**BEFORE THE UNITED STATES COPYRIGHT OFFICE**

**LIBRARY OF CONGRESS**

[Docket No. 2023–6]

Re: Responses to Notice of Inquiry: Artificial Intelligence and Copyright

The Association of Test Publishers (“ATP”) submits its responses to the question posed in the Notice of Inquiry (“NOI”) issued on August 30, 2023, by the U.S. Copyright Office, Library of Congress (the “Copyright Office”), regarding the copyright law and policy issues raised by artificial intelligence (“AI”) systems. Specifically, this response will answer the question raised in the NOI regarding copyrightability of content that involves the use of generative AI (Q18). As extended by the Copyright Office, these comments are being submitted by the due date of Monday, October 30, 2023.

The critical question posed by the Copyright Office as it relates to the interests of the ATP is Question 18, as follows:

*Under copyright law, are there circumstances when a human using a generative AI system should be considered the ‘‘author’’ of material produced by the system? If so, what factors are relevant to that determination? For example, is selecting what material an AI model is trained on and/or providing an iterative series of text commands or prompts sufficient to claim authorship of the resulting output?*

The ATP welcomes this opportunity to express its views and contribute to developing a practical approach to the copyrightability of secure testing materials utilizing generative AI (“GAI”). Generally, we agree with the Copyright Office's position that works created solely and completely by generative AI are not copyrightable because they do not meet the human authorship requirement established in *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884). However, the ATP urges the Copyright Office to adopt a regulatory standard holding that, in the context of secure tests, even where a work is entirely produced using GAI, the amount of human intervention and originality required in the test development process renders the works copyrightable. We urge the Copyright Office to recognize as well, that GAI is an emerging technology that provides immense benefits to various industries, including the secure testing industry, when GAI is used in a hybrid scenario to assist human actors, and thus establishing a workable standard to operationalize when a work product that utilizes GAI can be copyrightable is crucial for such industries to grow and foster innovation.

**Identity of the ATP**

The ATP is a not-for-profit international trade association representing the global assessment and lifelong learning industry, which includes regional organizations individually representing North America, Europe, Asia (including China, Japan, South Korea and Australia), India, and the Middle East/Africa. The ATP is comprised of hundreds of publishers, test sponsors (i.e., owners of test content, such as professional certification bodies), delivery vendors of tests used in various settings, including healthcare, employment (e.g., employee selection and other HR decisions), education (e.g., academic admissions), clinical diagnostic assessment, and for certification, licensure, and credentialing, as well as businesses that provide testing services (e.g., test development, proctoring, scoring) or who own and administer test programs (collectively “Members”). Additionally, many Members are global vendors and service providers of technology in assessment and learning, including alleged or actual AI systems used in testing.

Since its inception in 1987, the ATP has advocated for the use of fair, reliable, and valid assessments, which includes ensuring the security of test content and test results, especially for high-stakes, secure tests. Our activities include providing resources and expertise to the U.S. Congress and state legislatures in the United States on legislative proposals affecting the use of testing in education and employment, as well as representing the industry in federal and state regulatory matters and litigation surrounding uses of testing. With the growth of its global representation the ATP has been active in providing educational guidance materials on many international regulatory issues, including copyright and AI.

**Relevant Background**

The Copyright Office has a longstanding history, dating back over forty years, of acknowledging the importance of and protecting confidentiality in the secure testing industry. In 1978, the Copyright Office issued a regulation establishing a special procedure to exempt “secure tests” from certain procedures of copyright registration, deposit, and examination.[[1]](#footnote-1) To keep up with evolving technology in the 1990’s, the Copyright Office permitted the secure registration of tests administered in a machine-readable format as well as secure tests administered with physical booklets that contain questions taken from automated databases.[[2]](#footnote-2)

