RMT

RASCH MEASUREMENT

Overview of The Issue

The Fall 2024 issue of RMT includes several announcements that may be interesting to our community of Rasch measurement researchers.

First, we have announcements from the AERA Rasch Measurement Special Interest Group (SIG). We highlight this year's award winner of the Benjamin D. Wright Senior Scholar Award: Dr. Trevor Bond. Then, we discuss membership within the Rasch SIG and opportunities to contribute to our organization. Lastly, we announce the call for nominations for the Georg William Rasch Early Career Publication Award.

Second, we have a note from Eunji Lee and George Engelhard, Jr. about "Next Generation Assessments and Rasch Measurement Theory".

We end the issue with an announcement about the International Objective Measurement Workshop in Spring 2025 in Boulder, Colorado.

As always, we welcome your contributions to the next issue for RMT. We would appreciate receiving your research note, conference or workshop announcement, etc. by January 10, 2025. Please contact Stefanie at swind@ua.edu or Leigh at leigh.williams@memphis.edu to submit something for inclusion.

Sincerely,
Stefanie A. Wind & Leigh Harrell-Williams

Announcements from the Rasch Measurement Special Interest Group (SIG)

Benjamin D. Wright Senior Scholar Award Winner

The Rasch SIG is thrilled to announce Dr. **Trevor Bond** as the winner of the Rasch SIG's bi-annual **Benjamin Drake Wright Senior Scholar Award**.

Dr. Bond has had a major influence on measurement practice across international contexts through his scholarship and teaching. Dr. Bond's work sets the standard for didactic and rigorous Rasch measurement publications. His research, teaching, and service reflect the mission of the Rasch measurement community, and we are delighted to honor him with this award.

Dr. Bond is lead author of the influential text *Applying the Rasch Model: Fundamental Measurement in the Human Sciences* (ARM). To collect his award, **he will present an invited address at the Rasch Measurement SIG Business Meeting session at AERA in Denver, Colorado in April 2025.**

His talk, *The Little Steam Engine that Could*, will use that long time children's favorite as an analogy for recounting the writing, publication and development of ARM through four editions. In the earlier classic, a long train must be pulled over a high mountain after its locomotive breaks down. Larger locomotives are asked to pull the train; they refuse, being occupied with much more important tasks. Only the little engine is willing to try and, while repeating the mantra "I think I can, I think I can", overcomes a seemingly impossible task.

Additional details about this talk are forthcoming.

Updates from the Rasch SIG Chair

Dear Rasch Measurement Colleagues,

I have several updates to share with you regarding the Rasch SIG of AERA. These include: (1) An update on our SIG membership; (2) Opportunities to contribute to the SIG; and (3) Encouragement to engage with SIG activities at the 2025 AERA meeting.

Update on SIG Membership: Urgent Call for Renewal

As some of you know, membership and participation in the Rasch SIG has been steadily declining over the past several years. Despite our efforts to increase membership over the last few months, our current membership count remains below the minimum required to maintain the SIG as part of AERA.

To ensure that our SIG can continue to provide this welcoming space, I am kindly asking you to please consider rejoining the Rasch SIG for the next year. Please also invite your colleagues and students to consider joining the SIG.

Our current membership roster lists 67 members. We need at least 75 to be considered "viable" according to AERA.

I extend my sincere thanks to those of you who have recently renewed your SIG membership. I also suspect that we will meet AERA's membership requirement by the time of the 2025 meeting, as many members will likely renew their affiliations when they register for the conference. Nevertheless, *please consider renewing your membership to the Rasch SIG as soon as possible.*

Opportunities to Contribute to the SIG

The Rasch SIG is actively working to increase engagement within our community of Rasch scholars. Our current efforts are focused on three main activities: (1) mentoring; (2) webinar series; and (3) in-person activities at AERA 2025.

If you are interested in contributing to any of these efforts, please reach out to me directly via email: swind@ua.edu. I would love to hear from you!

Upcoming In-person Rasch SIG Activities at AERA 2025

The Rasch SIG received many high-quality submissions for research presentations at AERA 2025. These submissions promise engaging presentations at the upcoming conference.

