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IMPACT OF SIMULATION AS A PEDAGOGY IN STEM TEACHING AND LEARNING: A STUDY OF UNDERGRADUATE STUDENTS OF MUMBAI IN THREE STREAMS PHYSICS, ENGINEERING AND TECHNOLOGY

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ABSTRACT

Computer based interactive simulations are playing a very crucial role in today's education system. Due to the rapid increase in the advancement of technology and application oriented educational pattern, simulations are being used in the classrooms widely, particularly in the STEM (Science, Technology, Engineering, and Mathematics) subjects. However, the effectiveness of the simulations on students learning outcome at various levels has been a matter of interest for many researchers. The following study examines the significance of learning outcome in students pre and post use of simulation in the class room, the feedback from students as well as teachers on the use of simulation as a pedagogy, for better understanding and making them industry ready with 21st century required skill set. The study was conducted in three of the undergraduate programmes i) Bachelor of Science (B.Sc. Major Physics) ii) Bachelor of Science B.Sc. (IT) Information Technology iii) Engineering (B.E) from 3 of the top 10 institutions in Mumbai. 139 students 30 teachers participated in the survey. The result revealed that there is significant difference in the learning outcome of students when analyzed overall and Stream wise and genderwise. The study also compared the feedback of students with the teachers on the use of Simulation as a pedagogy in STEM Teaching and learning.

KEYWORDS:*Simulation, STEM, Pedagogy, Simulation Education, Learning Outcome*

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