The Copyright Office issued an Interim Rule in 2017, which has been updated and modified several times since then. While the Copyright Office initially held that tests taken remotely or outside of a “specified center” would not qualify as a “secure test,”[[3]](#footnote-3) it reversed that position in the face of the COVID-19 pandemic and further modified the Interim Rule in 2020 stating “that an otherwise-qualifying test shall be considered a secure test if it normally is administered at specified centers but is being administered online during the national emergency, provided the test administrator employs measures to maintain the security and integrity of the test that it reasonably determines to be substantially equivalent to the security and integrity provided by in-person proctors.”[[4]](#footnote-4) Then, earlier this year, the Copyright Office extended the 2020 Interim Rule allowing for the remote examination of copyright registration applications for secure tests as well as continuing to register secure tests that are administered online post-COVID-19 pandemic.

Throughout the entire Interim Rule process, the Office has indicated its intention to hold a formal rulemaking to update the definition of a “secure test.” Despite the lack of any formal rulemaking, in response to the Office’s request for feedback on the latest version of the Interim Rule, the ATP proposed that the Office adopt definition of the term “secure test” that conforms to the industry practices, as indicated in the footnote below.”[[5]](#footnote-5)

It is clear that technology has, and will continue, to evolve at an aggressive pace, and the ATP commends the Copyright Office for seeking comments on the impact of GAI on the scope of copyright issues. Examining the history of the Copyright Office’s handling of secure tests demonstrates both its willingness to adapt to the technological advancements impacting the testing industry and its recognition of the importance of copyright law as a mechanism to protect secure tests. Not only would allowing secure tests (and secure items in those tests) that have utilized GAI under some conditions to be protected by copyright make logical sense under the Copyright Act, but it would be consistent with the Office’s approach to handling technological advances. Given its history of advocacy on behalf of its Members and the assessment industry as a whole, the ATP provides this response to the question referenced asked by the Copyright Office in its NOI (*see supra.* at 1). We hope this information will assist the Copyright Office in developing and applying a uniform regulatory approach permitting the use of GAI in secure test content generation and development when it involves significant human intervention, creation, and oversight such that the “human authorship” requirement is fully satisfied. Consequently, applications for secure test items and forms must be eligible for copyright.

**Secure Test Items and Test using GAI Should Be Eligible for Copyright Protection**

In 1965, the Copyright Office seemingly anticipated that as technology advanced, the number of copyright registration applications submitted for works that were written in whole or in part by computers would increase substantially.[[6]](#footnote-6) The Copyright Office aptly noted that “[t]he crucial question appears to be whether the ‘work’ is basically one of human authorship, with the computer merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine.”[[7]](#footnote-7)

Two recent cases centered on the issue of human authorship when generative AI is utilized provide insight into where the line for human authorship in copyrightability should be drawn. First, in *Thaler v. Perlmutter*,[[8]](#footnote-8) the district court explained that “[c]opyright has never stretched so far, however, as to protect works generated by new forms of technology operating absent any guiding human hand.”[[9]](#footnote-9) While the court held that the picture at issue in the *Thaler* case was uncopyrightable due to it being entirely generated by AI with no human intervention; the court explained that there was still an open question as to “how much human input is necessary to qualify the user of an AI system as an “author” of a generated work. . . .”[[10]](#footnote-10)

The second case, *Zarya of the Dawn* (“*Zarya*”),[[11]](#footnote-11) provides preliminary guidance on the amount of human intervention necessary for the human authorship requirement to be met. In the *Zarya* case, the GAI platform Midjourney was used to create artwork. After a user to input a prompt, Midjourney generates four images that resemble the text in the prompt. The Copyright Office determined that the images generated by this GAI could not be protected by copyright because they did not meet the human authorship requirement,[[12]](#footnote-12) specifically focusing on the fact that while an image could be further altered by adjusting the prompt(s) to “guide” the structure and content of the images produced, it was actually Midjourney, not the GAI user, that originated the “traditional elements of authorship” in the images.[[13]](#footnote-13) In reaching its conclusion in Z*arya* that the AI generated images were not copyrightable, the Copyright Office laid the foundation of a **workable regulatory standard for determining when generative AI content may meet the requirement of human authorship**: *when generative-AI is merely a tool used for assistance in the creation of a work, rather than a source of independent creation and execution, whereby a human makes the determinations of how to use the tool in such as way that the human can predict what the final work will be and has “actually formed”[[14]](#footnote-14) the work as “the product of [his] intellectual invention”,[[15]](#footnote-15) then such work should be eligible for copyright protection.[[16]](#footnote-16)*

