IOCES 2026 Conference
The 1st International Online Conference on Education Sciences
15–17 June 2026 | Online
MDPI

Enhancing Assessment Literacy in Polytechnic Educators Through Structured Pre Service Training

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INTRODUCTION & AIM

This study investigates the impact of assessment modules embedded in a structured pre-service training programme on the assessment literacy of polytechnic educators in Singapore. The training intervention, delivered as part of the Certificate in Teaching and Learning for Polytechnic Educators (CTLPE), comprised 18 hours of assessment based interactive tutorials over one year, covering Assessment Fundamentals, Feedback for Learning, Assessment Methods and Strategies, and Performance Assessments. These modules addressed critical competencies including assessment design aligned with intended learning outcomes, rubric development, formative and summative assessment implementation, and ethical assessment practices.

This investigation seeks to analyze the longitudinal shifts in assessment literacy among pre-service educators. The primary objectives include:

1. Evaluating the efficacy of the current CTLPE assessment curriculum in enhancing assessment literacy.
2. Establishing a baseline of assessment literacy among early-career educators prior to intervention.
3. Identifying systemic challenges in assessment design and implementation to inform post-training support mechanisms.

In the specialized landscape of Singaporean polytechnics, assessment literacy is defined as the cornerstone of effective teaching. It is the capacity of educators to design, interpret, and apply assessments that authentically support student learning across diverse technical and academic disciplines. Given the specific industry-aligned nature of polytechnic education, a nuanced literacy is required to ensure assessments remain relevant and valid.

METHOD

This study employed a mixed-methods design. The intervention, the assessment modules within the CTLPE programme, spans a one-year duration and comprises a 27-hour commitment of assessment lessons and deliverable. The assessment specific training is specified below.

1. Segment 1 (Foundations of T&L): 6 hours involving 2 synchronous half day assessment workshops
2. Segment 2 (Enhancing T&L): 12 hours involving 2 synchronous full day assessment workshops
3. Deliverables: 9 hours dedicated to the practical application of skills, Performance Task & Rubric.

Participants and Instrumentation

The study involved 58 pre-service educators (n=58) from diverse disciplinary backgrounds. Assessment literacy was measured using a 20-item survey adapted from Howell's (2013) Scale of Teacher Assessment Practices (STAP). The instrument measures five distinct domains of literacy on a 5-point Likert scale.

Teaching and Learning Competency Framework

The Teaching and Learning Competency Framework (TLCF) is a sector-wide framework for polytechnic educators that supports continuous professional development in teaching and learning. It provides a common set of teaching and learning competencies, proficiency levels, and job role expectations to guide staff in their growth across areas such as curriculum design, facilitation of learning, and assessment. The assessment competencies within the TLCF is used to map the hypothesized components within the STAP instrument.

Mapping Competencies

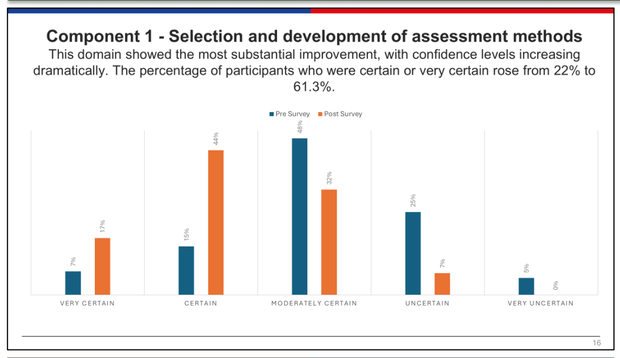
Table below illustrates the alignment between the TLCF Assessment Competencies and the STAP hypothesized components.

