Toward Creative Initiatives in Teaching and Learning in Higher Education Conference

PPU, Hebron-Palestine

Action Research

The impact of creative activities in solving the problem of the students errors in the output calculation of the division by the number zero

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Abstract

During my practice to teach courses in mathematics at Palestine Polytechnic University I faced a fundamental problem in which a large percentage of students gave a wrong output for the division of any number by zero, so I applied an action research to study and solve this problem. The problem of the research centered in the treatment of common misconception among students regarding the calculations of the output of dividing any number by zero, which appear during solving many mathematical problems, both theoretical and applied. The problem was identified firstly through observation and then by collected data through pretest was designed for this purpose. A sample of 60 students was drawn from two faculties; Engineering and Applied Science at Palestine Polytechnic University, they sat for this pretest, the results showed that 60% of those students gave wrong output calculation for the division by zero. After that, action research steps have been implemented through an action plan to confront and resolve this problem, five creative activities were done to address this commonly mathematical error represented in firstly the implementation of the scientific game about the famous fallacy to prove that "1 = 2", second and third activities concerning the illustration of the error by using the concept of sets and the number theory, the fourth one discuss related issues through working teams -cooperative learning-, as well as using a calculator and a computer. After that a post-test was conducted dimensionally equivalent to the same group of students, this post-test results showed a significant improvement in the performance of students after addressing this problem where the percentage of those who still have the problem fallen to 8%. In light of these findings the researcher recommended the hiring of creative activities to resolve this type of output errors for the division by the number zero.

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