The 20th Pacific Rim Objective Measurement Symposium (PROMS 2025): A Conference Report

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Abstract. This conference report provides an overview of the background, focus and scholarly significance of the 20th Pacific Rim Objective Measurement Symposium (PROMS 2025), hosted by Singapore University of Social Sciences, Singapore. PROMS 2025 was presented as comprising pre-conference workshops on 21 July 2025 and the main conference on 22-23 July 2025. The symposium adopted the theme *Next Generation Measurement: When Innovation Meets Objectivity*, reflecting the continuing importance of objectivity and invariance in measurement in the face of rapid methodological and technological change, such as artificial intelligence (AI). As the 20th edition of PROMS, the event also marked an important milestone in the development of the Pacific Rim Objective Measurement Society (also PROMS) and its longstanding commitment to Rasch measurement. This report reviews the conference theme, programme, workshops, keynote and plenary contributions, the development of PROMS over two decades, and the continuing relevance of the Rasch model in the age of AI, such as its origins, theoretical foundations, and practical applications.

Keywords: PROMS 2025, conference report, Rasch measurement, objective measurement, artificial intelligence, measurement innovation.

1 Introduction

The Pacific Rim Objective Measurement Symposium (PROMS) is an annual professional meeting of the Pacific Rim Objective Measurement Society (also PROMS). PROMS (the Society) was established in 2005 to promote objective measurement and to contribute to the research and development of Rasch measurement in the Pacific region. PROMS (the Symposium) consist of a conference and associated workshops for the sharing of knowledge and applications of the Rasch model within the international community (PROMS, n.d.).

PROMS 2025 marked the 20th edition of the symposium and was hosted by Singapore University of Social Sciences, Singapore. The event included a day of pre-

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conference workshops on 21 July 2025, followed by the main conference on 22 and 23 July 2025.

As a milestone edition, PROMS 2025 represented both continuity and renewal. It continued the Society's longstanding commitment to objective measurement while also engaging current questions about technology innovation, digital assessment, and the future of measurement practice. The symposium brought together researchers, educators, and practitioners from across the Pacific region and beyond, reflecting the international and interdisciplinary character of the PROMS community. PROMS 2025 presenters presented work ranging from instrument development and validation, measurement modelling, and applications of Rasch analysis in different areas of work. Many had examples showcasing advances in adaptive testing, artificial intelligence (AI)-assisted item generation, and cognitive diagnostic assessment, reflecting the growing integration of technology in objective measurement. Presenters also utilised different tools and various platforms to support their analysis.

2 Theme and Focus

The theme of PROMS 2025 was *Next Generation Measurement: When Innovation Meets Objectivity*. The theme emphasised a continuing commitment to objectivity and invariance in response to cutting-edge advancements and emerging technologies that are reshaping how data are collected, analysed and interpreted. It also invited critical reflection on issues arising from the integration of AI, particularly how such innovations may affect precision, accuracy, fairness and invariance of measurement practices across diverse disciplines.

This framing was especially timely, as contemporary measurement increasingly operates in environments shaped by AI, adaptive systems, digital platforms, and large-scale data processing. In this context, PROMS 2025 positioned innovation not as a substitute for sound measurement principles, but as something that must remain accountable to them. The theme therefore signaled that new tools should be evaluated not only for efficiency and novelty, but also for their contribution to fairness, interpretability, and defensible inference.

PROMS 2025 thus served as a platform for researchers, educators and practitioners to share insights and best practices, while fostering dialogue on a future of measurement that is both forward-thinking and ethically grounded. This emphasis positioned the symposium at the intersection of methodological, professional, and societal concerns.

3 Twenty Years of PROMS

PROMS 2025 was significant not only as an annual symposium, but also as the 20th meeting in the PROMS series. PROMS (the Society) was established in 2005, with the

Symposium being hosted annually by local conference organising committees and Rasch workshops being a regular feature of these symposiums.