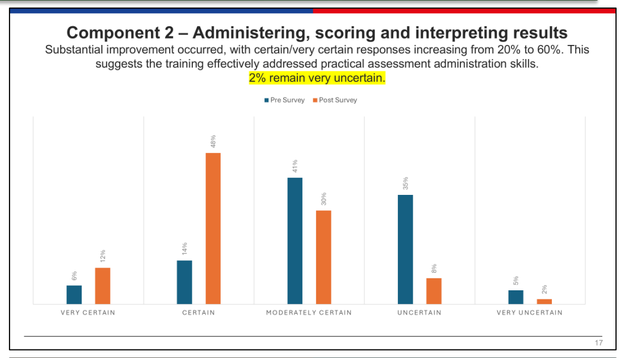
TLCF (2025) Assessment Competencies	STAP (Hypothesised Components)	Description of hypothesized components
Implement Assessment – Design, develop and implement valid and reliable assessments to support attainment of learning outcomes and improve learning	Selection and development of assessment methods	Teachers should be able to select and develop appropriate methods and instruments for a variety of student needs. This includes the selection of multiple methods and strategies for each assessment. Teachers should also select methods that are aligned with standards and curriculum goals.
	Administering, scoring and interpreting results	Teachers should be able to administer both formative and summative assessments, be able to score the results and be able to interpret these results.
Ensure Quality of Assessment – Review assessment tools, artefacts (eg marking schemes, assessment requirements, assessment plans) and processes to ensure quality of assessment (current, relevant, valid, reliable)	Using assessment tools for day-to day decisions	Teachers should be able to use results of both formative and summative assessment to make decisions about both students and their instructional methods.
	Ethical use of assessment	Teachers should use assessment in an ethical manner and be able to recognize when it is not being used in an ethical manner.
	Communication of results to others	Teachers should be able to effectively communicate results to parents, students, and other educators. This includes communication through feedback and grades. Teachers should also be able to communicate results to students in a way that allows them to be involved in educational decisions.

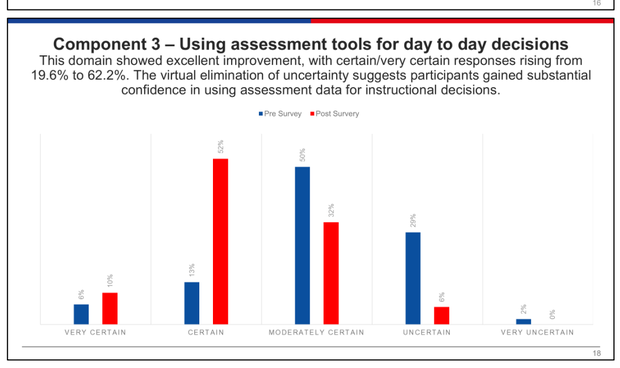
Qualitative Questions

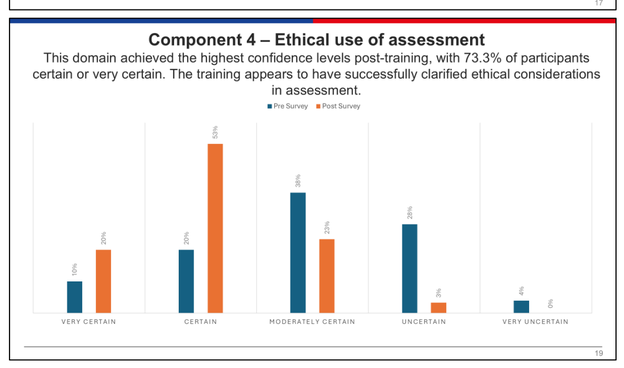
1. How has the CTLPE assessment modules influenced your understanding of assessment principles and practices?
2. Can you describe any changes (you will be making or have already made) in your approach to designing and implementing assessments since completing the modules?
3. In what ways has the training impacted your confidence in conducting assessments?
4. Can you provide examples of how the training has affected or improved your ability to evaluate student performance more effectively?