Applying the *Thaler* and *Zarya* decisions, the ATP agrees that when there is no human intervention with use of GAI, the test items and test forms generated are not be copyrightable. **However, the ATP equally asserts that, specifically in dealing with the secure tests, an extensive amount of human intervention is required, even when the process is assisted by GAI, such that the final work product (i.e., individual items or test forms assembled from such items) should still be copyrightable.[[17]](#footnote-17)**  For this reason, it is critical that the Office understand that specific test item content, whether written entirely by humans or when entirely created using GAI,[[18]](#footnote-18) is subjected to an identical rigorous process of human psychometric analyses conducted in what is known as a “test lifecycle” before those items are used in an assembled secure test form. This “test lifecycle,” also referred to as test development,[[19]](#footnote-19) follows the “*Standards for Educational and Psychological Testing*” (the “Joint Standards”), especially Chapter 4 entitled “*Standards for Test Specifications.*”[[20]](#footnote-20) Throughout the Joint Standards, the sponsoring organizations note that professional judgment plays a major role in developing high-stakes tests.[[21]](#footnote-21) These Joint Standards importantly require the extensive involvement of human psychometric experts and test developers, thus, even GAI items will be developed, revised, reviewed and analyzed by numerous human experts before use in final tests/test forms.[[22]](#footnote-22)

To illustrate how the generic test development lifecycle works and identify the extensive areas of human intervention, we provide the following details. Generally, the test lifecycle begins with a blueprint or test specifications (“blueprint”) of the content to be tested, which is produced by human test developers specifically oriented to the test outcomes needed by the owner of the test. From the blueprint, specific test items are developed and tests forms, typically various formats of items selected from test item pools, are assembled. Before these items can be used in an actual test, all items undergo extensive human reviews and analytics, including creating actual test forms, conducting pilot testing of items/forms, and a host of usually multiple psychometric activities, all of which involve significant human involvement.[[23]](#footnote-23) Once a secure test is administered, the specific items and test forms are analyzed to determine what further development, if any, is needed. Scoring and reporting are then performed to determine the theoretical minimum to help set a passing score. For the purposes of this response to the NOI, the relevant components of the secure test lifecycle for secure test copyright and GAI are the test item development, test assembly, and item/test review (collectively, “test development”).[[24]](#footnote-24)

The ATP submits that GAI offers substantial opportunities to guide advancements in the testing lifecycle process. In test development, the most likely area where GAI is currently being used as a tool is in item construction. Test developers may input instructional text into a GAI tool and use language analysis to construct specific items. However, it is crucial to note that GAI is most often an assisting tool used by subject matter experts (“SMEs”), who review and adjust generated items before they are included in a test item pool, from which test forms are eventually assembled.[[25]](#footnote-25)

Test development and lifecycle analytics are performed by highly trained individuals who ensure all test items meet the required psychometric rigor prior to becoming items in a test.[[26]](#footnote-26) These individuals include SMEs such as item writers and item reviewers, editors, test developers, who are trained specifically in the requirements of item writing, and professional psychometricians who possess the required education and training in measurement sciences. During and after actual item writing/generation, trained psychometricians tackle an imposing list of processes for test development.

