

Day 2 Concurrent Session II

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| Day 2 Concurrent Session II (11:35 am – 12:35 pm) 60 minutes |
| Theme: Health & Well-being |
| Venue: SR.C.3.10 |
| Chair: Prof Quan Zhang |
| [PROMS2025-IN001] The Indonesian Food Neophobia Scale revisited: A two-year Rasch-based study and differences in family eating habits <i>Author(s): Itsar Bolo Rangka</i> |
| <p>Abstract:</p> <p>After three decades since the introduction of the Food Neophobia Scale (FNS) by Pliner and Hobden (1992), the Indonesian version of the FNS (ID-FNS) was successfully validated for the first time in 2023 using the Rasch Model. This study aims to (1) re-evaluate the stability of the psychometric properties of the ID-FNS after two years of use and (2) examine differences in food neophobia levels based on family eating habits among a sample of Indonesian adults. Food neophobia has been associated with risks related to nutritional adequacy and metabolic risk factors due to limited food choices, picky eating behaviours, dietary outcomes, and parental feeding practices (Howard et al., 2012; Tuorila et al., 2001). This is a cross-sectional study involving 621 adults (Mage = 26.011, SD = 7.144) from 24 provinces across Indonesia. Participants completed the 10-item Indonesian Food Neophobia Scale (ID-FNS) online and reported their daily family meal practices. To assess the stability of the psychometric properties of the ID-FNS after two years of use, a linking process within the Rasch Model was applied by anchoring the previous 10-item ID-FNS (2023) to the latest dataset (2025). Additionally, an analysis of variance (ANOVA) was conducted to compare the food neophobia scores between families with traditional and modern eating habits. The results of the linking process indicate that there were no excessive changes in the characteristics of the 10-item ID-FNS administered to 1,632 participants in 2023 compared to 621 participants in 2025. The 10-item ID-FNS also demonstrated measurement invariance across gender and exhibited adequate construct validity. A significant difference was found in food neophobia scores between families adopting traditional eating patterns and those with modern eating habits ($p < .05$; Cohen's $d = .20$). Families with traditional eating habits exhibited higher mean food neophobia scores (-0.49 logit) compared to those with modern eating habits (-0.66 logit). Several technical notes are also included as key findings of this study. Our study confirms the two-year stability of the ID-FNS. Additionally, it addresses issues related to food neophobia, including dietary diversification, food acceptance, and nutrition in both traditional and modern families.</p> |
| <p>[PROMS2025-MY002] Validation of a burnout assessment tool for healthcare workers: A psychometric approach using Rasch modelling and exploratory factor analysis <i>Author(s): Suriya Kumareswaran Vallasamy, Rosnah Ismail</i></p> <p>Abstract:</p> <p>Burnout is a major and growing concern among healthcare workers (HCWs), exacerbated by high workloads, emotional stress, and cognitive fatigue. Given the demanding nature of healthcare environments, early detection and intervention are essential. This study aimed to validate a newly developed burnout assessment tool specifically tailored for HCWs, focusing on two core dimensions: cognitive exhaustion and emotional exhaustion. The theoretical foundation of the scale draws upon the dual-process model of occupational burnout, which posits distinct yet interrelated emotional and cognitive components. A cross-sectional survey was conducted among 254 HCWs in Malaysia, specifically from the Johor Bahru District Health Office and Hospital Sultanah Aminah. The 20-item scale underwent Exploratory Factor Analysis (EFA) using Varimax rotation, which revealed a stable two-factor structure with item loadings ranging from 0.42 to 0.81. Internal consistency was excellent, with Cronbach's alpha values between 0.95 and 0.97. Rasch analysis complemented the EFA findings, providing strong evidence of unidimensionality within each subscale and acceptable item fit (infit/outfit MNSQ = 0.5–1.5), along with high point-measure correlations. Misfitting responses (Entries 2, 22, and 33) were identified and removed to improve model precision. Both subscales demonstrated excellent reliability, with person separation indices above 3.6 and item separation above 4.3, alongside well-ordered response categories. Response category probability curves confirmed distinct thresholds across the five-point Likert scale. Differential Item Functioning (DIF) analysis indicated minor gender- and race-related item biases; however, item performance remained within acceptable psychometric thresholds. Person-item maps illustrated a well-aligned distribution of item difficulty and respondent ability. The explained variance exceeded 69% in both subscales, with minimal residual variance, confirming strong measurement unidimensionality. These findings affirm that the burnout scale is a psychometrically sound instrument for assessing cognitive and emotional exhaustion in HCWs, supporting its use for preventive screening and targeted mental health interventions.</p> |

