

Using National Standardized Conceptual Exams to Assess and Reform Introductory Physics

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Abstract

Although the physics department currently employs several national, standardized conceptual exams as assessment measures in introductory physics, this data has not been used to examine the effectiveness of active learning and engagement strategies outside of a comparison between instructors (and limited assessment of overall strategies employed in different semesters). To cope with the volume of data and the detail necessary to allow true course and programmatic assessment, we propose to build a database in Microsoft Access with SPSS for data analysis of all assessment results for introductory physics. This linked, searchable database will contain student demographic information as well as assessment results broken down on a per-question level to allow assessment of individual course elements. The database and an associated Learning Object Repository in Blueline will be maintained and will systematize the collection and entry of assessment data in the physics department. The assessment data will also be used to support Scholarship of Teaching and Learning/Physics Education Research projects in the department which require a level of detail in assessment data which has been difficult to achieve to date.