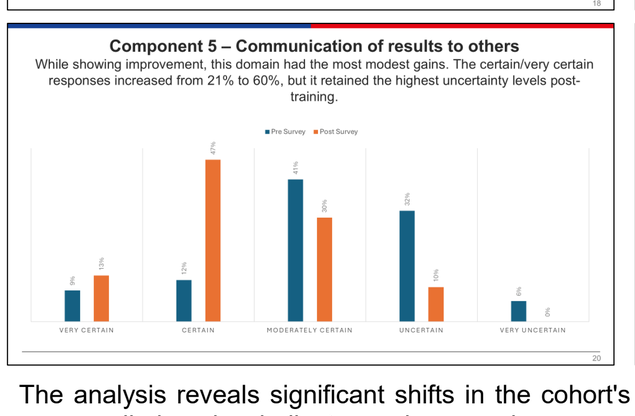
RESULTS & DISCUSSION

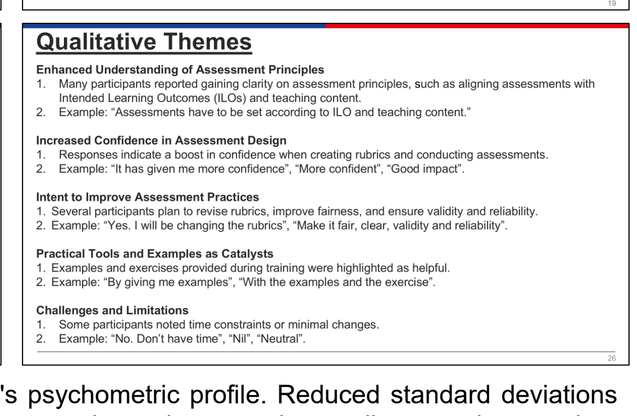












The analysis reveals significant shifts in the cohort's psychometric profile. Reduced standard deviations across all domains indicate an increased consensus and consistent understanding post-intervention. Central tendency shifts were uniform, with medians and modes moving from 3.0 (Moderately Certain) to 4.0 (Certain). Post-survey distributions exhibited a positive skew, suggesting ceiling effects in high-performance areas such as ethical use (Component 4).

The data indicates that Component 2 (Administration and Scoring) yielded the highest effect size (d = 0.96), demonstrating the programme's strength in developing procedural competence. Conversely, while "Communication of Results" (surveyed as Component 5) showed meaningful gains, it yielded the lowest effect size (d = 0.61).

Component	Current Status	Areas for Future Work	Recommended Programme Changes
Component 1: Assessment Development & Selection	Strong improvement achieved	• Advanced assessment design techniques • Technology-enhanced assessments • Differentiated assessment strategies	• Add advanced module on innovative assessment formats • Include hands-on workshop on digital assessment tools • Provide templates and exemplars for different assessment types • Extend practice time for assessment creation
Component 2: Assessment Administration & Scoring	Excellent improvement - highest effect size	• Maintaining consistency over time • Advanced statistical interpretation • Quality assurance procedures	• Develop refresher sessions to maintain skills • Add module on advanced psychometric concepts • Include peer observation and feedback components • Create standardised administration checklists
Component 3: Assessment Interpretation & Use	Strong improvement achieved	• Data-driven decision making • Long-term tracking of student progress • Communicating results to stakeholders	• Enhance data analysis and visualisation training • Add case studies on longitudinal student tracking • Include communication skills for reporting results • Provide software training for data management
Component 4: Assessment Ethics & Confidentiality	Highest post-training mean (3.90)	• Emerging ethical dilemmas • Legal compliance updates • Cross-cultural considerations	• Regular updates on policy changes • Add scenario-based ethical decision making • Include legal compliance workshops • Address cultural sensitivity in assessment
Component 5: Recognition of Inappropriate Use	Lowest effect size - needs attention	• **Priority area for enhancement** • Identifying subtle misuse • Intervention strategies • Advocacy skills	• **Significantly expand this module** • Add real-world case studies of assessment misuse • Include role-playing exercises for difficult conversations • Provide frameworks for reporting inappropriate use • Add follow-up sessions focused specifically on this area

CONCLUSION

The investigation confirms that the pre-service CTLPE training is an effective intervention, producing statistically and practically significant gains in assessment literacy. However, the modest gains in recognizing assessment misuse and the residual uncertainty in communicating results highlight the need for a shift. Future efforts must move beyond one-off training toward a continuous support ecosystem—leveraging Communities of Practice and specialized clinics—to ensure that the high levels of confidence recorded post-training translate into sustained, high-quality assessment practices within the polytechnics.

FUTURE WORK / REFERENCES

Future Work

The 2026 cycle of CTLPE will integrate four key improvements:

1. Framework Alignment: Tighter mapping to the specific performance indicators of the TLCF.
2. Hands-on Application: Increased emphasis on "Learning Design Sprints," involving peer review of rubrics and live design exercises.
3. Simulated Confidence Building: Utilization of simulated assessment scenarios and formalized feedback loops through school-based mentors.
4. Technological Integration: Explicit training on AI-enhanced assessment design tools to improve efficiency and validity.

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