

BENCHMARKING FOR A PROBLEM-SOLVING MEASURE

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PROBLEM AND PURPOSE

Student evaluation of learning progress is a common international practice (OECD, 2013). Educational content standards have been developed in many countries to blueprint classroom instruction (OECD, 2013) with aligned assessments for valid measures of student learning (Moore et al., 2017). Content standards and associated assessment construction have rightfully received much attention. However, the establishment of student performance (or proficiency) level benchmarks on these assessments has been analyzed less. To be meaningful, proficiency level benchmarks (e.g., below, proficient, above) should be developed following a criterion-referenced process, comparing students to content standards. However, it is more traditional for student performance benchmarks to be generated through norm-referenced processes that compare a student's performance to that of other students (Oescher et al., 2014).

This study examined the establishment of criterion-referenced multi-level performance benchmarks for the *Problem-Solving Measure* in grade 6 (*PSM6*; 11-12-year-olds). Objective Standard Setting (OSS), a modern Rasch-based method for benchmarking performance levels, was used because of its criterion-referenced outcomes. OSS has never been used in mathematics education with student assessments associated with this age level. Thus, the research question was: Is OSS an effective model for establishing multiple criterion-based performance benchmarks on the *PSM6*?

ABBREVIATED RESULTS AND CONCLUSIONS

Seven expert judges were engaged in an OSS exercise. Judges were trained and then rated *PSM6* items as either Essential, Advanced, or Non-Essential. Two student benchmarks, *Proficient* (2.70 logits) and *Advanced* (3.06 logits) *Problem-Solvers*, were established. Findings suggest OSS was a productive process for developing meaningful, content-related benchmarks for assessing student growth on the *PSM6* in conjunction with grade-level academic content standards.

References

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