

## A Critique on *The Unpopularity of Physics Lectures*

Article by W. Brouwer, D.J. Austen, and B. Martin

*The Unpopularity of Physics Lectures* presents a strong case for the student dissatisfaction with how physics is taught at the University level. Brouwer, Austen, and Martin, all professors of physics at Canadian Universities, draw on statistical data collected from student evaluations and find that physics courses consistently have the lowest ratings. They identify several faults in the way the subject is taught, including a lack of enthusiasm in the teacher, and a disconnect between the material and the real world. They address these faults directly by providing suggestions: teaching the history and philosophy in conjunction with the basic material, and encouraging creative and independent thought through open ended problems.

The paper coherently identifies the problems with the way physics is being taught, while suggesting real solutions to the problems. It begins by successfully engaging the reader with a series of questions that are intended to elicit a personal response. The opening paragraph is critical to the effectiveness of the otherwise dry presentation of statistical data that forms the basis of their arguments, which are strengthened by never straying too far from the data. With the faults identified, they address the source of the faults and how a teacher might overcome them. The recommendations are backed by the preceding arguments, and from personal experience. The only major fault of the paper is its length; several sections, notably in the suggestions section, seemed unfocused and over-long.

As a graduate student who has spent his undergraduate degree in many physics classrooms, I do not entirely agree with the conclusions of the article. Though it is never explicitly stated, I suspect that the article is based on data from 1<sup>st</sup> year physics lectures. In my experience, the quality and effectiveness of physics lectures is greater in the upper years. While this is possibly due to the decrease in class size, which increases class interaction, it is more likely due to the increased level of difficulty of the material, which demands greater involvement from both teacher and student. In contrast, students in the 1<sup>st</sup> year of studies are often being introduced to the subject of physics for the first time and so there is little common ground upon which both student and teacher can stand. I have found most of my physics teachers to be able to bring their own personality to the material being taught. This is reflected in their enthusiasm for physics as well as a genuine concern for the progress of the student. Ultimately, student comprehension is gauged by their ability to solve problems based on the material they have been taught. Thus a student knows that a strong interest or an understanding of the philosophy and history of the material will not bring about a passing grade.

Many students' experience with physics leads them to believe that physics is a subject inaccessible to the everyman, and lacks connection to the real world. *The Unpopularity of Physics Lectures* traces the roots of this thought to the way the subject is taught, identifies these faults, and discusses how they can be remedied. Brouwer et. al. claim that the lack of humanity in the way the course is presented is largely at fault. Though I agree with this statement, I believe it applies only to courses taught to undergraduates in the 1<sup>st</sup> year of University. Due to the more advanced material, upper year courses

demand more of a personal involvement from both teacher and student, resulting in an environment much more likely to generate genuine interest in the subject. Effective teaching, whether in the arts or in the hard sciences, requires a positive interaction between student and teacher, without which a true interest in the subject is never formed.