[PROMS2025-IN013] Development of a web-based ESQ assessment tool using Rasch model analysis for holistic psychological well-being

Author(s): Basma Tania, Kuku Setyo Pambudi, Jati Fatmawiyati, Iffat Maimunah, Wildana Wargadinata, Tutut Chusniyah, Mochammad Said, Muhammad Izzudin Haq, Syabiilah Azzahroh Widyatmoko Putri, Habil Abyad

Abstract:

Emotional and Spiritual Quotient (ESQ) is conceptualized as an integrated psychological construct encompassing emotional and spiritual capacities that contribute to holistic well-being. Recognizing the importance of these dimensions in supporting mental health, this study aims to develop a valid and reliable web-based assessment tool for measuring ESQ comprehensively. A sequential mixed-methods approach is employed, beginning with a qualitative bottom-up phase that involves collecting and refining ESQ concepts through expert consultations and an extensive literature review. This foundational phase ensures the content validity and contextual relevance of the instrument. Subsequently, two pilot studies are planned, each involving 300 participants. The first pilot study focuses on item calibration and domain bias assessment to identify and adjust problematic items. The second pilot study aims to refine the instrument's psychometric properties, including validity, reliability, and item discrimination, with validity specifically analyzed using the Rasch Model. This rigorous psychometric evaluation is intended to produce a measurement tool with strong construct validity and reliability. In parallel, a user-friendly web-based platform will be developed to facilitate broad accessibility and efficient data collection. The platform is designed to provide an interactive and seamless experience for respondents, supporting robust data management and scalability. The expected outcome of this research is a psychometrically sound ESQ assessment instrument that can be applied in clinical, educational, and personal development contexts to enhance holistic psychological well-being. Moreover, the tool is anticipated to enable future research exploring the relationships between ESQ and other psychological and health-related variables, thereby contributing to a deeper understanding of holistic well-being.

Theme: Inclusivity & Learning Needs

Venue: SR.C.3.15

Chair: Sharyfah Fitriya

[PROMS2025-HK003] Bridging theories and practice of inclusive assessment: A systematic review of frameworks and measures

Author(s): Jiaying Chen, Jiahe Gu, Zi Yan

Abstract:

Inclusive assessment, integral to inclusive education, serves multiple functions from enhancing learning outcomes to fostering a sense of belonging among diverse student groups. To effectively support and evaluate such practice, the development and implementation of precise and reliable measurement tools are crucial. These tools play a critical role in assessing the inclusion in education, thereby promoting students' engagement and academic success. Thus, this study focuses primarily on a systematic review of measurement tools for inclusive assessment, while also examining relevant frameworks to provide theoretical understandings. For the measurement tools, we particularly evaluate their psychometric evidence according to the Standards for Educational and Psychological Testing. Our literature search on ERIC, Web of Science, Scopus and PsycInfo followed the PRISMA guidelines, with a search string incorporated pertinent concepts such as differentiated assessment to ensure thorough coverage. Our preliminary results suggest that, measurement tools focusing specifically on inclusive assessment are limited, and demonstrate only certain degrees of validity (e.g., test content validity) and reliability evidence (e.g., internal consistency). The Classical Test Theory was the main approach for scale development. And in most cases, items about inclusive assessment are scattered within different measurements. Additionally, inclusion in assessment is frequently interpreted as a multi-dimensional concept, such as students' access and participation, from diverse discourses like the social political model of disability. Summarising findings at this stage, two major challenges to bridge inclusive assessment theories and practices are: (1) absence of affordable frameworks that could be translated into specific and measurable dimensions and items, and (2) lack of valid measures. To tackle these challenges and enhance the accessibility and implementability of inclusive assessment practice, we take a cultural and contextual standing to propose our inclusive assessment framework from the perspectives of Taoism, a prominent philosophy in Chinese society, and the current evolving learning environment, which characterised by advanced technologies such as Generative AI. Such framework could serve as a foundation for developing and validating a scale for inclusive assessment practice. We hope that, this study could shed light on inclusion around and in assessment, inform pedagogical practice, and guide future research directions.

