

## Classroom Assessment Literacy: A Think-Pair-Share Workshop

### *50-Minute Hands-On Workshop*

**Abstract** (max 100 words):

Classroom teachers spend a significant portion of their time in assessment-related activities, yet have not received commensurate time in formal training in evaluation and measurement techniques. This workshop will use the Think-Pair-Share collaborative learning strategy to discuss and implement assessment best-practices that educators can easily adopt for their own teaching.

*Keywords:* Classroom Assessment; STEM Education; Item Analysis

**Summary of Workshop** (max 500 words):

The purpose of this workshop is to familiarize teachers with classroom assessment best-practices to positively impact student achievement. The content discussed and applied during this workshop will provide educators with relevant and actionable information that can be immediately implemented within their classroom.

Assessment literacy has been defined as the ability to design, select, interpret, and use assessment results appropriately for future educational decisions (Quilter & Gallini, 2000). Research has shown that classroom teachers spend up to fifty percent of their instructional time in assessment-related activities such as grading, oral questioning, or administering and interpreting tests (Plake & Impara, 1997; Quilter & Gallini, 2000; Schafer, 1993; Stiggins, 1991). While teachers are largely exposed to assessment practices, few in-service and pre-service teachers have received formal training in assessment (Impara, Plake, & Fager, 1993; Schafer, 1993; Sondergeld, 2014; Stiggins & Bridgeford, 1985). Not only does this gap in training affect teachers' attitudes towards assessment, but it can also impact the students' educational outcomes.

This hands-on workshop will begin with a STEM-related assessment activity using the Think-Pair-Share collaborative learning strategy. Originally developed by Lyman (1981), the Think-Pair-Share (TPS) technique was designed to enhance students' critical thinking and problem-solving skills. In Stage 1, students are asked to think individually about a question, probe, or observation provided by the teacher. After having the opportunity to construct their own responses, students then pair up with a partner to discuss their individual answers in Stage 2. During this stage, students may compare their mental or written notes and identify answers they

think are the best, most convincing, or most unique, depending on the task provided in Stage 1 (Lyman, 1981). Finally in Stage 3, the teacher calls on pairs of students to share their thinking with their classmates.

Specifically in this workshop, the presenters will first use the TPS framework to promote discussion about a STEM-related assessment that each teacher will complete. Following the ice-breaker activity, assessment best-practices will be presented for various question types such as multiple-choice, true-false, and short-answer. A second TPS activity will ask participants to critically analyze an assessment using the best-practices presented. Finally, this workshop will demonstrate how teachers can use Excel to conduct a basic item analysis to explore the effectiveness of their own classroom assessments.

It is unrealistic to expect all teachers to have extensive training in evaluation and measurement techniques. However, educational assessments, if designed and used properly, can become instruction-enhancing tools (i.e., formative assessment). For this reason, STEM teacher organizations and researchers agree that teachers must be assessment literate to some degree in order to develop and implement high-quality assessments to inform decision-making in and out of the classroom (Sondergeld, 2014). Proficient literacy will not be accomplished overnight, but initial steps can be taken to train and equip educators to become more fluent in assessment best-practices.

### **Biographical Sketches:**

Hannah is the Institutional Research Associate at the Illinois Mathematics and Science Academy. She earned her B.A. in Mathematics with Teacher Certification (2011) and her M.A. in Mathematics (2012) from Eastern Illinois University. Hannah is currently a doctoral candidate in Evaluation and Measurement at Kent State University studying the psychometric properties of a mathematics placement test. Her research interests include educational assessment, teacher preparation, and STEM education. Her technical areas of interest include Factor Analysis and Item Response Theory. From her role as graduate research assistant to her current position as a research associate, Hannah has contributed to research publications and presentations across a variety of topics.

Aryn received her B.A. in Psychology from Miami University (Ohio) in 2004 and her M.S. in Life-Span Developmental Psychology from West Virginia University in 2006. She

earned an M.A. (2009) and Ph.D. (2010) from The Ohio State University in Quantitative Research, Evaluation, and Measurement. Aryn is currently an Associate Professor in the Evaluation and Measurement program at Kent State University. Her research interests include the intersection of technology and communication in education (e.g., Social Networking Site [SNS]) use) among undergraduate and graduate university students, medical students, and in clinical settings and other health-related professions. Aryn's technical areas of interest include Item Response Theory, Factor Analysis, and Hierarchical Linear Modeling. She has collaborated across many disciplines and internationally, resulting in publications and presentations that span many different fields of study (e.g., education, psychology, medicine).

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