Investigation and Cultivation of Learning Ability to C Language Courses for Non-computer Professional College Students

Kun-Hao TANG, Qing-Yun LUO, Rong HU, Cheng-Qiu DAI

Department of Computer and Information Science, Hunan Institute of Technology School, China
13587263@qq.com
*Corresponding Author

Keywords: C language, Non-computer Majors, Learning Ability.

Abstract. By search for the learning ability to C language course for non-computer majors, analyzing the shortcomings of current teaching in C language course, more scientific and effective plan would be improved to develop students' interest in learning, to strengthen the consciousness of students, finally to improve the teaching purposes.

Introduction

C language has a long history for 40 years since it created on the basis of b language in 1972 by Dennis M. Ritchie, it is still the most widely used and learned programming language. During the 40 years, millions of people have learned, used and improved it. It was to begin with 1994 in which national computer rank examination was arranged by the Ministry of Education, C language applications upgraded to a new height[1].

Hunan Institute of Technology School built the disciplines as a leader, with a focus on talents training mode reform, adhering to the path with "reform and innovation, strengthening the foundation, showing characteristics, scientific development", trying to turn school into a high level of engineering application-oriented university with distinctive features and known quality, and with a focus on nurturing high quality of expertise talents with solid foundation, technical precision, strong ability, innovation and social responsibility. In accordance with the requirements of the national development plan of higher education, my school organizationally arranges to offer basic computer course-C language for non-computer freshmen, in order to train students' ability in basic computer literacy, to let students master the basic C language grammatical knowledge, to improve students' comprehensive quality and to adapt to development of the times and market demands, finally to lead to full application-oriented talents.

For Investigation of Learning Ability of C Language Courses for Non-computer Majors

As one of the basic programming language in the computer field, C language is the cornerstone of learning more programming languages, with the rapid development of today's computer technology, C language has become the most required courses for non-computer majors in colleges and universities [2]. C language is maybe boring so that it is relatively difficult to study it, and the students almost don't realize the importance of C language courses; C language course arrangements are not reasonable, like increasing requirements for non-computer majors in learning C language, decreasing the teaching hours; disconnecting the theory and practice, and so on[3].

Ignoring Its Importance

For non-computer major students, the only purpose to learn C language is to pass the State Secondary Examinations, so they don't spare much time in C language, and have a few interest in it. [4] In the face of C language courses with certain professional, they have no motivation and it is difficult for them to learn C language, thus most of them choose to discard it. For example, most students were sleeping and playing with their phones in class, not keeping C language course in mind. It is universal phenomenon in a class that only a few people follow the teacher.
Irrationality of Teaching Hours in Schools

C language has its features with much syntax knowledge and professionalism, and most of the students are first exposed to computer programming language, it has many difficulties in the beginning of learning C language. For example, conditional statements, loops, arrays, strings, pointers, and many other knowledge points, only relying on the books is far away from deep understanding its function of this knowledge and how to use it, it requires teachers to refine the focal points, to explain the cases, so that students could fully understand and apply what they have learned.

Singleness of Teacher's Teaching Methods

C language is a computer programming language, the tedium is inevitable, C language textbooks mostly list the points which is not interesting and practical, it is already boring to learn it, while teachers' single mode makes it even more boring, it reduces the students' learning interest. For example, a single teaching method of some teachers further loses students' interest in C language learning.

Inconsistencies of Theory and Practice

School teacher resources are limited for non-computer majors which usually a teacher is responsible for several classes, because of busy working, it isn't possible for a teacher to teach C language experiments of several classes in the same time, so it results out the phenomenon that learning but not practicing it timely, finally students don't fully understood and memory new knowledge. For example, although one student in one major carefully listens to class and takes notes, she doesn't understand the knowledge enough, she hasn't her own thought when she practices programming on computer, it also needs to look at the book and slowly program codes.

C language Learning Ability Training for Non-computer Majors

Opening C language course aims to foster students' learning ability and logical thinking ability, in order to better meet the open C language courses purpose, to train C language learning ability, special improvements of the C language teaching course are as follows.

To Improve Students' Learning Interest

Having a C language course, teachers should indicated the importance of learning C language and its function and benefits, and link what majors non-computer students have learned with the C language learning to increase students' interests in learning C language. For instance, one student in one major has a strong interest in learning about computer programming, he taught himself the C language courses, he attended the school programming contest and won a second prize. Thus improving students' learning interest is an important part of training their learning C language ability.

Enrich Teaching Methods

First of all schools should be equipped with advanced teaching philosophy. Teachers can correctly guide students' interest in learning in the classroom, they can teach students the correct way of learning. Secondly, schools should conduct case teaching, students can analyze instances of C language to strengthen students' application of new knowledge, to exercise students of logic thinking capacity, at the same time, teachers explain variety of programming methods, they let students think more and use in a more flexible way, students really digest what they have learned; what's more, according to the students' level, the teacher made the basic tasks and advanced tasks, guiding students through the task and drive integration of curriculum knowledge. Finally, the teachers organize students to practice on computer. Teachers' main task is to guide the student in the learning process, and to strengthen students’ learning outcomes. In this way students can greatly enhance their interest in learning and expand their knowledge.
Proper Method

Learning C language is very difficult for non-computer major students. In addition to some professional requirements, there is no right way to learn C language is a great resistance to students. When having interests in C language learning, if students can master the learning methods, learning effects will certainly do more with less. For example, one student masters the correct learning methods, making rapid progress, learning is easier for him, and soon he became one of the "xueba" in the class. So teachers should clearly tell the students the point that learning C language is to read more, practice more and think more.

Synchronization of Theoretical and Experimental Teaching

Test is a means of knowledge application, it is also necessary to cultivate students' problem-solving skills and ability, so it is a very important step of synchronizing theoretical and experimental teaching. Teachers should try to take a synchronous arrangement for C language theoretical course and experimental course, because of that practicing on computer, students not only can enhance their understanding and use of new knowledge, but also let them experience the fun of programming, enhance self-confidence and increase their interests of learning C language. For example, one student is one of the several students with autonomous learning consciousness, Once he learned some new knowledge in class, he operated them on his machine out of class, this is the reason why he could keep up with the teacher's lesson plans.

Conclusions

Opening C language course is of great importance for non-computer majors to cultivate students' logic thinking ability and students' learning abilities, as well as the computer thought, it is of great help for students to learning and working in the future. Considering studying professional C language programs is more difficult for non-computer majors, the problems in the teaching need to be improved, the school should reduce the learning curve for the non-computer majors, develop students' interest in learning, and effectively improve C language teaching achievements of non-computer major students.

Acknowledgement

This research was financially supported by the University-level teaching and research on teaching reform in 2015 "the education reform and practices on innovation and entrepreneurship of the computer science undergraduates" (project number A1553), and guiding University students' innovative projects of 2015 (project number H1528) and Teaching and research teaching reform project in 2012 provinces (Research and Practice on the teaching mode of computer public course in Wiki Environment).

References