

Developing more complex strategies for solving classroom diversity-related issues, after introducing the problem solving steps and doing some case studies

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ABSTRACT

In "Diversity in the College Classroom-Bridging the Achievement Gap" course (DCC-AG) offered by the Delta program, six graduate students were registered, and the course aimed to raise their awareness of core achievement gap issues and move toward appropriate evidence-based action. In one of the lectures the problem solving strategies were introduced to the students through active learning teaching methods and their improvement in developing more complex strategies for solving classroom diversity-related issues was measured. The results show that 80% of participants had improved in introducing more complex strategies for solving classroom diversity-related issues after the lecture.

Introduction

If a student understands theoretical material, it does not mean that he/she could solve the problems perfectly. Hence, if, as a teacher, we want to use students' responses to the problems as a way to assess their knowledge, we should make sure that they know how to attack the problem and how to use their knowledge to solve the problem.

Problem solving steps were introduced in the DCC-AG course, and the students' improvement in developing strategies in solving problems were assessed.

In class :
 $2+2=?$

Homework :
 $7^2 \times 5 - 8 = ?$

In exam :
 $522(2x^3y) + 982,523 = ?$

http://funny-pictures.feedio.net/funny-class-homework-exam-math-equation/static.themetapicture.com*media*funny-class-homework-exam-math-equation.jpg/

Objective

I expected the students to:

- Develop more complex strategies to solve classroom related issues after the lecture.
- Learn from their classmates through the class activities.
- Understand why it is important to look at a problem from different perspectives..

Teaching Methods

The problem solving steps were thought through combination of:

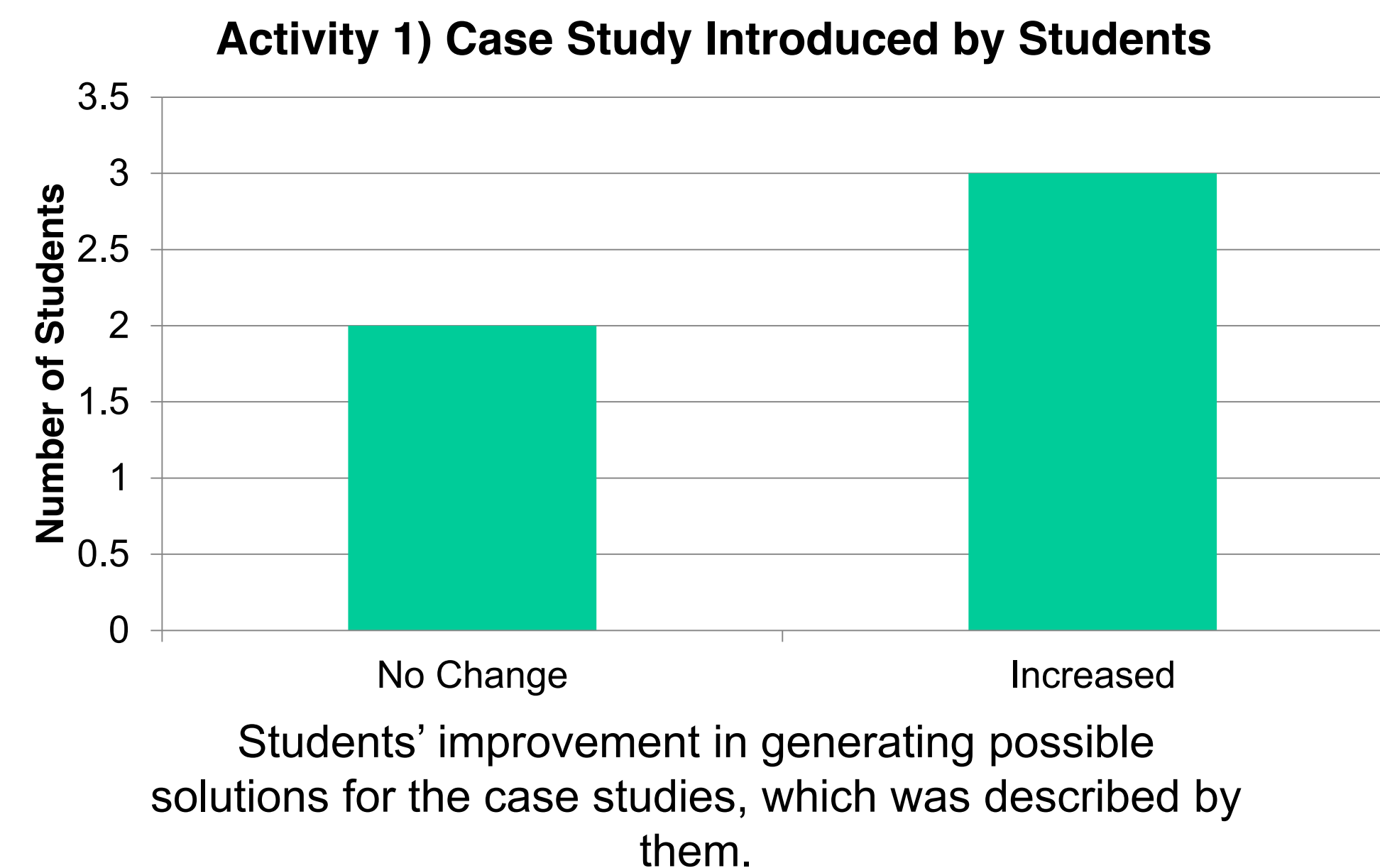
- Old fashion teaching method which means teacher teaches in front of class using sides and handouts
- Active learning method in which students are engage in their learning through group discussions.