If you plan to attend AERA 2025, **please make an effort to attend and participate in our presentation sessions.**

Please also plan to attend our Business Meeting session. The conference schedule will be announced in mid-January 2025, and we will share details with you when we have them. We hope that you will consider joining us to **hear Dr. Bond's address** and to have a chance to **connect with our SIG community**. Details are forthcoming with respect to other activities to be held during the business meeting.

Call for Nominations for Georg William Rasch Early Career Publication Award

We are currently accepting nominations for The Georg William Rasch Early Career Publication Award, which is an AERA-sanctioned award. This award is presented to an individual for outstanding Rasch measurement research published within five years of obtaining their doctoral degree and will be presented during the AERA 2025 Annual Conference. The main purpose of this award is to foster ongoing quality research in the area of Rasch measurement, and to encourage the development of a Rasch measurement focus in the early phases of one's career.

Eligibility Criteria: Nomination for the Georg William Rasch Measurement Early Career Publication award should be based on a scholarly publication authored by a nominee that fulfills the following criteria:

- The publication must include a Rasch measurement focus.

- The publication may be based on the dissertation work of the nominee or other recent research the nominee has conducted.

- The nominee should be either the single author or the lead author (in the case of a jointly authored paper) of the article.

- The article must have been published within two (2) calendar years (April 2023 – April 2025) prior to the Rasch Measurement SIG's business session at the 2025 AERA Conference.

- Only peer-reviewed research publications that are published or in press (accepted for publication) are eligible for nomination.

- The nominee should have received his/her doctoral degree no earlier than five years prior to the nomination deadline (January 31, 2025).

- The nominee must be a member of the Rasch SIG or must become a member by the time the award is presented at the annual meeting.

The Award: The award includes a monetary stipend and a plaque that includes the name of the award, the winner's name, the title of the winning article, and the name of the journal or peer reviewed research publication in which the article was published. The award will be given to one person, biannually in odd-numbered years.

Nomination Deadline: The nomination deadline is Friday, January 31, 2025.

To Submit: Nominations are submitted by sending an email to the SIG Secretary Audrey Conway Roberts at audrobe@bgsu.edu. Completed nominations should include the following:

(1) A letter nominating the author of an early career publication. Please include the name of the author, the date he/she received the doctoral degree, and the name of the institution that conferred the degree. The nominator's letter must include reasons that the paper is an example of an outstanding Rasch measurement research publication

(2) A copy of the published paper, including complete bibliographic information

(3) A copy of the Table of Contents of the journal or other peer reviewed research publication in which the paper appeared OR an acceptance letter from the journal will be acceptable if it is currently in press

(4) A current CV for the nominee

Sincerely,
Stefanie A. Wind
Chair, *Rasch Measurement SIG*

Next Generation Assessments and Rasch Measurement Theory

Recently, we presented a poster at the IMPS conference in Prague (July 2024) that considered key aspects of next generation assessments. This led to numerous discussions about the defining characteristics of next generation assessments. In this essay, we briefly discuss four aspects of next generation assessments. We believe that next generation assessments will feature personalized assessments that are technology-based using generative AI within digital environments. These four aspects of next generation assessments are shown in Figure 1. Our goal in this essay is to briefly consider the roles that Rasch measurement theory can play for next generation assessments. We hope that this essay will start discussions about these issues within the Rasch measurement community.

Personalized Assessments

Personalized assessments are targeted on each person. One model of what this process may eventually look like is reflected in recent trends in personalized medicine (Subbiah, 2023). Subbiah has called for "preventive, personalized, pragmatic, and patient participatory medicine" (p. 56). This perspective has implications for how next generation assessments are implemented in educational settings. Personalized assessments offer the opportunity for contextualized learning by identifying prior knowledge, and then tailoring individual students with different instructional strategies.

For example, Yuan, Engelhard, Raczynski, and Wang (2022) described an approach for identifying targeted feedback strategies for student writing. This type of personalized assessment depends in a fundamental way on the underlying measurement theory that supports the process. For example, computer-adaptive testing is built upon very strong requirements of the measurement model that must be met if the system is to produce useful scores. Rasch measurement theory offers a robust approach to CAT, as well as clear guidelines for evaluating model-data fit more broadly. Person fit and person response functions can enhance a personalized approach by examining how well each set of individual responses fits the expected responses for each person (Turner & Engelhard, 2022).