Over these two decades, PROMS has developed to be more than a recurring conference. The principal aims of PROMS (the Society) are to encourage the pursuit and application of Rasch measurement across fields including business, counselling, economics, education, health care, language, measurement, psychology, quality assurance, statistics, and strategic planning; to advocate measurement practice that contributes to individual, community, and societal well-being and the public good; and to raise the visibility and status of Rasch measurement in the Pacific region. These aims are pursued through regional networking, annual meetings, workshops and training, and activities that facilitate research, policy and practice in Rasch measurement (PROMS, n.d.).

The 20th PROMS marked an important moment in the development of a specialised yet internationally connected scholarly community. The long-running combination of conference presentations and Rasch workshops show that PROMS has consistently linked research dissemination with methodological development and community building. The significance of PROMS 2025 therefore reflects two decades of sustained dialogue about objectivity, invariance, and meaningful measurement in the human sciences.

4 The Rasch Model: Foundations and Applications

The Rasch model is named after the Danish mathematician, statistician and psychometrician Georg Rasch (1901 – 1980). Its early development is associated with Rasch's work in the 1950s, during which he observed challenges and limitations in Classical Test Theory (CTT), particularly the problem that estimates of student performance could vary depending on the sample of people tested or the specific set of items included in the assessment. In response to these challenges and limitations, Rasch developed probabilistic models designed to support objective measurement (Rasch, 1980). These models laid the foundations for Rasch Measurement Theory which conceptualises person ability and item difficulty on a common logit scale, thereby enabling objective psychometric measurement and supporting meaningful interpretation across persons and items. Rasch's work remains central to PROMS, which continues to build on his legacy by exploring how innovation in measurement can remain grounded in fairness, precision and scientific rigour.

In practice, Rasch measurement has been applied widely across educational testing, questionnaire and test development, language assessment, rater-mediated assessment, health-related measurement, adaptive testing, item banking, and measurement in the social, behavioral, and health sciences (Aryadoust et al., 2019). The Rasch model has been influential in psychometric testing and has been applied in a variety of contexts. Notable examples include its application to the Law School Admission Test by Wright

(1964, 1967, 1968 as cited in Aryadoust et al., 2019), the calibration of item banks for assessment purposes (Rust & Golombok, 1999), and the development and validation of measurement instruments (Boone, 2016).

One important development in the advancement of Rasch measurement was the emergence of specialised software that enabled Rasch analysis to be conducted more efficiently and on a larger scale. From earlier tools such as BICAL and Quest to more established software such as Winsteps, Facets, RUMM2030+, and ConQuest 5, as well as freeware and R-based packages (Rasch, n.d.), the growth of such software has substantially broadened the reach of Radsch measurement. These tools support a range of estimation methods and model forms, including dichotomous, polytomous, multidimensional, and many-facet Rasch models.

5 Pre-Conference Workshops

A longstanding feature of PROMS is the integration of workshops into the symposium format, and PROMS 2025 continued that tradition. The pre-conference workshops on 21 July 2025 included Adapting Rasch Meta-meter of Growth for Variables in the Social Sciences by Emeritus Professor David Andrich, Item Banking and Adaptive Testing by Dr Rassoul Sadeghi, Rasch Measurement for Rater-mediated Assessment by Professor Jue Wang, and Rasch-GZ: Item Analysis and Test Equating in the Age of AI by Professor Quan Zhang.

Workshop 1, *Adapting Rasch Meta-metre of Growth for variables in the Social Sciences*, introduced participants to Rasch's growth framework and its adaptation for social science variables, with attention to invariant item properties, linked designs, and the estimation of a meta-metre growth using simulated and real data. Emeritus Professor David Andrich is Emeritus Professor of Education at The University of Western Australia and is widely recognised for his major contributions to Rasch measurement theory and software development.

Workshop 2, *Item Banking and Adaptive Testing*, provided an applied introduction to the design and management of item banks, the role of metadata in assessment development, and the use of adaptive testing and Rasch-based equating in large-scale assessment context such as National Assessment Program – Literacy and Numeracy (NAPLAN). Dr Rassoul Sadheghi is a Lead Psychometrician at Australian Curriculum, Assessment and Reporting Authority (ACARA), with more than 25 years of expertise in large-scale assessment, item banking, equating and adaptive testing.