Teaching Assessment

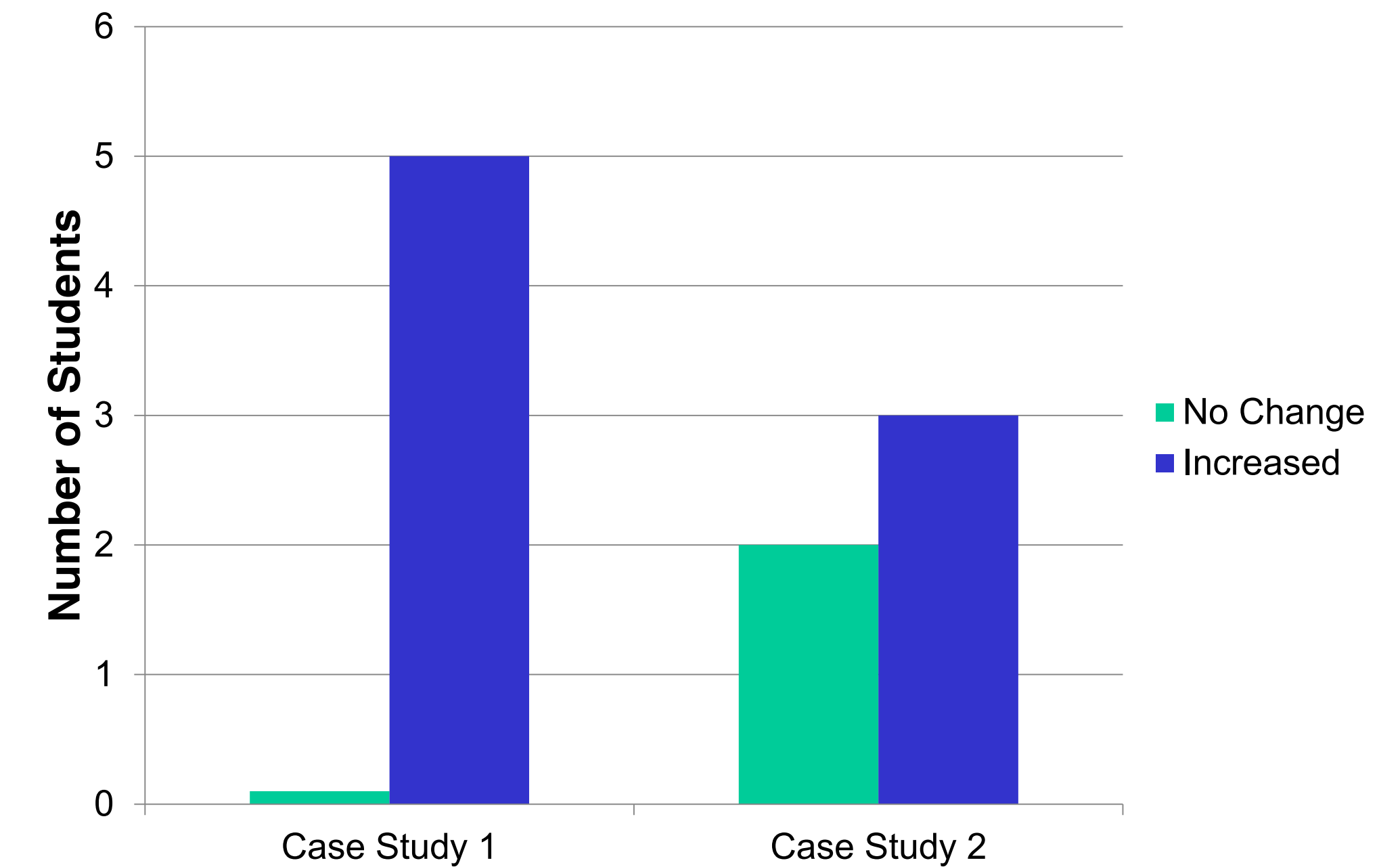
Three assessments were used to assess student's learning:

- Pre-post assessments: In the pre assessment, students were asked to answer some questions for two activities : 1) A case introduce by the students themselves , 2) Two case studies given to them. The post assessment was the same as pre assessment. The difference in the complexity of the responses in pre and post assessment was measured.
- Students' responses to reflection questions: After the lecture the students answered to three questions which reflected their understanding of the problem solving steps.
- Teaching evaluation : I used the teaching evaluation results which were answered by the students at the end of the semester, to learn about the usefulness of my lecture, and my teaching style.

Summary of The Results



Activity 2) Two Case Studies Given to Students



Comparing the changes in the number of strategies students suggested to improve the situation described in two case studies.

Conclusions

- 80% of participants had improved in introducing more complex strategies for solving classroom diversity-related issues after the lecture.
- 60% of students found the lecture and the activities useful.
- Students needed time to practice what they had learned, hence introducing the problem solving steps early in the semester may give the students more time to practice what they have learned.
- Having a written assessment helps instructors to understand the students' learning better, however analyzing the responses may not be as easy as processing multiple choice assessments.

Acknowledgments

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