

MATLAB Supported Learning and Students' Conceptual Understanding of Functions of Two Variables: Experiences from Wolkite University

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Abstract : A non-equivalent group's quasi-experiment research was conducted at Wolkite University to investigate MATLAB supported learning and students' conceptual understanding in learning Applied Mathematics II using four different comparative instructional approaches: MATLAB supported traditional lecture method, MATLAB supported collaborative method, only collaborative method, and only traditional lecture method. Four intact classes of mechanical engineering groups 1 and 2, garment engineering and textile engineering students were randomly selected out of eight departments. The first three departments were considered as treatment groups and the fourth one 'Textile engineering' was assigned as a comparison group. The departments had 30, 29, 35 and 32 students respectively. The results of the study show that there is a significant mean difference in students' conceptual understanding between groups of students learning through MATLAB supported collaborative method and the other learning approaches. Students who were learned through MATLAB technology-supported learning in combination with collaborative method were found to understand concepts of functions of two variables better than students learning through the other methods of learning. These, hence, are informative of the potential approaches universities would follow for a better students' understanding of concepts.

Keywords : MATLAB supported collaborative method, MATLAB supported learning, collaborative method, conceptual understanding, functions of two variables

Conference Title : ICMEELS 2019 : International Conference on Mathematics Education and Learning Sciences

Conference Location : Sydney, Australia

Conference Dates : January 30-31, 2019