 While GAI may be used to conceptualize ideas for test items once experts have determined the blueprint of content to be tested, the comprehensive process of test development, including the true creative item development, is replete with human oversight and intervention. Test items must be proofread, reviewed against a style guide (e.g., length of items), reviewed to ensure the item can be translated, removing jargon, checking accessibility, and test forms must be checked to ensure they meet the test blueprint (e.g., coverage of all subjects and degree of difficulty), and to remove enemy items (items that reveal an answer to another item). Equally important, test items and forms must meet psychometric measures for bias, degrees of difficulty, compatibility of items and forms, test item and form equity, regression analysis, validity studies, and reliability or “consistency” of test scores, all of which work components are performed by human experts. Such human experts have more than a simple influence over the output of the GAI, they control the specific creative results that are the test items or assembled test forms themselves.[[27]](#footnote-27)

During and after actual item writing/generation, trained psychometricians perform an imposing list of processes for test development, including (1) item bias, where each individual item is checked for bias (e.g., language, national custom or cultural bias);[[28]](#footnote-28) (2) test bias, where each test form is checked for bias (e.g., impact on special test populations, such as race, gender

age);[[29]](#footnote-29) (3) differential item functioning (“DIF”);[[30]](#footnote-30) (4) differential test functioning;[[31]](#footnote-31) (5) item response theory (“IRT”);[[32]](#footnote-32) (6) comparability studies;[[33]](#footnote-33) and (7) equating.[[34]](#footnote-34)

From this explanation, the ATP hopes it is clear that when GAI is used in item creation, GAI is used to produce a potential item, for example a question stem and 4 answer choices or some other item make-up. GAI items then undergo reviews by one or more humans, where some items may be discarded, other ones progressed to go through the review cycle. The human review cycle has several steps; in some cases, the text of the item will be adjusted by various human stages, in other cases the text may remain if the various psychometric analysis identifies that the question is appropriate. In any case, the original item writing is but a small part of the total process, and multiple human steps convert the item from a candidate piece of text to a usable item in high stakes secure testing.

Items are then amalgamated into a test form, where a human or human-guided process is used to identify the appropriate items to be included in a specific test form, including in some cases to determine the appropriate order of items and usually also a standard setting process to determine what a fair cut or pass score would be for using the test. Again, the original text produced by the GAI is but a tiny part of the process, important for sure but the reason that the test is valuable is the test development/psychometric process to get it to be a valuable measurement tool.

Thus, in today’s test development process, GAI is merely a tool that is used to assist human experts in the creation of test items that will be used in a secure test. The GAI is not independently creating any final test items or executing a test form, rather human experts control how GAI will be used and make the required alterations, modifications, and further developments required to meet scientific, psychometric standards.[[35]](#footnote-35) In this way, it is the human experts, not the GAI, which has “actually formed” the test items and secure test such that it is the “product” of the expert’s “intellectual invention.” There is no black box whereby the final resulting test items and secure test forms are unpredictable to the experts; the scientific process demonstrates the opposite is true — human experts/psychometricians must follow the rigorous process so that the content output of test development, including that which is assisted by GAI, is highly predictable and in fact is authored by humans. Therefore, the ATP urges the Office to recognize that the human authorship requirement is met when the psychometric test development process is followed for secure test items/forms.

**Conclusion**

The ATP acknowledges that the Copyright Office has a history of providing special handling of secure tests. In this way, the Copyright Office has long recognized that secure tests pose unique needs and procedures when it comes to the copyright process. Thus, when it comes to establishing a regulatory standard for determining the eligibility of some GAI test items and forms, the ATP urges that, at least in the limited case of secure tests, test content that has utilized GAI tools while adhering to the test development process we have outlined should still be eligible for copyright protection, because, as explained above, no test item or test form is created without extensive human intervention.

The ATP represents the assessment and learning industry as it seeks to ensure the continued ability of testing organizations to register test content (individual items and test forms) that utilize GAI and is designed to aid in the test development process while still requiring human intervention and authorship. The ATP applauds the Copyright Office’s effort to provide clarity around the copyrightability of works utilizing GAI and we look forward to continued participation in this effort to ensure that secure tests can be protected.

