

Mathematics Research and Teaching in University of Karachi: Challenges and Opportunities

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This paper dealt with the challenges involved and the opportunities available for mathematics research and teaching in a public-sector setting. The pedagogical philosophy is based on cultivating habits of creative thinking and critical analysis by providing highly motivated students sufficient depth as well as adequate breadth of the core and the related subjects so that they can make informed, independent decisions under stressful situations. The contents as well as the pedagogical techniques constitute an effective curriculum, combined with a system of evaluation to ascertain that learning objectives have been accomplished (Fig. 1). The training of a mathematician should take the incumbent from concept building and mapping towards applying the mathematical skills through problem formulation, analysis and suggesting viable solutions. Problem-solving in the classroom must prepare the student to handle industrial problems and, eventually, take up research problems. A teaching program without input from active researchers shall become mundane. Exposure to cutting-edge research is essential for the faculty and the students. The students should be trained to capitalize on the strengths of mathematics, having the power of generalization and the power of application, to formulate and to propose solutions, which enhance man's quality of life*.

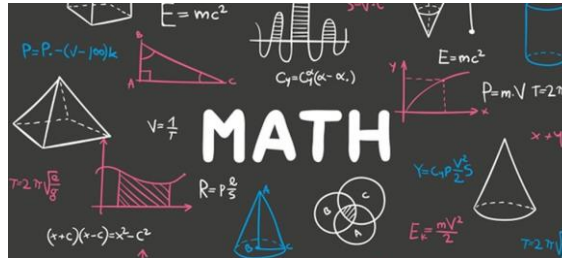


Fig. 1. Teaching of mathematics — concept motivation vs. action learning

Keywords: Concept building • Creative thinking • Critical analysis • Logical proofs • Problem solving

Web address of this document: <https://www.ngds-ku.org/Presentations/Math.pdf>

*Related works of interest are listed below:

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