[PROMS2025-CN005] Exploring students' sense of belonging in STEM colleges: A many-facet Rasch model approach

Author(s): Yingying Zhang, Yang Yang, Manli Zhang, Jue Wang

Abstract:

Sense of belonging (SOB), defined as one's feeling of being personally accepted, respected, included, and supported within an environment (Goodenow & Grady, 1993), profoundly affects students' wellbeing and achievement in higher education, with both immediate and long-term effects. Existing measures of SOB often rely on self-reported surveys with ordinal Likert-scale ratings, validated through classical test theory-based approaches such as factor analysis. While these approaches often assume multidimensionality, most SOB measures to date are

actually unidimensional (Dias-Broens et al., 2024). Moreover, the Likert ratings should be treated as ordinal instead of continuous as having equal intervals. This study thus addresses these gaps by developing reliable, valid, and fair measures of SOB based on Rasch measurement theory that provides sample-free calibration, measurement invariance, and item-level diagnostic precision, supporting comparable measurement across diverse higher educational settings. We created the items for measuring SOB based on the PSSM (Goodenow, 1993) and NSSE (National Survey of Student Engagement, 2020). Data responses of 1,137 STEM-major undergraduate students in a top science and technology university in China were analyzed using a many-facet Rasch model. The psychometric quality of SOB measures was evaluated through the reliability, validity and fairness arguments. We also examine the group differences on SOB measures between subpopulation groups defined by gender, grades, economic zones of residency and expected highest degrees. Results indicated a perfect reliability of separation (>0.99) for items with acceptable outfit and infit mean squares (MnSq; between 0.5 and 1.5 except for Item 6 with an outfit MnSq of 1.6). The reliability of separation for persons is generally high (0.78). Significant group differences in SOB measures were found between different groups of gender, grades, economic zones of their residency and their expected highest degrees. Certain items were found to show differential item functioning across subgroups. Detailed results will be presented at the conference. This study pioneers the use of Rasch measurement theory to develop invariant measures for assessing sense of belonging in higher education, advancing research and practice in student development and institutional support.

[PROMS2025-SG003] Towards a framework of multilevel analysis of student- and teacher-level factors influencing dyslexic students' reading performances

Author(s): Sharyfah Fitriya, Che Yee Lye

Abstract:

Despite the established importance of motivation and self-efficacy on reading performance for students with dyslexia, limited research has been conducted to investigate how individual student and teacher factors affecting students' reading performance. This study adopts the Bandura's Social Cognitive Theory and proposes a multilevel analytical framework to examine the impact of student- and teacher-level factors on the English reading performance of dyslexic students studying in Singapore secondary schools. Given the nested structure of educational data where students are grouped within classrooms and teachers, the Hierarchical Linear Modelling (HLM) is employed to analyse both the student-level (Level 1) and teacher-level (Level 2) variables. HLM is selected for its strength in accounting for intra-class correlations and partitioning variance across levels. At Level 1, student predictors include motivation, self-efficacy, mindfulness practices, educational technology use, family support, and engagement. Level 2 variables comprise teacher demographics, instructional strategies, and school support systems. The Motivated Strategies for Learning Questionnaire (MLSQ), General Self-Efficacy Scale (GSE), Child and Adolescent Mindfulness Measure (CAMM) and Family Involvement Questionnaire (FIQ) will be used to collect data from students and teachers. To validate these questionnaires, Rasch analysis and Confirmatory Factor Analysis (CFA) will be conducted. The research will be conducted in two phases: a pilot study to validate the instruments within the context of this study, followed by an actual study using the validated questionnaires and Acadience standardised reading assessments. This methodological approach aims not only to produce statistically rigorous findings but also to contribute to evidence-based practices in inclusive education, especially for supporting secondary students with diverse learning needs such as dyslexia. The results will offer actionable insights for educators and policymakers seeking to optimise instructional strategies and support systems in complex, real-world classroom settings.

Theme: Continuous Education & Workplace Competency

Venue: SR.C.3.14

Chair: Dr Mei Teng Ling

[PROMS2025-MY003] Automated PPKI application system via Google forms and WhatsApp: Development and evaluation using Rasch measurement model

Author(s): Mei Teng Ling, Nur Hanini Anne Abdullah, Felicia Suling Emang

Abstract:

This study aimed to develop and evaluate an automated system for managing transfer and admission applications for Special Education Integration Program (PPKI) students. The objectives were to: (a) enable officers to track applications efficiently, (b) minimize missed or delayed applications, (c) allow parents to check their application status independently, (d) improve communication via automated WhatsApp notifications, and (e) assess officers' competency in resolving placement issues using the system. The study was guided by the Technology Acceptance Model (TAM) and public service delivery frameworks. The Rasch Measurement Model was used to validate binary (Yes/No) Guttman-scaled instruments for system evaluation. A developmental design was employed. The system was built using free platforms: Google Forms, Sheets, Apps Script, CallMeBot API, and Looker Studio. Three Guttman-type instruments were used: (a) a Parent Interaction Checklist to assess user experience, (b) a System Performance Observation Checklist to document automation outcomes, and (c) a 15-item Officer Competency Scale focusing on resolving issues such as incomplete applications, follow-ups, and school placement decisions. Data from 30 parents and 15 education officers were analyzed using the Rasch dichotomous model to assess reliability, item fit, and response patterns. The officer competency scale showed strong internal consistency (item reliability = 0.88; person reliability = 0.83). Most items showed good fit (MNSQ 0.75–1.28), indicating that the scale effectively

