

Research Skills Assessment

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Abstract

This report describes a formative achievement test used to assess test-taker knowledge and comprehension of research skills taught in a PIE English 105 class at Northern Arizona University. The test is designed to make an impact on class instruction and student understanding of what they need to study with regard to three subconstructs: keywords and logical operators, relevant sources and resources, and source credibility. The test is based on material taught in class with the intention of seeing how well students understand the content before they must apply it to their research papers at the end of the Fall 2013 semester. The test includes 30 items—10 for each subconstruct—and consists of objectively scored items that are used for a criterion-referenced interpretation. Results and suggestions for revision are included.

Keywords: research skills, assessment, keywords, logical operators, relevant sources, relevant resources credibility

Background

Writing a research paper requires knowledge of specific skills, skills that often require explicit instruction and time to hone (Hedengren, 2004; White, 2007). Some of these skills include being able to locate sources, evaluate and question sources, and make use of the available resources (DuBravac, 2013; Johns, 2011; Purdue University, 2013). Because each of these skills contains a set of subskills (e.g., evaluating sources requires an understanding of credibility and the ability to recognize when a source is being deceptive), it is important for university students to know how to conduct research—even before they ever sit down to write. In order for students to learn how to conduct this research, composition teachers must take the time to teach students about creating appropriate search terms, using the library database, and evaluating sources (Hedengren, 2004). Without this instruction, students—ELLs or otherwise—rarely have enough guidance to have the basis for crafting a university-level research paper. The problem, then, is the teachers knowing before the final assessment (i.e., the research paper itself) whether the students understand how to conduct this research.

Research Question

The test outlined in this report assesses the knowledge and understanding of certain required research skills in a section of English 105 in the Program in Intensive English (PIE). Because this test was a formative assessment, the purpose of this test is to discover whether students had learned the research skills material covered in class.

Methods

The 12 participants (3 female and 9 male) were students in a Level 5 English 105 class in the Program in Intensive English (PIE) at Northern Arizona University (NAU). These students (aged 18-24) come from varying first language (L1) backgrounds: Chinese, Arabic, and Korean.

This test was an achievement test with a criterion-referenced interpretation of scores. It

tested three research skills subconstructs: keywords and logical operators, relevant sources and resources, and source credibility. These subconstructs were tested on two levels of Bloom's (1956) Taxonomy of Learning Domains: knowledge and comprehension. Further dividing the three subconstructs into knowledge and comprehension ensured that the test takers were being assessed on fundamental information that is necessary to perform research tasks in the academic community. The higher order skills were tested in another project outside this assessment: the research paper itself. This test did not test speaking. It is assumed, however, that the students had a basic level of familiarity with computers and the basic interface, layout, and purpose of academic databases.

Of the 30 questions, ten questions were dedicated to each subconstruct. The first subconstruct, keywords and logical operators, were tested in the first ten questions. Questions 1, 2, 5, 7, and 10 tested knowledge of these ideas while questions 3, 4, 6, 8, and 9 focused on comprehension. The second subconstruct, relevant sources and resources, made up the second third of the test. These ten questions were also split evenly between knowledge (13, 14, 17, 18, and 19) and comprehension (11, 12, 15, 16, and 20). The third and final set of ten questions tested credible sources. In this section, eight questions focused on knowledge (21, 22, 23, 24, 25, 27, 28, and 29), and two questions (26 and 30) tested comprehension. This final section focused on the cognitive domain of knowledge because evaluating credibility relies on a great deal of underlying ability.

Results

After administering the test, the results indicate some clear trends in data. There is strong evidence for validity concerning the test, especially with regard to the first three of the four criteria outlined in Bachman and Palmer's (2010) Assessment Use Argument (AUA). That is, the test was strong in its impact, in the decisions that can be made based on the test, and in its

inference. While the reliability statistics are lacking, overall and with some revisions, this test has potential. Descriptive statistics and reliability can be found in Table 1.

Table 1

Descriptive Statistics and Reliability

	N	K	Min.	Max.	M	SD	r	SEM	P ₀
Research Skills	12	30	17	26	21.58	2.91	0.41	2	0.66

Relevance to PIE and Second Language Learning

The pilot administration demonstrated that while the test has some aspects working in its favor, revision is necessary. Certain items require revision, and it is possible that the students who missed class or who came in late negatively affected results in this regard. Positively, however, all students answered three of the items correctly, which means that these items are working as they should for a criterion-referenced interpretation of the test (Miller, Linn, & Gronlund, 2009). Regardless, item statistics demonstrate that there is a mismatch between student uptake and content in some parts of the test.

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