

Professor Lillian C McDermott

Lillian C. McDermott is a Professor of Physics and Director of the Physics Education Group at the University of Washington. She is a Fellow of the American Association for the Advancement of Science and the American Physical Society. Among her most significant awards are the 2001 Oersted Medal of the American Association of Physics Teachers, the 2000 Education Research Award of the Council of Scientific Society Presidents, and the 1990 Millikan Lecture Award of the AAPT. For more than two decades, Prof. McDermott has worked to establish research on the learning and teaching of physics as a field for scholarly inquiry by physicists. The Physics Education Group conducts a coordinated program of research, curriculum development, and instruction. The group is deeply involved in the teaching of undergraduate physics and in the preparation of teachers. The materials developed by Professor McDermott and her group are used nationally in the USA on undergraduate courses and in special physics courses for the preparation of teachers.

ABSTRACT

The difference between what is taught and what is learned is often greater than most university staff realize. The discrepancy is demonstrated in the context of systematic studies in which we examined how well undergraduate students, graduate students, and pre-college teachers understand certain basic concepts in introductory physics. The perspective taken is that teaching is a science as well as an art and thus research can be an efficient means for achieving cumulative improvement in the effectiveness of teaching. Examples will be presented that illustrate how this approach has provided a useful guide for setting higher (yet realistic) standards, for helping students meet the increased expectations, and for assessing the extent to which meaningful learning has occurred.