Technologically Based Assessments

The International Test Commission and Association of Test Publishers (ITC-ATP, 2022) defines technologically based assessments as "a wide range of digitally enabled formats and methods ... [including] any procedure that uses or leverages technology to describe or draw inferences about human characteristics, performance, or predicted outcomes" (p. 1). As with any technology, there is the potential for benefits, but there are also several challenges that may persist in practical assessment settings.

Modern assessment systems include a strong dependence on technology. ITC-ATP (2022) provide guidelines for multiple uses of technology-based assessments including test development, test design and assembly, test delivery environments, scoring, score reporting, data management, psychometric quality, test security, data privacy, fairness and accessibility. Each of these areas depends on the particular measurement model guiding the process. This is another area for discussion within the Rasch measurement community of how to implement and monitor the quality of each component of a technologically based assessment system.

Assessment Systems Using Generative AI

One of the most widely discussed aspect of next generation assessments is the role that generative AI may play with assessment systems (Hao, et al., 2024). For example, ChatGPT appears to be good at writing essays and attaining excellent grades with "human-level performance on various professional and academic benchmarks" (OpenAI, 2023).

Generative AI in education offers a lot of advantages in the areas of digital, personalized, and technology enhanced assessments. Generative AI can provide personalized learning and adaptive learning for individual needs. Generative AI offers a range of educational implications (Łodzikowski, Foltz, & Behrens, 2024). For example, generative AI offers boosts in efficiency by automating tasks such as grading, feedback, and lesson planning. As

pointed out by Baek and Wilson (2024), generative AI can enhance accessibility and individualize learning for individuals, but there are several problems, such as algorithmic biases, discrimination, and data privacy issues. They also argue that generative AI in education requires responsible integration coupled with ethical guidelines. An example of ethical guidelines for generative AI has been suggested by UNESCO (2023) with ten core principles: Proportionality and Do No Harm, Safety and Security, Right to Privacy and Data Protection, Multi-stakeholder and Adaptive Governance & Collaboration, Responsibility and Accountability, Transparency and Explainability, Human Oversight and Determination, Sustainability, Awareness & Literacy, and Fairness and Non-Discrimination. Each of these guidelines should be explored in detail within the context of next generation assessments using Rasch measurement theory.

Digital Environments

Next generation assessments will take place in a digital environment (Behrens & Dicerbo, 2014; Behrens, Dicerbo, & Foltz, 2019). Within this context, it is important to consider the psychometric characteristics of the test in this digital environment. Some of these considerations are content representation, item types, number of tests administered, the psychometric model used to calibrate items and score tests, the size of the item bank, and overall costs associated with the assessment (ITC-ATP, 2023). An important feature of digital environments is that information can be gathered

unobtrusively from students as they engage in activities, and then this use this information can be used to make inferences about students – this has been called stealth assessment (Shute, 2011).

Each of the previous aspects of next generation assessments depends in a fundamental way on existing within digital environments. Most of the current research on digital environments has been based on computers currently available in classrooms. Relatively few studies have examined the use of wearable devices, smartphones and tablet computers (Xie, et al., 2019).

Summary

In summary, next generation assessments will be heavily dependent on the measurement model underlying the assessment system. Issues related to the psychometric quality of these assessments will be challenging, and Rasch measurement theory can provide a framework for evaluating next generation assessment systems. According to the ITC-ATP (2022) guidelines,

> the fundamental concerns with assessment remain the same. It is critical to ensure that the use of technologies in testing adds value through more accurate, accessible, engaging, fair, and secure assessments without introducing new irrelevant variance in scores or unintended consequences. (p. 1)

Rasch measurement theory provides a strong framework that can be used to evaluate the psychometric quality of next generation assessments; however, the devil (or god) is in the details. We end with a cautionary note from Bloom (1970),

> It is no great exaggeration to compare the power of testing on human affairs with the power of atomic energy. Both are capable of great positive benefit to all of mankind and both contain equally great potential for destroying mankind. If mankind is to survive, we must continually search for the former and seek ways of controlling or limiting the latter (p. 26).