Workshop 3, *Rasch Measurement for Rater-mediated Assessment*, focused on the use of Rasch principles and the Many-Facet Rasch Model to examine judgment processes in performance assessment, evaluate rating scales, and strengthen the reliability and validity of rater-mediated decisions. Professor Jue Wang is Professor of Psychology at The University of Science and Technology of China, whose research

focuses on rater effects and rater-mediated assessment using Rasch and unfolding models.

Workshop 4, *Rasch-GZ: Item Analysis and Test Equating in the Age of AI*, introduced participants to Rasch-GZ as a practical tool for item analysis and test equating in language testing, combining software demonstration with discussion of its relevance in an AI-shaped assessment environment. Professor Quan Zhang is a PROMS board member and professor at City University of Macau, SAR China, with long-standing expertise in large-scale language-test equating and Rasch-based software development.

6 Keynote and Plenary Contributions

Keynote speakers at PROMS 2025 included Professor George Engelhard, President of PROMS (the Society), of The University of Georgia; Emeritus Professor David Andrich of The University of Western Australia; Professor Jue Wang of The University of Science and Technology of China; Associate Professor Vahid Aryadoust of the National Institute of Education, Nanyang Technological University, Singapore; and Dr Che Yee Lye, Chair of PROMS 2025, of Singapore University of Social Sciences.

Professor George Engelhard delivered the presidential address, *Measurement, Explanation, and Invariance: Next Generation Invariant Measurement*. In the presentation, he emphasised invariance as a foundational principle of next-generation measurement, arguing that scientific objectivity depends on the development of stable and generalizable scales across contexts and populations. He highlighted the need for explanatory models that go beyond description and introduced Explanatory Item Response Models (EIRM) as a framework that integrates psychometric modelling with theoretical explanation.

Professor Jue Wang's keynote, *Addressing Human Scoring in Subjective Creativity Assessments*, showed how Rasch-based psychometric approaches can bring greater objectivity to the inherently subjective assessment of creativity. Using the PISA 2022 creativity framework as an example, she highlighted limitations of human scoring, particularly inconsistency and rater bias. She then presented two empirical studies: one used the Partial Credit Model to examine rater effects, rating-scale functioning, and bias in expert scoring, while the other explored peer scoring as a scalable classroom-based approach to assessing creative work. Together, these studies demonstrated how Rasch modelling can reduce subjectivity, improve transparency, and enhance fairness in creativity assessment, including in contexts increasingly supported by automated and AI-assisted scoring systems.

Emeritus Professor David Andrich presented *Rasch Meta-Metres of Growth in Reading and Mathematics Attainment at Both Population and Individual Levels*. His keynote revisited Georg Rasch's concept of the meta-meter, a non-linear function of

time used to model growth through invariant comparisons. He showed how Rasch-based growth models can support objective and meaningful measurement of learning progress over time, revealing patterns of rapid early growth followed by slower rates of development, with variation across sub-populations. The presentation highlighted how extending Rasch's principles of invariance to longitudinal data enables comparability across individuals, time points, and contexts.

Associate Professor Vahid Aryadoust presented *What Can Generative AI Do for Assessing Listening and Speaking Skills*. His keynote examined how advances in generative artificial intelligence are reshaping language assessment, particularly through foundation models, text-to-speech, and speech-recognition technologies. He showed how, when integrated within a Rasch-validated measurement framework, these tools can support more transparent, replicable, and less biased scoring of oral performance.

Dr Lye Che Yee delivered the keynote *Refocusing Educational Measurement: Understanding Student Learning through Adaptive Learning*. Her presentation explored how adaptive learning technologies can support next-generation educational measurement while preserving objectivity. Focusing on the needs of adult university learners, she argued against one-size-fits-all assessment approaches that overlook individual learning progression. Using the Adaptive Learning System (AdLeS®) at Singapore University of Social Sciences as an example, she showed how adaptive platforms can personalise pacing and content while generating continuous psychometric evidence of learning growth. Her keynote highlighted how innovation in educational technology, when aligned with Rasch measurement principles, can promote both equity and accuracy in lifelong learning contexts.

