

EFFECT OF INTEREST IN MATHEMATICS IN STUDENTS' DECISION TO PURSUE PHYSICS FOR HIGHER EDUCATION

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Mathematics is often termed as the language of physics (Pospiech, Evlon, Bagno & Lehavi, 2015) and a major portion of course structure in undergraduate level physics comprises of mathematical physics. While there have been studies which have investigated the role played by students' understanding of mathematical concepts in teaching-learning process of physics (Pospiech et al., 2015; Karam, 2014; Hudson & Rottmann, 1981), the question as to whether interest in mathematics acts as a motivating factor for students to pursue a career in physics, has largely been ignored. This problem is of importance because it will enable us to understand whether students are exposed to the true interdisciplinary and inseparable nature of physics and mathematics in their school, and the implications of this in their pursuit of a career in physics. We performed a survey-based research involving undergraduate students of Physics (Hons.) in four colleges of the University of Delhi, namely Hansraj College, Miranda House, Swami Shradddhanand College and Hindu College. Structured questionnaires were used to collect responses of students and the data were analysed. The main questions that we addressed were:

1. Is the depth of mathematical skills required in the physics course meeting their expectations?
2. Are they able to appreciate the role that mathematics plays in understanding physical concepts better in their university studies than in their school?
3. How do the above factors correlate with the performance of the students?
4. Are students happy and emotionally satisfied with their decision of choosing physics as their major in undergraduate studies?

The data we collected strongly indicate that a majority of students feel overwhelmed by the rigorous mathematics that is required to excel in Physics (Hons.) course. The main cause of this is that they are not coached about true interwoven nature of physics and mathematics at school level. This study we are presenting, can serve as a benchmark to emphasise the importance of introducing interdisciplinary education at secondary and high school level and also the introduction of mathematical physics at senior secondary level in the curriculum.

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