	40%	63	98	80.3	82.4%	0.7%	25.6%	Preferably
Class C	10	45%	59	94	78.5	79.4%	1.3%	23.6%	Medium

According to the tableand after the introduction of "learning community", it can be seen that the passing rate of each class has significantly improved. by comparing the passing rate of each class before

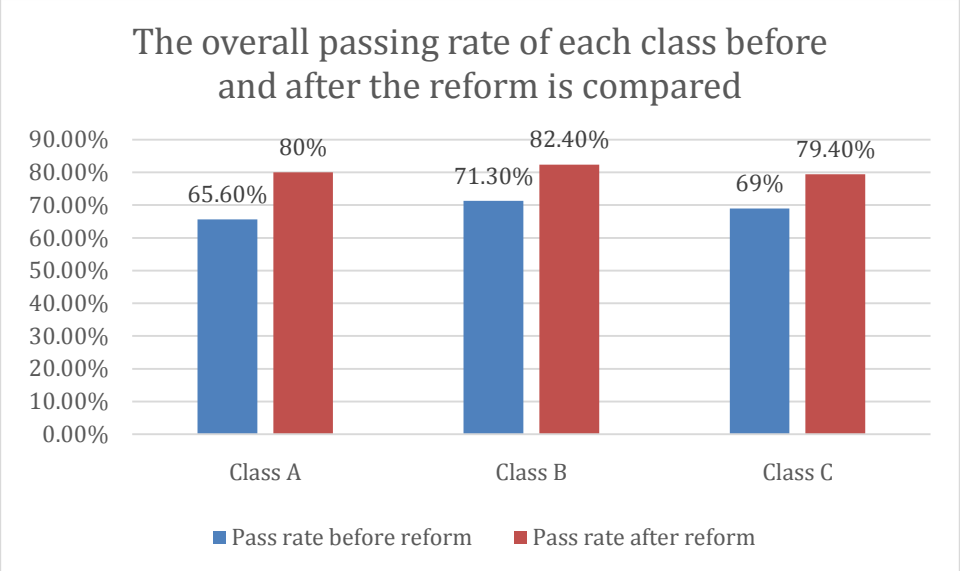

Figure 3 Comparison of passing rates before and after the introduction of "learning community" in each class

According to the data in the above table and chart, it can be seen that the introduction of the "learning community" teaching concept into C language classroom can not only improve students' grades to a certain extent, but also greatly improve students' programming ability. For analysis of data in table, can know the impact the influence degree of various factors on the result of the class is not the same, if it can be combined with the analysis of the impact of these factors on the students, not only the concept of "learning community" can be carry out to the C class, also can make each student's grades and programming ability to get the maximum improvement and development.

V. CONCLUSION

By introducing the teaching concept of "learning community" into the C language classroom, the traditional classroom teaching mode has been reformed. It is no longer the pattern where teachers lecture on the podium and students listen below. Instead, it is student-centered and teacher-led. Teachers guide students to solve problems on their own or in teams. In the process of problem-solving, students can not only gain a deep

understanding of knowledge, but also enhance their interest in learning and find effective learning methods. When reforming the traditional C language classroom with the teaching concept of "learning community", teachers should analyze the impact of various factors on students and the outcomes when implementing specific reform measures, in order to stimulate students' interest in learning and cultivate their practical operation skills.

REFERENCES

[1]. Xu,X.(2019).Based on data type perfect C language curriculum reform requirements. Management informatization in China，15,205-206.

[2]. Guo, Z.,&Li, H.(2108).The teaching mode of C language programming under the background of multimedia information technology. Journal of Henan mechanical and electrical college,6,71-73.

[3]. Li, C.M. (2109).Reform of C Language Practice Teaching Explore. Heilongjiang science,8,94-95.

[4]. Ding, Z.(2108).《C language programming》Teaching exploration and reform. Education Modernization，10,140-141.

[5]. Fan, W.Q.,& Wang, S.Z.,& Cheng, W.X.(2018). Enlightenment of learning community research on curriculum reform of "extensive reading of Japanese" -- a case study of Suzhou agricultural vocational and technical college. Journal of Sichuan cadre correspondence college (Sichuan cultural industry vocational college)，10,101-103.

[6]. Li,X.H.(2108).The construction and realization of "learning community" in college foreign language classroom. Journal of Hainan radio and television university,9,134-139.

[7]. Jin,L.L. (2018).Exploration and practice of the teaching concept of "learning community" in the classroom of basic Japanese. Journal of Hubei open vocational college,8,137-141.