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Respectfully submitted,



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July 24, 2023

Ms. Shira Perlmutter, Register of Copyrights and Director of the U.S. Copyright Office

Ms. Suzanne V. Wilson, General Counsel and Associate Register of Copyrights

Mr. Robert J. Kasunic, Associate Register of Copyrights and Director of Registration Policy and Practice

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**Re: Interim Rule on Secure Tests**

Dear Ms. Perlmutter, Ms. Wilson, and Mr. Kasunic,

The Association of Test Publishers (“ATP”) is the international trade association representing the global assessment and learning industry, comprised of hundreds of publishers, sponsors, and vendors that deliver and administer tests and other testing services, used in various settings including employment, education, clinical psychology, and certification/licensure/credentialing. As a result, many of these organizations use secure tests and register them with the Copyright Office under the Secure Test procedures. The ATP has commented on the previous Interim Rules in the Docket. *See* ATP Comments, filed on April 2, 2018, and also on June 8, 2020, commenting on the May 8, 2020 Interim Rule (a copy of both filings are attached as Exhibit A and Exhibit B).

Beginning in the aftermath of the original 2017 Interim Rule, the ATP has consistently urged the Office to revise the definition of “secure test” -- which has been in place since creation of the 1978 Secure Test registration process. As we pointed out in our 2020 comments (at page 6):

There is no reason for the Office to require the testing industry to act as though testing exists in the 1970s by continuing to rely on an outdated definition [of “secure test”] – a definition that the Office itself informally modified during the 1990s. The time has come for the Office to join the 21st Century and allow already-implemented technology-based assessments to be equally protected under the Copyright Act.

This letter responds to the June 1, 2023, request for comments on the Secure Test Interim Rule, published in the Federal Register by the U.S. Copyright Office with a request for comments (the “June 1, 2023 Interim Rule”). 88 *Fed. Reg*. 35741. This proposed rule would preserve the status quo set in the Copyright Office’s 2020 Interim Rule (May 8, 2020) which would have expired with the end of the COVID19-pandemic national emergency (April 10, 2023) and the expiration of the national public health emergency declaration (May 11, 2023).

The ATP supported this result back in 2020, when it urged the Office to recognize the realities of all current forms of secure testing, regardless of whether the test is delivered in person or remotely and whether the test is in physical or electronic format (pages 8-9):

The ATP firmly believes that the Office’s experience under the 2020 Interim Rule will bear out the sensibility that secure test applicants are entitled to have online at-home tests and remotely-administered and proctored test items be eligible for registration and testing programs should have the option of using these online/remote procedures for all future applications.

To that end, there are a number of issues with the proposed extension of the 2023 Interim Rule that do NOT accurately reflect the information about current technology used in modern assessments provided by the ATP in our previous comments. Accordingly, for all of these reasons, the ATP proposes that the Office modify its proposed Rule and adopt the following definition[[36]](#footnote-36):

A “**secure test**” is a non-marketed test comprised of a group of secure test questions and answer choices (“items”) that are contained in a fixed test form or are stored together and retrieved from a database of items to form a complete test or otherwise administered to test takers as a group of test items, created through generallyaccepted industry practices to assess or measure certain content, knowledge, skill, mastery, or competency, delivered in a supervised environment either in person or remotely, all copies of which are accounted for and either destroyed/deleted or returned to restricted physical or electronic storage following each administration, and its administration employs equivalent measures to maintain the security and integrity of the test regardless of the modality of delivery. For these purposes, a test is not marketed if copies are not sold but the test is administered and used in such a manner that ownership and control of physical and electronic copies remain with the test sponsor or owner, or its agents.

If the Office has questions or wishes to engage in a formal discussion about how to better manage secure test registration procedures, the ATP would welcome the opportunity to meet to discuss those issues in person.

