

SHORT REPORT

A short report on curricular ‘School Competencies and Objectives Progress Exam’ (SCOPE) assessments

Elizabeth A. Sheaffer 

Samford University McWhorter School of Pharmacy, Birmingham, Alabama, United States

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Correspondence

Elizabeth A. Sheaffer
Samford University
McWhorter School of Pharmacy
Birmingham
Alabama
United States
esheaffe@samford.edu

Abstract

Introduction: A private School of Pharmacy in the United States of America with a four-year programme began delivering a new curriculum in the autumn of 2021. To measure students’ performance in the curriculum, a comprehensive competency-based assessment was implemented in August 2022. **Methods:** An ExamSoft question item bank was developed based on existing course questions, and questions were allocated to the assessment based on competencies, Bloom’s level, item difficulty level, and the count indicated on the exam blueprint. **Results:** The reliability data for the assessment was good, but the results were lower than desired. Performance levels were modified to better reflect the status of first-time implementation. **Conclusion:** The assessment was deemed reliable, but adjustments will likely be necessary over the next several years. The ‘School Competencies and Objectives Progress Exam’ (SCOPE) 1 workgroup will reconvene next summer to discuss any desired changes in question selection, weighting, and performance levels.

Introduction

A private School of Pharmacy in the United States of America with a four-year programme began its new ‘Practice and Team Ready Curriculum’ in the autumn of 2021. The curriculum includes dedicated weeks for integrated activities, an earlier start to advanced practice experiences (APPEs), and a return to campus for a final module of didactic courses. To measure students’ performance in this curriculum, a comprehensive competency-based assessment was administered in August 2022. The ‘School Competencies and Objectives Progress Exam’ (SCOPE) assessment series is intended to serve multiple purposes: (1) to evaluate each cohort’s achievement on the competencies, (2) to evaluate individual student’s achievement on the competencies, and (3) to help prepare students for the NAPLEX (Rowe, Pittman, & Hamilton, 2021).

Method

Design

Using best practices for exam development, the Assessment Committee SCOPE proposal included several components: (1) timeline for administering the exams, (2) recommended number of questions and time for each exam (questions per minute), and (3) recommended selection and scoring methods and subsequent levels of performance. The administration timeline was to hold SCOPE 1 in P2 (pharmacy school year 2) early autumn term, SCOPE 2 in P3 early autumn term, and SCOPE 3 in P3 early spring term before APPEs. The rationale for holding SCOPE 1 and 2 in early autumn after the summer break, instead of late spring before the summer break, was: (1) to avoid conflicting with spring final exams and (2) to encourage students to review the material over the summer to improve recall and retention. Questions per minute were set as 1.45, which was attained by looking at times for PCOA, NAPLEX, NCLEX, and STEP exams. The agreed number of questions was 80, plus 13 pilot questions which would not count towards the score.

A weighted scoring matrix was developed that based points on the compressed Bloom's level (1, 2, or 3) and the statistical item difficulty level (1, 2, or 3) for the question when it was originally given during a course. This resulted in each question being valued at one to nine points. The proposal also included the distribution of the 80 questions among the three Bloom's levels and three difficulty levels.

Development

The SCOPE 1 workgroup was convened in late spring and consisted primarily of P1 course coordinators. Throughout the summer, the committee created the exam blueprint (quantity of questions per area) (NBME, 2019) based on the P1 competencies and the relative percent of those competencies compared to the overall first-year curriculum. Questions meeting the specific Bloom's level, item difficulty level, and designated competency were aggregated using ExamSoft Enterprise filters. The committee then—from that filtered set—selected the number of questions per the blueprint. Certain questions were modified to improve quality or to make a variation. Only multiple-choice and fill-in-the-blank questions were chosen; select-all-that-apply and true-false questions were excluded (or rewritten) as a rule. Pilot questions were developed from scratch based on the same courses and competencies; their post-exam statistics would be reviewed for inclusion in the SCOPE question bank.

Implementation

Students were emailed about SCOPE 1 halfway through the summer and were told which competencies would be on the exam, as well as the total number of questions and length (time limit) of the exam. They were encouraged to prepare. One month before the exam, students were again emailed the same information, still encouraging students to prepare. The only stakes assigned to the first iteration of SCOPE 1 were that Level 1 (bottom) performers would be required to meet with their assigned advisor or the Office of Academic Affairs (to be determined after the exam) and Level 4 (top) performers would be recognised in some manner.

The first iteration of SCOPE 1 was administered to the Class of 2025 (now P2s) on August 29, 2022, the first day of the autumn term. Seventy-eight students took the assessment, including one approved makeup test. As stated previously, the test consisted of 80 scored questions plus 13 unscored pilot questions. Students were given two hours and 25 minutes to complete the assessment, and calculators were allowed. This equated to one minute and 56 seconds per question, which is slightly more than the one minute 45 seconds

recommended by the Assessment Committee. The SCOPE workgroup slightly extended the time relative to how long ExamSoft calculated it would take based on prior use of the questions during course exams. Students with approved time accommodations were given additional time.

Results

Exam validity and reliability

The Assessment Committee agreed upon several methods to determine the validity and reliability of SCOPE 1, notably for content, construct criterion validity, and internal consistency (Castleberry *et al.*, 2016; Heale & Twycross, 2015). The validity methods were followed closely during development, and the reliability measures chosen were the biserial point index and KR-20 statistics. The average point biserial was 0.20, which is good, and the KR-20 was 0.80, which is very good.

Performance levels

The original performance levels were set too high for the first iteration of the assessment. The SCOPE workgroup and Assessment Committee both agreed that the levels needed to be revised now and could be revisited for subsequent iterations of SCOPE. The revised levels more closely mimic the NAPLEX levels (labels), which were the impetus for this categorisation method. The Assessment Committee approved new performance levels for the Class of 2026. Level 4 students will be recognised, and Level 1 students will meet with Academic Affairs.

Conclusion

Overall, student performance in the pilot was not optimal. This could be the result of the assessment being low stakes, being too difficult, needing a change in weighting, or students' knowledge retention/loss. The second iteration of SCOPE 1 and the first iteration of SCOPE 2 will be developed next summer, and all these factors will be taken into consideration. In the meantime, a national comprehensive exam will be administered in January, and the school will examine whether there are performance correlations between the local and national assessments (Rudolph *et al.*, 2019). For programmes considering the development of a comprehensive curricular exam, thorough planning and faculty involvement are essential. However, the author feels it is worth the effort.

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