Automatic Item Generation (AIG)

Combining the Art and Science of Test Development

Automatic Item Generation (AIG) from ACT Consulting Services combines cognitive theories, psychometric practices, and content expertise with computer-based algorithms to create large numbers of high-quality, content-specific test items.

The demand for computer-based testing, and the number of assessments delivered on-demand, are growing rapidly.

In turn, this growth is driving the need for an exponential increase in diverse, high-quality test items and additional resources to support item development. How can assessment providers, institutions, and credentialing and certification organizations address these needs quickly and cost effectively? How will the assessment industry deliver an ever-increasing number of test items without sacrificing item quality?

How it Works

Content Development - Subject matter experts create an item model, or template (including the item stem, elements, and options), including variables that can be modified to create item variants.

Sample Item Generation - A computer-based algorithm generates multiple new items from the model by inserting different values for the variables.

Quality Review - Subject matter experts use generated item samples to evaluate the content and logic specified in the item model.

Item Model Expansion - Subject matter experts increase the generative capacity of the item model through the use of themes to vary item elements and item elaboration to measure different knowledge and skill levels.

Final Item Generation and Banking - The algorithm is executed on the expanded item model to generate a full set of new items, custom formatted by content area and grade level and banked for use on assessments.

Benefits of AIG from ACT Consulting Services

Efficient - Test items can be created in a fraction of the time required using a traditional approach to item development.

Cost effective - The value of subject matter experts' time in the item development process is maximized. Using AIG, subject matter experts can focus on the critical and creative tasks of identifying, organizing, and evaluating content required for item models

Scalable - A single, well-constructed item model can generate thousands of unique items, which can be used across multiple grades and even within different languages and cultures.

Secure - As test items created through AIG can be varied more rapidly, memorizing such items is increasingly challenging for examinees. In addition, when item volume increases through the use of AIG the exposure rate (and related security risk) for any specific item can decrease.

Aligned - Through careful attention to academic standards during item model development, all items auto-generated from the model are pre-aligned to these same standards.

Personalization - By personalizing context for the individual the test items become more 'relatable' while still assessing the testable concepts.

Why ACT?

From item model development to item banking, ACT Consulting Services provides complete automatic item generation services to meet your requirements and specifications.

ACT is trusted as a national leader in test development, providing high-quality assessments grounded in nearly 60 years of research. Building on evolving item-generation technologies, and with the expertise of content specialists and psychometricians, ACT Consulting Services offers an automatic item generation process that can meet the rapidly-changing and expanding needs of assessment providers, school districts, higher-ed institutions, and credentialing and certification organizations and programs.

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