



PSI CERTIFICATION EBRIEF #1 MINIMUM NUMBER OF SUBJECT MATTER EXPERTS REQUIRED ACROSS THE TEST DEVELOPMENT LIFE CYCLE

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Disclaimer. These guidelines are generalizations that are supported with evidence and do not represent an exhaustive list of supporting literature. Credentialing organizations should consult with a measurement professional since unique situations may require other acceptable evidenced based approaches and/or industry best practices. PSI believes this is a working document and any feedback is highly encouraged. Please send your feedback to marketresearch@psonline.com.

Credentialing Activity	Number of SMEs	Supporting Literature
Focus Groups for Job Analysis	<p>Minimum 5; Maximum 12 per focus group</p> <p>1) 10 to 12</p> <p>2) 5 to 10 but can be 4 to 12 (Krueger & Casey, 2008)</p>	<p>1) ICA recommendation based on common industry practices since the literature shows this is ideal for representation and facilitation factors when working with a focus group.</p> <p>2) Krueger, R.A., & Casey, M.A. (2008) <i>Focus groups: A practical guide for applied research</i> (4th ed.). New York: Sage.</p> <p>Note: Often one focus group is necessary for identifying the initial content and another for finalizing the content that should be tested on (blueprint/specifications). There are variations on the use of focus groups after identifying the initial content.</p>
Surveys for Job Analysis	<p>1) Survey Sampling Plan or Confidence Intervals (e.g., stratification)</p>	<p>1) http://measurementstatistics.wikispaces.com/Sample+Size</p>
Feasibility / Needs Assessments	<p>Or</p>	
Marketing	<p>2) Survey 200 responses (Raymond, 2005)</p>	<p>2) Raymond, M. (2005). An NCME instructional module on developing and administering practice analysis questionnaires. <i>Educational Measurement: Issues and Practice</i>, 24(2), 29-42)</p>
Item Writing and Item Writing Reviews	<p>1) Recall MCQ items: Write 2 items at minimum per hour per SME</p> <p>2) Recall MCQ items: Review 10 items at minimum per hour per SME</p> <p>Using charts, tables, and other graphical stimuli may require longer time to write an item</p>	<p>Based on PSI expert opinion</p>

Credentialing Activity	Number of SMEs	Supporting Literature
Item Analysis	<p>Minimum number of candidates taking an exam for an item analysis to be conducted.</p> <p>1) 50 responses (Nunnally & Bernstein, 1994)</p> <p>2) 50 responses (Jones, Smith, & Talley, 2006)</p> <p>3) 20 responses (Chinn, Hertz, & Showers, 2002)</p> <p>4) 100 responses (Millman & Green, 1989)</p>	<p>1) Nunnally, J., & Bernstein, I. (1994). <i>Psychometric Theory</i> (3rd ed.). New York: McGraw-Hill.</p> <p>2) Jones, P., Smith, R., & Talley, D. M. (2006). Developing test forms for small-scale achievement testing systems. In S. M. Downing & T. M. Haladyna (Eds.), <i>Handbook of test development</i> (pp. 487-525). Mahwah, NJ: Lawrence Erlbaum.</p> <p>3) Chinn, R.N., Hertz, N.R., & Showers, B.A. (2002). Presented at the 2002 Annual Meeting of Council on Licensure, Enforcement, and Regulation http://www.clearhq.org/resources/RB_SmallExamPrqs.pdf</p> <p>4) Millman, J., & Green, J. (1989). The specification and development of tests of achievement and ability. In R. L. Linn (Ed.), <i>Educational measurement</i> (3rd ed.) (pp. 335-366). New York: MacMillan</p>

Credentialing Activity	Number of SMEs	Supporting Literature
Standard Setting	SME Minimum 5; SME Maximum 30	
	1) As many as resources that permit (Cizek, 1996)	1) Cizek, G. J. (1996). Setting passing scores. <i>Educational Measurement: Issues and Practice</i> , 15, 20-31)
	2) 10 (Fowell, Fetrell, & McLaughlin, 2006)	2) Fowell, S. L, Fewtrell, R., & McLaughlin, P. J. (2006). Estimating the minimum number of judges required for test-centered standard setting on written assessments: Do discussion and iteration have an influence? <i>Advance Health Sciences Education: Theory and Practice</i> , 13(1), 11-24)
	3) 5 to 10 (Norcini & Shea, 1997)	3) Norcini, J. J., & Shea, J. A. (1997). The credibility and comparability of standards. <i>American Measurement in Education</i> , 10, 39-59.
	4) 10 to 15 (Hurtz & Hertz, 1999)	4) Hurtz, G., & Hurtz, N. (1999). How many raters should be used for establishing cut-off scores for the Angoff method: A generalizability theory study. <i>Education and Psychological Measurement</i> , 59. 885-897.
	5) 5 to 30 (Zieky & Livingston, 1977)	5. Zieky, M. J. & Livingston, S. A. (1977). <i>Manual for setting standards on basic skills assessment tests</i> . Princeton, NJ: Education Testing Service
	*Typically, these standard settings are completed with the same SMEs in one or multiple sessions.	

* In selecting SMEs, the most important guideline is recruiting a representative sample.

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