Eunji Lee
George Engelhard, Jr.
The University of Georgia

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Conference Announcement: International Objective Measurement Workshop (IOMW)

Website: https://www.iomw.net/
Proposal Submission Deadline:
December 16, 2024

We are excited to announce that the bi-annual **International Objective Measurement Workshop** (IOMW) 2025 Conference will be held in **Boulder, Colorado**, on **April 21 and 22**, just before the AERA/NCME annual conferences. The conference may include an additional half-day of workshops on April 20. The

conference will take place at the University Memorial Center at the University Colorado, Boulder, located at 1669 Euclid Ave, Boulder, CO (around a 50 min bus ride from Denver where the AERA/NCME will be hosted). IOMW presents an opportunity for scholars interested in the theory and practice of measurement in the human sciences to present research, learn about the most recent developments, and meet with colleagues who share similar interests in an intimate setting.

We have already confirmed the participation of [Dr. Mijke Rhemtulla (UC Davis)](#) as a keynote speaker for the first day. A preliminary title for her address is "Alternatives to Reflective Measurement." We have no doubt it will be thought-provoking!

The second day will feature a workshop activity led by Benjamin Domingue (Stanford University) to introduce an exciting new resource for measurement explorations: the Item Repository Warehouse (IRW). The [IRW](#) is a public repository of nearly 500 item response datasets (and still growing). The data in the IRW have been standardized such that knowledge of the data standard would permit a user to write functions to perform psychometric analysis on large volumes of data. In this training, we will further describe the IRW data, introduce some critical functionality for showing how data can be filtered/chosen, illustrate its use in some examples, and have a group discussion about our future plans for the IRW and how

it can be further improved to work for the measurement community.

The deadline for [submitting proposals](#) is December 16, 2024 (11:59pm Mountain Time), and details about the submission of paper and symposium proposals (and conference registration) will be available at www.iomw.net during the following weeks. We are very interested in promoting conversations and dialogues, and hence, we are accepting individual paper presentations to be delivered in a round-table format. We will also accept symposia proposals that encourage discussions and debate. We invite both theoretically focused and applied papers.

Examples of themes we are particularly excited about include (but not limited to):

<u>Measurement and Technology</u>. Sources and types of data have expanded beyond traditional responses to fixed survey questions. Advances in artificial intelligence via large language models have the potential to change the way we think about instrument design, scoring and modeling. The way that all these things interact with a theoretical understanding of the attributes we seek to measure. How can technological advance improve the theory and practice of measurement? We invite papers and sessions that take up these issues through a combination of conceptual or empirical analysis.

<u>Applications and Modeling</u>. The IOMW provides opportunities to share evolving and ongoing work relevant to the practice of

objective measurement, broadly defined, but also more specifically to applications of the Rasch Model and Rasch's perspective on measurement as advanced by Ben Wright and his students. We invite papers that allow you to share work (including work in progress) and get feedback from colleagues in the IOMW community.

Conversations across disciplines and traditions. Measurement is a critical component of scientific inquiry in many areas, including but not limited to the areas of public health, the medical sciences, counseling, the biological sciences, psychology, education, economics, and sociology. Papers likely to stimulate cross-disciplinary perspectives on measurement are especially welcome.

Change over time, place, and context. On the one hand, invariance is a critical concept in objective measurement; on the other hand, measures are often applied to highly dynamic systems (e.g., human beings) that change over time and context. This is particularly visible in contemporary debates about the assessment of learning and "growth". We welcome papers on related topics including but not limited to vertical scaling, measurement invariance (of any form), and longitudinal models.

Foundations of measurement. IOMW scholars are committed to examining foundational measurement concepts, including philosophical debates, and the conditions that maximize the validity, reliability, and utility of measures. We welcome conceptual, theoretical, historical and/or comparative papers that help us to understand better what is at stake in the development, use, and discussion of measures.

Please share this announcement with colleagues. Please also feel free to reach out with questions or comments, and we look forward to seeing you in Boulder in April!

All the best,

IOMW 2025 Conference Organizing Committee

Derek Briggs, Chair
(derek.briggs@colorado.edu)
Amy Arneson
Nicolas Buchbinder
Ben Domingue
Ken Fujimoto
Catalina Henriquez
Klint Kanopka
Danny Katz
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