Reconceptualizing Problem-Solving Assessment: Bridging Indonesian Project-Based Learning with Global Skills Frameworks

Ilham Phalosa Reswara, Katie Makar, Jodie Miller | **School of Education, The University of Queensland**

Introduction

Indonesia's Kurikulum Merdeka introduces Project-Based Learning (Pancasila Project), involving **problem-solving skills**. The guideline introduces portfolios, observations, and checklists as assessments, but is there any other **assessment** alternative to help teacher **transition** better?

Methodology

n = 43 Year-11 Students | 3 Assessment Formats | 2 Scoring Frameworks (SOLO & Solution Concreteness)

Structured
2-Tier Multiple Choice

14 items adapted from PISA 2003

Tier 1: Multiple-choice
Tier 2: Open-ended reasoning

"Ridwan, Syahrul, and Fajri want to watch a movie together. They have different schedules. Which time works for all?"

Ill-structured
Sunday Market Stall Planning

3 items requiring creative problem-solving

Students propose concrete business ideas with justification

"You have IDR 500,000. Plan what to sell at Bandung Town Square Sunday market. You have 2 weeks to prepare. What will you sell and why?"

Collaborative
Paired Problem-Solving

2 tasks completed in pairs

Information sharing with communication required

"Figure out travel time using new units ('jon', 'ko', 'jaw'). You cannot show your cards to your partner."

Scoring: Two-Dimensional Framework

SOLO Taxonomy
0-5 scale: Prestructural → Extended Abstract

Solution Concreteness (SC)
0-3 scale: Irrelevant → Highly Elaborated

Key Findings: Problem-Solving is Multidimensional

Correlation Matrix: Assessment Formats
SOLO Taxonomy Scoring (n=43)

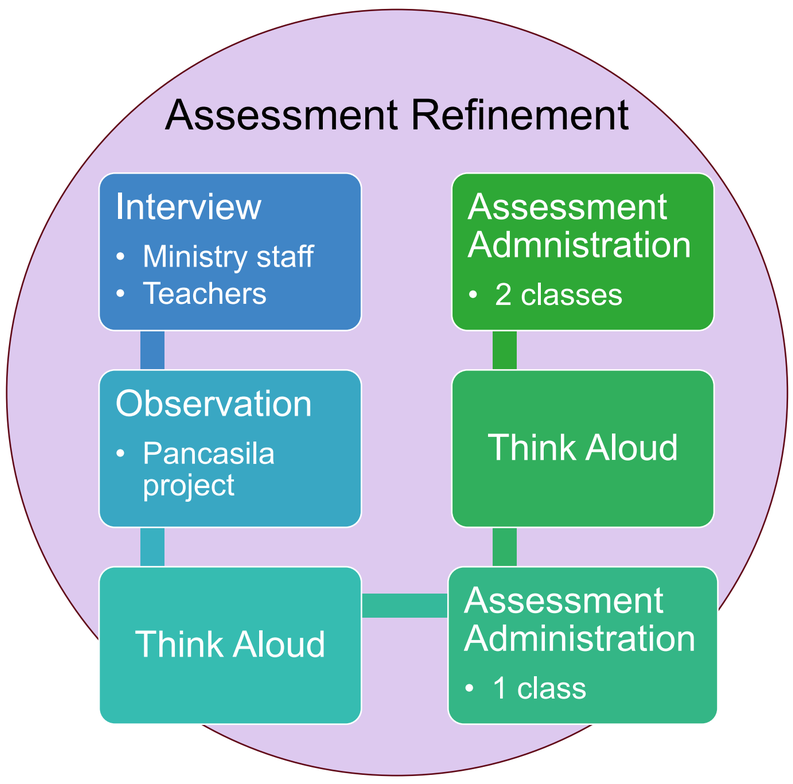
	TTMC Tier 1	TTMC Tier 2	Ill- Structured	Collaborative
TTMC Tier 1	-	.685**	.21	.07
TTMC Tier 2	.685**	-	.18	.09
Ill-Structured	.21	.18	-	-.02
Collaborative	.07	.09	-.02	-

Strong Correlation (r > .60, p < .001)

Weak/non-sig. (p > .05)

KEY FINDING:
Strong coherence WITHIN formats (TTMC tiers strongly correlated) but **independence BETWEEN formats** (all cross-format correlations non-significant). This suggests problem-solving is multidimensional (different task structures tap distinct competencies).

Assessment refinement process



Implications & Future Research

Use multiple formats to capture diverse problem-solving competencies

Balance validity and reliability with structured scoring + authentic tasks

Align assessment with project-based curriculum goals

Ongoing Research (Full PhD Study)
Qualitative analysis: Think-aloud protocols to understand problem-solving processes | Classroom observations of Pancasila Project implementation | Teacher & ministry staff interviews on assessment challenges and curriculum alignment

i.reswara@uq.edu.au

Ilham Phalosa Reswara

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