Sincerely,



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1. *See* 42 FR 59302, 59304 & n.1. [↑](#footnote-ref-1)
2. *See Copyright Registration of Secure Tests (Circular 64).* [↑](#footnote-ref-2)
3. *See* 82 FR 26850. [↑](#footnote-ref-3)
4. *See* 85 Fed. Reg. at 27,298. [↑](#footnote-ref-4)
5. In its letter to the Copyright Office, the ATP proposed the following definition of “secure test.” *See* Letter from the Association of Test Publishers, dated July 25, 2023 (*see* Appendix A):  *“*A ‘**secure test**’ is a non-marketed test comprised of a group of secure test questions and answer choices (“items”) that are contained in a fixed test form or are stored together and retrieved from a database of items to form a complete test or otherwise administered to test takers as a group of test items, created through generally-accepted industry practices to assess or measure certain content, knowledge, skill, mastery, or competency, delivered in a supervised environment either in person or remotely, all copies of which are accounted for and either destroyed/deleted or returned to restricted physical or electronic storage following each administration, and its administration employs equivalent measures to maintain the security and integrity of the test regardless of the modality of delivery.  For these purposes, a test is not marketed if copies are not sold but the test is administered and used in such a manner that ownership and control of physical and electronic copies remain with the test sponsor or owner, or its agents. [↑](#footnote-ref-5)
6. *See Sixty-Eighth Annual Report of the Register of Copyrights for the Fiscal Year Ending June 30, 1965*, at 5 (1966). [↑](#footnote-ref-6)
7. *Id.* [↑](#footnote-ref-7)
8. Mem. Op., *Thaler v. Perlmutter*, No. 22–cv– 1564, ECF No. 24 (D.D.C. Aug. 18, 2023). [↑](#footnote-ref-8)
9. *Id*. at 8. [↑](#footnote-ref-9)
10. *Id*. at 13. [↑](#footnote-ref-10)
11. U.S. Copyright Office, *Cancellation Decision re: Zarya of the Dawn* (VAu001480196) (Feb. 21, 2023). [↑](#footnote-ref-11)
12. *Id*. at 12. [↑](#footnote-ref-12)
13. *Id*. at 8. [↑](#footnote-ref-13)
14. *Burrow-Giles*, 111 U.S. at 61. [↑](#footnote-ref-14)
15. *Id*. at 60. [↑](#footnote-ref-15)
16. *See* U.S. Copyright Office, *Cancellation Decision re: Zarya of the Dawn* (VAu001480196) at 8-9 (Feb. 21, 2023). The Copyright Office determined that Midjourney software generates images in an unpredictable way, and that because the tool was used in a way that the output could not be predicted by the user, the user was not the one who “actually formed the picture,” and thus the human authorship requirement could not be met. The prompts the user inputted may have influenced the AI’s output, but they did not create a specific result. [↑](#footnote-ref-16)
17. In general, studies have validated the importance of human intervention in the quality of GAI output. *See* [Google Research Explores: Can AI Feedback Replace Human Input for Effective Reinforcement Learning in Large Language Models? - MarkTechPost](https://www.marktechpost.com/2023/09/07/google-research-explores-can-ai-feedback-replace-human-input-for-effective-reinforcement-learning-in-large-language-models/). [↑](#footnote-ref-17)
18. Today it is common that item development and test form assembly can be “hybrid” processes, where GAI is used to augment and assist human item writers. [↑](#footnote-ref-18)
19. The Joint Standards (see fn. 19 below) define “test development” as "*the process through which a test is planned, constructed, evaluated, and modified, including consideration of content, format, administration, scoring, item properties, scaling, and technical quality for the test’s intended purpose*” and this is done by a “test developer” defined as “: The **person(s)** …responsible for the design and construction of a test and for the documentation regarding its technical quality for an intended purpose.” [↑](#footnote-ref-19)
20. *See*, Ch. 4, Standards for Test Design and Development, "*Standards for Educational and Psychological Testing (Revised 2014)*" developed jointly by three sponsoring organizations, the American Educational Research Association, American Psychological Association, and the National Council on Measurement in Education. [↑](#footnote-ref-20)
21. *Id.* Note there are 28 references to “professional judgment” in the Joint Standards. [↑](#footnote-ref-21)
22. The relevant components of the secure test lifecycle for secure test copyright and GAI are the test item development, test assembly, and item/test review (collectively, “test development”). Moreover, once a test is administered, the forms and specific items undergo further evaluation/analysis to determine if any additional test development is needed. Scoring and reporting are then performed to determine the theoretical minima to help set a passing score. [↑](#footnote-ref-22)
