The Considerations for Training Computer Science Chinese international students in Acadia University

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Abstract
As the numbers of Chinese international students in Computer Science increased in recent years, how to teach these students became an important question. In this paper, the Chinese international students’ weaknesses and strengths are analyzed, and I share my classroom experiences to propose teaching strategies that in which theory and practice are combined.

Keywords Teaching, Education, teaching methods.

I. Introduction
Every year in computer science classes, you can see many Chinese international students, for example, in my classes, there are 15% to 30% Chinese international students. They have stronger backgrounds of mathematics and well trained on logical thinking. However, some students speaking English is not good. As they do not talk much while all the other students discuss questions. When they are doing programming (for example in Java or C language) they have a difficult time. Besides, when they write down a project report, their performance does not satisfy.

II. Teaching experiences

How do I teach the core courses in Computer Science? In our university, the core courses are Software Engineering, Operating Systems, Compilers and Data Structures and Algorithms. For these courses, usually students need to do projects, and sometimes medium size projects. I’ve asked my students to do a group work, but I need to separate all the Chinese students into a different group with other non-Chinese students. The reason for this is that I want to encourage these students discuss more with non-Chinese students and co-operative with them. In the additional, for these core courses, I think that the most important thing is concept understanding, as I provide many exercises, quizzes and understanding questions to help the students. For programming assignments, basically after each chapter, I give the students a quiz, from these quizzes we can learn the students understanding the contents or not, and then make decision for going on the new topic or provide more explanations.

How do I teach the programming languages? Such as, JAVA, C, C++, lisp and Prolog? I focus on giving lots of programming exercises rich in both quality and quantity.

III. A few stories to share:

Case 1: one graduate Chinese international student
He was a non-computer Science major when he was a undergraduate student. He had a poor background on computer science, as he arrived at our department, he enrolled into 3 core courses. After two weeks, he dropped 2 of courses, he was taking my Compiler class. I found the formal language is the main problem for him, as Scanner, Regular expressions and context-free gramma, and are related to Formal Language. So How to help him to make up the formal language knowledge is key. After he did many extra works, he improved a lot. He got B for the course at the end of the term.

Case 2: A Chinese international undergraduate student
He is weak at programming, and has a problem at submitting assignments. After I talked to him a few times, I found that he is weak on the programming grammar and format. Afterword, I provided him more exercises on these and gave him some small programming tasks, some extra help, and gradually he was able to do the middle programming assignments. Finally, he passed the course and got B+ for the final grade.

References


2. Lisp, Patrick Henry Winston and Berthold Klaus Paul Horn, 3th Ed. 2001, Addison-Wesley.


5. Inventing the world grant University: Chinese International students': Mobilities, Literacies, and Target, Steven Frailbery & Xiqiao Wang & Xiaoye You, 2017