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## NATIONAL HIGH SCHOOL EXAM (ENEM) LIKE A FORMATIVE ASSESSMENT OF PHYSICS EDUCATION IN BRAZIL

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Brazil has some large-scale assessments, for instance, state or national exams to evaluate basic education, higher education admission process, and the national high school exam (ENEM) which is for sure the most important. It is possible to do ENEM as many times as Brazilian students want, but it is only possible to access higher education if one has finished high school. ENEM consists of two-days test, there are 180 multiple-choice issues plus an essay, divided 4 academic discipline: math, languages (Portuguese and Spanish or English), natural sciences, and humanities. For the admission process, the score for each area is treated based on the Item Response Theory (IRT), which tries to minimize the effect of random guesses. We use the researches on problem-solving strategies, because they provide a number of difficulties associated with the resolution of questions of physics. As seen, know the difficulties presented in their solution strategies of a problem can suggest ways to understand what are the reasons signal a wrong alternative. We believe these possibilities can be returned to schools as a way to assist teachers in improving the teaching quality, especially publics, approximate this exam to a formative assessment (TARAS, 2010). We analyze the physics issues in 2015. These were classified and compared independently by two physics experts, totalizing 15 issues. For the year analyzed, around 1.4 million of candidates realized ENEM of public school. Statistical analysis, to rating alternatives, was conducted using SAS 9.4 software. Wrong alternatives with higher rate, could be used to identify the strategies to solve the proposed questions. All of issues where solved by the authors, carefully searching possible alternative tracks to the issues solutions. Alternative tracks, were compared with the rates item, searching to explain the students' physics knowledge used in the issues solutions. The issues represented a large spectrum of physics knowledge. We can seem a low value in the issues correct (0.30), this reflect a hard difficult of the students in physics. The best performances in issues were when the context is closer to everyday life and the worst performance are in issues when necessary a mathematician approach. The strategies analyze results in the following inferences: a not correct use of units of measurement, the presence of symbolic forms, intuitive reasoning in solving problems and not scientific concepts. With the results we can construction of a reference matrix indicating which the mistakes made by students and the possible reasons that led to commit such errors. At the time that this array was returned to school and interested owed would be considered as a feedback element that essential to the development of a formative assessment (TARAS, 2010). If the results returned for the schools teaches can be used to promote learning, and we expected that physics teachers, use that information to improve the students' knowledge, in physic area on public schools. M. Taras. (2010) De Volta ao Básico: definições e processos de avaliação. Práx. Educ. 5, 123.

**Apply to be considered for a student award (Yes / No)?**

No

**Level for award (Hons, MSc, PhD, N/A)?**

PhD

**Primary author:** Prof. MARCOM, Guilherme S. (UNIVERSIDADE ESTADUAL DE CAMPINAS - UNICAMP)

**Co-author:** Dr KLEIKE, Maurício U. (UNICAMP)

**Presenter:** Prof. MARCOM, Guilherme S. (UNIVERSIDADE ESTADUAL DE CAMPINAS - UNICAMP)

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