

ILLUSTRATIVE EXAMPLE: SETTING AND MARKING EXAMINATIONS IN A PROFESSIONAL ACCOUNTING EDUCATION PROGRAM ¹

Measuring the achievement of learning outcomes of professional skills and other elements of professional competence requires assessment activities that have high levels of reliability, validity, equity, transparency, and sufficiency. Detailed below is a process related to the setting, marking and evaluation of multiple-choice exams in a professional accounting education program.

This example represents a discrete aspect of an approach taken by a Member Organization and is not intended to be read as comprehensive description of its entire approach.

¹ This publication is part of the guidance materials that support the implementation of a learning outcomes approach.

Guiding Principles in Practice

	Commentary
Design	
Assessment	<p>Using examinations as an assessment activity</p> <p>Examinations are an assessment of the learning objectives for the relevant competence area. High standards are maintained by processes that include expert monitoring at all stages, from the development of the examination questions to a comprehensive analysis of every question and every examination paper.</p> <p>Assessment activities are designed to have high levels of reliability, validity and sufficiency</p> <p>Experienced practitioners and academics, specialist in the various competence areas, are involved in the examination writing and assessment process. Examination writers complete a training program designed to ensure skills in the structure, design and analysis of constructed response and multiple-choice examination items. The training program is conducted using a variety of delivery methods including face-to-face and webinars, thus ensuring ease of accessibility for examination writing contributors. An extensive review process exists to ensure that all questions written meet the requirements for testing learning objectives, and testing the required levels of knowledge. Elements of examination writing design include: each examination consists of a prescribed distribution of new and pre-tested items; all new multiple choice examination questions are pre-tested to evaluate statistical reliability and performance, and these questions are not included in any individual's examination history; and all examinations are prepared in accordance with a prescribed weighting for each learning objective.</p> <p>Assessment activities are designed to have high levels of equity</p> <p>Multiple examination forms exist for each subject in the accounting education program. Each examination form is designed with a unique set of questions to minimise the risk of examination items being overexposed, and to ensure equity for all aspiring professional accountants sitting examinations at different times and locations.</p> <p>Establishing the passing standard</p> <p>The passing standard for all examinations is set on a triennial basis, with additional standard setting undertaken as learning objectives change for each examination.</p> <p>The standard setting process is undertaken after the results have been analysed. The method used for setting a passing score is the Modified Bookmark method.² The following steps are generally carried out during this method:</p> <ol style="list-style-type: none"> 1. A group of subject matter experts (SMEs) for each examination is convened, forming the Standard Setting Committee (the Committee);

² information on this method is available in Cizek, G. J. (ed.) (2001), *Setting Performance Standards: Concepts, Methods, and Perspectives*, Lawrence Erlbaum, Mahwah, New Jersey

2. The questions are ordered from easiest to hardest based on their location (difficulty) on the underlying measurement scale determined by participant performance;
3. SMEs review questions, beginning with the easiest item, and decide if a minimally competent candidate has a 0.50 probability of answering the question correctly. The assumption is that the easy questions at the beginning of the scale will be marked as 'Yes' and, as the judge progresses to the harder questions, there will be a transition point to the questions being marked as 'No';
4. The SMEs are asked to place a bookmark at a transition point where the majority of responses change from 'Yes' to 'No';
5. There are usually multiple rounds of placing the bookmark, with discussions among the SMEs between rounds;
6. The pass score is determined by averaging the item difficulties corresponding to the bookmark locations;
7. Once the pass score has been determined, the percentage of candidates passing the score will be reviewed to determine the preliminary impact of the pass-score setting exercise;
8. The result is then submitted to the Committee. If the result is not acceptable, the Committee should nominate an acceptable pass percentage (informed by the knowledge of the exercise) and then set a new preferred pass score; and
9. The SMEs would then be asked to examine the items in the vicinity of this new pass score to see whether or not they agree with the modified image of the minimally competent candidate. If so, the new pass score is accepted for recommendation to the Committee; if not, there would have to be further discussions among the SMEs to reach consensus on the refined image of the minimally competent candidate.

Assessment activities are designed to have high levels of equity

Multiple choice examination questions are drawn from a calibrated item bank and no multiple-choice item appears on an examination before it has been trialled and equated to a benchmark scale according to the [Rasch Unidimensional Model](#).

Constructed response examination questions are analysed using the [Partial Credit Model](#). The performance of candidates on constructed response examination questions is analysed in relation to their overall performance on the examination.

Following the initial standard setting process, all multiple choice examinations can be pre-equated using statistical information related to the level of competence required and level of item difficulty.

By adopting a pre-equated process, passing standards are set so that an equivalent level of proficiency is required to pass different questions of the examination. Each candidate who is administered a set of examination questions receives a statistically equivalent examination: one that is neither statistically easier nor harder than any other candidate.

	<p>Analysing candidate performance for continuous improvement</p> <p>Item response theory is used to calibrate scores from two or more multiple choice examination questions on the same scale. The analysis examines overall item performance, the relationships between candidate performance on examination questions and their examination scores, and the relationships among candidate scores on the examination questions themselves.</p> <p>The goal of the psychometric evaluation is to determine how well each examination has differentiated between candidates of different abilities and to identify those questions that should be reused, rewritten or discarded. In the psychometric evaluation of multiple-choice questions, many psychometric characteristics are evaluated such as the level of difficulty, the discrimination power of questions, and distractor functioning. The psychometric analysis of constructed response items evaluates the discrimination power of each question, the level of difficulty of the question, and the ability of each question to test the required learning outcomes at the appropriate level.</p> <p>Assessment activities are designed to have high levels of transparency</p> <p>Candidates receive a grade in addition to a feedback report, which is a graphic representation to indicate their relative strength or weakness against each learning objective.</p> <p>Evaluation of assessment activities</p> <p>An Examination Policy Advisory Committee, comprised of members with experience in education and independent external experts, provide advice to the MB on examination matters. The Committee considers matters such as the structure and design of the assessment policy for all examinations; the procedures used for the development of examination questions and the setting of examination papers; the procedures used and the timelines for the examination grading process; and the statistical analysis provided on aspiring professional accountants' performance.</p>
Governance	

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