23. *See* <https://learn.microsoft.com/en-us/credentials/certifications/exam-development>; *see also* <https://www.proftesting.com/blog/2015/06/05/201565how-to-develop-a-certification-exam/>.For example, the International Association of Privacy Professionals (IAPP) make clear the importance of test security and test development for their certification exams. *See* <https://iapp.org/certify/cippe-cippus-cipm-cipt-beta-exams/>. [↑](#footnote-ref-23)
24. Other AI functionality also exists beyond the generation of copyrightable content, such as software governing the delivery of test forms to test takers (e.g., computer adaptive testing, linear-on-the-fly testing) or methods of scoring tests (e.g., automated scoring of short answer or essay tests based on fixed scoring rubrics). [↑](#footnote-ref-24)
25. *See* <https://commons.erau.edu/cgi/viewcontent.cgi?article=1571&context=publication> (p. 8). While GAI may produce an initial test item, extensive human analysis must be done to finalize the item. For example, the body of the item must be clear, complete, and logical without being overly complex; gender, cultural, and vernacular biases must be avoided, which GAI notoriously has issues with; test items must be rooted in fact and procedure, not opinion; and item answers must follow the same requirements as well as avoid word associations that would make correct answers too obvious or make a question appear as a trick question. Additionally, certain item construction methods have been studied and shown to be less effective than others, and human SMEs must take this into account when generating test items. [↑](#footnote-ref-25)
26. *See id*. (p. 9-13) (explaining the test lifecycle analytics performed to ensure test items meet psychometric rigor). [↑](#footnote-ref-26)
27. The ATP suggests that an item created solely by GAI that has not gone through a review process is of no value. The value of the review process is that it determines that the item can be used with the target audience to help determine a knowledge or skill level. It is only once the human review process has happened that items become useful. *See* <https://pythoninstitute.org/exam-development>; *see also* <https://www.td.org/certification/test-development-steps>. [↑](#footnote-ref-27)
28. Item bias refers to the use of test items that are problematic because they are poorly translated, the item content is unfamiliar, or the language is from a specific cultural background. Using idiomatic phrases (e.g., ''**bury the hatchet**'') is an example of item bias in testing. Item bias is often associated with societal, cultural, or national language usage. [↑](#footnote-ref-28)
29. Test bias refers to the differential validity of test scores for groups (e.g., age, education, culture, race, gender). A biased test is one that systematically overestimates or underestimates the value of the variable it is intended to assess. *See* <https://www.iresearchnet.com/research-paper-examples/assessment-psychology-research-paper/bias-in-psychological-assessment/>. Bias can be internal (psychometric properties, test structure) or external (differential prediction/selection) to the test. Test bias is often defined as a systematic error is the measurement, which captures the concept that there are construct-irrelevant components that result in systematically higher or lower scores on the measurement for the groups under examination (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME],2014. That definition of bias is used in a technical sense, which does not bring in factors such as social fairness, equality, and prejudice. [↑](#footnote-ref-29)
30. Differential item functioning (DIF) refers to a situation where an item on a test or survey behaves differently for different groups of people, such as by gender, race, or socioeconomic status. There are several methods for detecting DIF, each with its own strengths and weaknesses. DIF includes the need to analyze the difference in performance conditioned on ability, which means finding test takers at a given level of ability (e.g., 20-30th percentile) and comparing the difficulty of the item with minority versus majority test takers. It is important to note that there is no single best method for detecting DIF; the choice of method depends on the specific characteristics of the study and the population. It is recommended to consult with a statistician or psychometric expert when working with DIF analysis. *See* [*https://www.researchgate.net/post/To\_the\_Psychometric\_Community\_please\_what\_is\_the\_best\_method\_of\_detecting\_Differential\_item\_functioning\_DIF*](https://www.researchgate.net/post/To_the_Psychometric_Community_please_what_is_the_best_method_of_detecting_Differential_item_functioning_DIF)*.* [↑](#footnote-ref-30)
