Title

AI-Assisted Classical Test Analysis for Exam Item Evaluation

Proposed for

Online Workshop (60 minutes)

Abstract

Designing and evaluating valid multiple-choice questions (MCQs) remains a persistent challenge across higher education. This interactive workshop introduces participants to the fundamentals of Classical Test Theory (CTT) and explores how Artificial Intelligence (AI) can support and enhance question design, analysis, and improvement.

Participants will first review key psychometric indices—including item difficulty, item discrimination, reliability, and distractor efficiency—using authentic educational examples. In the second part, participants will explore how AI-supported tools (e.g., ChatGPT-assisted analysis and Excel-based analytics) can assist in generating, analyzing, and refining assessment items, while maintaining academic judgment and ethical oversight.

The workshop adopts a guided individual practice approach supported by live demonstrations and structured reflection. Participants will work individually on sample MCQs and datasets provided by the facilitator, using AI-assisted prompts and step-by-step guidance. Interaction will be facilitated through live polling, chat-based questions, and reflective discussion, ensuring engagement while remaining feasible in a global online setting.

By bridging psychometric reasoning with AI-assisted innovation, this workshop empowers educators to design fair, valid, and educationally sound assessments in the era of digital education.

Learning Objectives

Cognitive

1. Explain key principles and indices of Classical Test Theory.
2. Describe how AI can assist in educational assessment design and analysis.

Skill-Based

1. Use AI tools to generate and refine multiple-choice questions.
2. Calculate and interpret CTT indices using basic data tools.
3. Improve low-performing assessment items using AI-supported feedback.

Affective

1. Value continuous improvement in assessment quality.
2. Appreciate the responsible and evidence-based use of AI in education.

Workshop Format (60 minutes)

Session	Duration	Method	Focus
Introduction	5 min	Interactive poll	Current challenges in educational assessment
CTT Basics	10 min	Mini-lecture	Understanding psychometric indices
Activity 1	10 min	Guided individual practice	Manual analysis of MCQs
AI in Assessment	15 min	Demonstration + prompt writing	Generating and refining questions using AI
Activity 2	10 min	Guided individual practice	Integrating AI and CTT using example data
Reflection & Q&A	10 min	Facilitated discussion	Responsible AI use and inclusive assessment

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Resources Required

- Stable internet connection
- Personal device (laptop or tablet)
- Access to an online AI tool (e.g., ChatGPT or equivalent)
- Pre-prepared sample MCQs and response datasets (provided by the facilitator)
- Online meeting platform with screen-sharing and chat functions (e.g., Zoom or conference-designated platform)

Expected Outcomes

Participants will be able to:

- Apply AI tools in educational assessment design.
- Interpret and use basic CTT indices for assessment quality improvement.
- Reflect critically on the integration of AI in educational assessment practice.

Keywords

Artificial Intelligence · Student Assessment · Educational Technology · Classical Test Theory · Inclusive Learning · Evaluation

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Facilitators

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