Beyond the individual keynote sessions, the programme also featured a plenary roundtable discussion titled *The Road Ahead: Future Challenges and Opportunities in Objective Measurement*. The panel included Professor George Engelhard, Professor Zi Yan, Professor Quan Zhang, Professor Guanzhong Luo, Associate Professor Jeffrey Durand, and Dr Mohd Zali Mohd Nor, and was moderated by Dr Iris Lee. The roundtable provided a forum for collective reflection on emerging directions in the field, including methodological challenges, the role of technology and AI, and the continuing relevance of objectivity in evolving measurement contexts. It also fostered dialogue across different institutional and disciplinary perspectives.

7 PROMS Proceedings for Rasch-Based Publications

Since its inception in 2005, PROMS has provided researchers, educators and practitioners a platform to present theoretical and empirical Rasch-based studies through the conference proceedings (see Zhang, 2016, 2018, 2020; Zhang & Yang, 2013, 2015). Over the years, these proceedings have documented developments in objective measurement across a wide range of disciplines and have engaged with issues

related to Item Response Theory (IRT), Critical Response Theory (CRT) and Differential Item Functioning (DIF). The five conference proceedings publications collectively received about 23 notable citations and were accessed about 50,000 times internationally.

The 2012 PROMS proceedings (Zhang & Yang, 2013) provided a comprehensive introduction to the IRT and its application. As the conference was held in Jiaxing, China, much of the work focused on language testing and psychometrics within the Chinese context. Guided by the theme of *Rasch Family: Theory, Method and Practice*, the proceedings aimed to widen the reach of the Rasch model and its variants amongst Chinese and international experts and psychometricians.

The 2014 PROMS proceedings (Zhang & Yang, 2015) presented original studies demonstrating how the use of the Rasch model could be applied to practical measurement issues across multiple disciplines. The proceedings also reflected a deliberate effort to expand the conversation beyond language testing by including work from areas such as nursing and corporate citizenship. Essentially, it highlighted PROMS' commitment to fostering interdisciplinary dialogue on Rasch applications.

The 2015 PROMS conference proceedings (Zhang, 2016) addressed measurement problems related to the philosophy of measurement, dimensionality and the role of fit statistics, while also examining issues in language testing, biases and scaling. Across these studies, PROMS' commitment to invariance was evident in the rigour of the Rasch-based analyses, particularly in discussions of rater accuracy and validity.

The 2016 PROMS proceedings (Zhang, 2018) also organised around the theme *Rasch Model: Theory, Method and Practice*, showcased research that reflected both established and emerging applications of Rasch measurement. The proceedings illustrate how practitioners and researchers extend the boundaries of Rasch-based analysis through increasing use of software such as Winsteps and GITEST. It also paid particular attention to supporting contributions from non-native English-speaking authors within the Pacific region and beyond.

More recently, the 2023 PROMS proceedings (Zhang, 2024) examined practical measurement using the Rasch model in a post-COVID-19 landscape. Although many studies focused on testing, invariance, education and pedagogy, the proceedings also included work in a broader range of academic, social and cultural contexts, from woodcraft to polytomous responses to peer attachment. The insight gathered proved the adaptability and viability of the Rasch model in assessing objectivity and invariance amidst post-pandemic settings.

8 Conclusions

PROMS 2025 continued the longstanding tradition of PROMS as a forum for rigorous and forward-looking scholarship in objective measurement. As the 20th PROMS, it marked an important milestone in the development of a scholarly community established in 2005 and sustained through annual meetings, workshops, and regional collaboration. Over the years, the PROMS proceedings have played an important role in documenting theoretical and empirical advances in Rasch-based research and in extending its reach across diverse disciplines and contexts. Under the theme *Next Generation Measurement: When Innovation Meets Objectivity*, the symposium brought enduring concerns of invariance, fairness, and interpretability into dialogue with emerging issues in AI, adaptive systems, and measurement technology. The programme, workshops, and keynote contributions all indicate that PROMS 2025 sought to engage in innovation while remaining grounded in the principles that have historically defined objective measurement. In this respect, PROMS 2025 may be read as both a milestone and a statement of direction. As PROMS looks ahead, its role remains crucial in bridging theory, sustaining the contribution of its conference proceedings, and ensuring that future innovations in measurement remain anchored in objectivity, fairness and scientific rigour.

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