Chapter 15
Using Technology to Assess Real-World Professional Skills: A Case Study

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ABSTRACT

Innovative item formats are attractive to the sponsors of professional certification or qualification examinations because they provide greater fidelity to the real world than traditional item formats. Using the design of the Chartered Institute of Management Accountant's professional qualification examinations as a case study, this chapter presents an in-depth exploration of the issues surrounding the use of innovative items to assess higher-order thinking skills required for professional competency, beginning with a discussion of approaches taken by various academic disciplines to define and characterize higher order thinking. The use of innovative, authentic assessments is examined in the context of validity arguments. A framework for principled thinking about the construct map of the assessment is introduced, and a systematic process for designing innovative items to address the desired constructs is provided.

INTRODUCTION

When done right, innovative item formats can provide greater fidelity to the real world than can more traditional test item formats. This chapter provides an in-depth exploration of the issues surrounding the design of innovative item formats. It presents a case study of how one professional certification test sponsor, the Chartered Institute of Management Accountants (CIMA), transitioned its professional qualification program to computer-based testing (CBT) in order to assess competency more authentically. The use of innovative item formats is examined in the context of validity

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arguments and of the assessment of higher-order thinking skills. The framework provided for innovative item design has construct definition as its focal point.

BUILDING A BETTER ASSESSMENT PROGRAM

With the decision by the Chartered Institute of Management Accountants (CIMA) to move its professional qualifications to computer-based testing (CBT), CIMA was interested in a test that better reflected the real-world work of a management accountant. While a business environment simulation engine was a serious consideration, understanding the role of a management accountant and the capabilities of CBT led to an alternative approach. Using item formats typically available with standard CBT functionality, CIMA was able to design computer-based assessments that achieved its goal of assessing higher-order thinking skills in an authentic context. While the item formats themselves may not have been novel, CIMA's use of standard CBT functionality represents a fresh perspective on how to achieve authenticity in professional assessments in a cost-effective manner without a significant investment in software development. Principled thinking about the test construct was the beginning point for item design. The design process for CIMA's examinations provides a case study on how to define and assess constructs for complex professional tasks.

BACKGROUND

Based in the United Kingdom, CIMA is the world's largest professional body for management accountants. CIMA sponsors an entry-level Certificate in Business Accounting and three levels of professional qualifications that lead to a candidate's becoming a chartered management accountant. Annually, approximately 60,000 candidates across the world sit for CIMA's professional qualifications.

Project 2015 was a comprehensive process undertaken to revise CIMA's professional qualifications learning curricula. An accompanying redesign of its certification examinations took advantage of the capabilities of CBT. CIMA's Project 2015 aimed at ensuring that the professional learning and examinations programs remained relevant and reflective of the real world of business. Figure 1 relates the high-level process used to define the learning and assessment products that resulted from Project 2015.

Competency Framework

The first step in the Project 2015 process for redesigning the professional qualifications was the development of a Competency Framework. To develop the Framework, comprehensive global research was conducted with finance professionals and employers of various sizes and in different sectors. This research included a written questionnaire sent to CIMA members and students across the globe, supplemented by face-to-face meetings and roundtable discussions with relevant organizations and stakeholders.

The resulting Competency Framework outlined the knowledge, skills, and abilities management accountants need to maintain employment and to deliver sustainable success for their organizations. The Competency Framework consisted of four types of skills (technical, business, people, and leadership) employed by management accountants at three practice levels (operational, management, and strategic). The Framework recognized that the emphasis on the particular skills varies throughout an accounting career. As reflected in Figure 2, entry-level roles at the operational level of practice require greater emphasis on technical accounting skills; in contrast, more senior roles at the strategic level place more emphasis on business acumen and on people and leadership skills.