measured a single latent trait—practical competency in using the system. Parent checklist results showed that 87% completed applications independently, and 93% received timely WhatsApp updates. Officers reported improvements in workflow and efficiency. The system successfully streamlined PPKI application handling and supported effective communication with parents. The Guttman-scaled instruments validated through Rasch analysis proved reliable in evaluating officer competency and system impact. The approach is cost-effective and scalable for broader implementation in education administration.

[PROMS2025-MY005] Expert validation of the C-A-RE module for sandwich generation workers using many-facet Rasch analysis

Author(s): Rozita Jayus, Aqeel Khan, Adibah Abdul Latiff, Mastura Mahfar, Nornazira Binti Suhairom, Siti Aminah

Abstract:

This study examined the psychometric validity of the C-A-RE module, a specific programme to reduce stress and increase career adaptability and career resilience in sandwich generation workers at public universities who are simultaneously caring for ageing parents and dependent children and managing job responsibilities. Eight experts were assessed using the Many-Facet Rasch Model (MFRM). Five of the eight experts were lecturers in counselling and psychology, and three of them were counsellors with many years of experience. The experts assessed six key items covering content relevance, feasibility and expected impact on the target group. The MFRM analysis showed robust psychometric properties, with the variance explained by the Rasch measures reaching 52.06% and the observed exact agreement of 75% being very close to the expected agreement of 76.1%. The reliability indices showed moderate to high consistency with values of 0.60-0.65 for the raters and 0.68-0.82 for the items in the population and sample calculations. The chi-square of the fixed model for the items $X^2=6.6$, $df=5$, $p=0.25$ indicates a good fit of the model. The analysis at item level revealed particularly strong performance in the dimensions of stress, career adaptability and career resilience with exceptionally high point-measure correlations of 0.92, 0.88 and 0.92 respectively and an exact agreement of 80% in each case. The alignment of the module with the needs of the target group received a high level of agreement (77.5%), while the appropriateness of the time allocation led to a comparatively lower level of agreement (57.5%). The experts' assessments were predominantly positive. Three experts rated the module as high (extreme) and three as high, resulting in an average overall rating of 4.67 out of 5. Only two experts gave moderate ratings. Overall, these results confirm that the C-A-RE module has good expert validity, which emphasises its suitability for implementation to support the wellbeing and career development of sandwich generation workers in higher education.

[PROMS2025-SG005] Standards-aligned authentic assessment in pharmacy technician education

Author(s): Yin Ni Annie Ng, Cheng Keat Tan

Abstract:

This study presents a conceptual framework for authentic assessment in pharmacy technician education, with specific application in the Medication Therapy module. The framework aligns with Singapore's Pharmacy Technicians Entry-to-Practice Competency Standards (MOH, 2022) to bridge classroom learning with professional practice requirements. Grounded in authentic assessment theories (Gulikers et al., 2004; Bloxham et al., 2017), the framework integrates five key principles: contextualized task design, cognitive complexity, iterative feedback, criterion-referenced evaluation, and learning-assessment integration. These principles guide the development of assessments that mirror actual pharmacy practice scenarios. The framework was implemented within the Medication Therapy module through a systematic approach. Students engaged in simulated practice environments encompassing prescription processing, medication preparation, and patient counseling scenarios. Assessment instruments were carefully developed through a multi-stage process involving the mapping of module learning outcomes to competency standards, design of scenario-based practical assessments, creation of analytic rubrics for performance evaluation, and implementation of formative feedback mechanisms. Application of the framework in the Medication Therapy module demonstrated several significant outcomes. It enabled structured assessment of core competencies including drug information communication and medication safety practices. The implementation achieved clear alignment between classroom tasks and professional standards, while standardized rubrics ensured objective evaluation of student performance. Furthermore, the sequenced assessment design facilitated progressive skill development, effectively preparing students for real-world pharmacy practice. This framework provides a systematic approach to authentic assessment in medication therapy training, demonstrating practical applicability in pharmacy technician education. While showing promise in standardizing competency evaluation, further research is needed to examine its transferability across different educational contexts. The study contributes to vocational education by offering a replicable model for aligning training with professional standards.