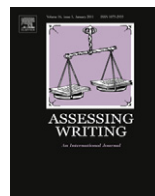




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Assessing Writing



Validating automated essay scoring for online writing placement

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ABSTRACT

In this paper, I describe the design and evaluation of automated essay scoring (AES) models for an institution's writing placement program. Information was gathered on admitted student writing performance at a science and technology research university in the northeastern United States. Under timed conditions, first-year students ($N=879$) were assigned to write essays on two persuasive prompts within the *Criterion*[®] Online Writing Evaluation Service at the beginning of the semester. AES models were built and evaluated for a total of four prompts. AES models meeting recommended performance criteria were then compared to standardized admissions measures and locally developed writing measures. Results suggest that there is evidence to support the use of *Criterion* as part of the placement process at the institution.

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1. Introduction

In the United States, college placement tests are common for reading, writing, and mathematics. Placement testing for writing courses entails challenges particular to that domain. For over forty years, teachers of writing have advocated a direct assessment of writing in which students produce text rather than answer multiple-choice items because, they argue, direct assessment has greater fidelity to the construct of writing (White, 2001). Criticized for their lack of construct representation, multiple-choice tests continue to be the object of scrutiny in the writing community for their potential to differentially impact racial and ethnic groups (Inoue & Poe, 2012). As a result, direct writing assessment, in the form of holistically scored timed writing samples, has been included as part of large-scale admissions tests (Breland, Kubota, Nickerson, Trapani, & Walker, 2004; Fowles, 2012).

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However, direct writing assessments are challenged by the consistency and accuracy of raters as well as by issues of topic selection and predictive power (Elliot, 2005; Hamp-Lyons, 2007; Huot, 2002; White, 1994). In the context of placement testing, direct writing assessment can be challenging to administer and score in the time from student admission to the beginning of classes due to the need to select topics, determine scoring rubrics, administer to the student, select, coordinate and train graders, and ensure sufficiently high inter-rater agreement among human graders (Haswell, 1998, 2005; Reinheimer, 2007). The complex environment of placement testing serves as the background for the present study.

After providing an introduction to writing placement testing in its many forms, in the following study I examined the use of an automated essay scoring (AES) system for writing course placement. I emphasize AES model building and evaluation process in developing scoring models that meet institutional needs for evidence of defined construct representation, transparent AES design, interpretable student performance, association of automated scores to other performance measures, and consequences of AES use.

1.1. What is placement testing and why are placement tests desirable?

College placement tests are intended to assess student readiness for first-year courses. Using placement tests can help identify students who may need additional academic support in the target domain to succeed in a regular college-level course. The risks of being enrolled in a course that is too hard for a student include stress of excessive academic demands, reduced satisfaction with the students' choice of institution, expenditure of funds on a course for which credit is not awarded, and withdrawal from the institution. Similarly, the risks of enrollment in a course that is too easy for a student include academic boredom, frustration, disengagement in academic efforts, and expenditures on a course that is not beneficial to the student's education. Therefore, placement tests that enable accurate placement can help avoid risks of over-remediation and/or lack of satisfaction in the courses for students, tedious and unnecessary exercise of manually shuffling students between sections during the first few weeks of the classes for the instructors, and higher drop-out rates and poor retention and college completion rates for the institution (Complete College America, 2012). Placement tests can also provide more recent information to the program and the faculty about student performance, information which can be particularly relevant when there has been a notable delay from the time of completion of secondary education to college enrollment.

1.2. Placement tests for writing

Differences in student preparation and readiness for college level writing courses can be attributed to the inconsistent instruction in composition across the country in secondary schools and post-secondary colleges (Bloom, Daiker, & White, 1996; Gere, Aull, Green, & Porter, 2010; Strickland & Strickland, 1993; Sullivan & Tinberg, 2006). Studies have reported that students placed accurately in basic skills program and provided with additional academic support graduate in larger number than those not placed in such programs (Baker & Jolly, 1999; Gleason, 2000; McGregor & Attinasi, 1996).

To address the need for additional instruction designed to prepare students for college writing, higher education institutions in the United States have adopted several models for writing placement, as described by O'Neill, Moore, and Huot (2009). Many institutions use writing scores from large-scale standardized admissions tests like the SAT and the ACT. Students pay for the test and make the scores available to the institution at no cost to the institution. These tests are designed for admissions purposes rather than placement, but the convenience of being cost-free to the institution and requiring no on-site administration or scoring on the institutions' part can motivate institutions to want to use the scores for placement as well as admissions. There are standardized placement tests available for purchase, such as COMPASS from ACT and ACCUPLACER from the College Board. Both the tests initially consisted of only multiple-choice items for assessing writing skills, but were later revised to include direct writing assessment. Such placement tests provide benefits of recency as well as standardization.

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