31. Differential test functioning, or DTF, occurs when one or more items in a test demonstrate differential item functioning (DIF) and the aggregate of these effects are witnessed at the test level. In many applications, DTF can be more important than DIF when the overall effects of DIF at the test level can be quantified. *See* <https://pubmed.ncbi.nlm.nih.gov/29795859/>. [↑](#footnote-ref-31)
32. Item response theory (IRT) consists of probabilistic models for test takers’ responses to test items, procedures for the statistical treatment of the models, and principles that can be used in their application. The models are probabilistic in that they specify a probability distribution over the set of possible responses. The mathematical function used for describing a response probability as a function of the parameter for the test taker’s property measured by the test, such as an ability, skill, attitude, or personality trait, is known as a response function. If the responses are scored as correct-incorrect, the model is usually presented as a response function for the correct response. In addition to the test taker’s property, IRT models have parameters for such item properties as its difficulty, discriminating power, and the probability of a correct response when the test taker guesses randomly. In more complex models, additional parameters represent the different conditions under which the test takers respond to the items, properties of possible raters who evaluate the responses, more specific mental operations needed to solve the item, or the speed at which a test taker responds. *See* “Item Response Theory,” Wim J. van der Linden, Encyclopedia of Social Measurement, Volume 2, 379 (2005), Elsevier Inc. IRT may be used for DIF. [↑](#footnote-ref-32)
33. Comparability means determining that items (item degree of difficulty) and test forms (scores on multiple language tests) accurately report and interpret comparability assertions, as well as how to ensure greater comparability, by paying close attention to key aspects of assessment design, content, and procedures. The goal is to provide data regarding how much and what types of variation in assessment content and procedures can be allowed, while still maintaining comparability across jurisdictions and test taker populations. [↑](#footnote-ref-33)
34. *See* Ryan and Brockmann (2009), “Equating is a technical procedure or process conducted to establish comparable scores, with equivalent meaning, on different versions of test forms of the same test; it allows them to be used interchangeably.” (p. 8). Thus, successful equating is an important factor in evaluating assessment validity, and, therefore, it often becomes an important topic of discussion within testing programs. When two test forms have been properly equated, educators can validly interpret performance on one test form as having the same substantive meaning compared to the equated score of the other test form. *See* Jorge González and Marie Wiberg, “Applying Test Equating Methods,” Springer Publishing (2017). [↑](#footnote-ref-34)
35. *See Lindsay v. The Wrecked and Abandoned Vessel R.M.S. Titanic*, 52 U.S.P.Q.2d (S.D.N.Y 1999), where plaintiff conceived a new film project for the Titanic using high illumination lighting equipment, including: a) creation of story boards for the film, which included a series of drawings and renderings of the Titanic at different camera angles and shooting sequences; b) designing the light towers that were used for filming; c) directing the filming of the wreck site on board; and d) holding daily planning sessions with photographers to provide instructions for positioning and utilizing the light towers. The defendants claimed that the plaintiff did not have a protectable right because he did not physically dive to the ship or photograph the wreckage himself, which position was rejected by the court. The court noted that: “All else being equal, where a plaintiff alleges that he **exercised such a high degree of control** (bold added) over a film operation – including the type and amount of lighting used, the specific camera angles to be employed, and other detail-intensive elements of a film – such that the final product duplicates his conceptions and visions of what the film should look like, the plaintiff may be said to be an ‘author’ within the meaning of the Copyright Act…” The ATP asserts that the same “control” argument applies in the secure test environment. [↑](#footnote-ref-35)
36. The ATP equally notes that the Office’s “Questionnaire for Secure Tests and Questions, Answers, and Other Items Prepared for Use in Secure Tests,” currently is based on the existing definition of “secure test” and thus must be revised to conform to the new definition.

 [↑](#footnote-ref-36)