

# Presentations

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# Welcome

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# OTESSA22 - Assessment and Digital Technology in Higher Education

## Introduction

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Find me on the web...

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Mastodon

**Presented Online at OTESSA22, May 17, 2022**

I acknowledge that the land where I currently live and work remains the traditional, ancestral, and unceded land of the `syilx` (silks) people, whose historical stewardship of and connections to the land continue to today. I am grateful to be an uninvited guest on this land. To learn more, please visit the Westbank First Nation website.

## Hypothes.is

If you haven't already, feel free to sign up here as we will use hypothes.is later. Also, if you have questions or comments, please annotate to your heart's content!

## Background

**Scriven, 1967**

Scriven, M. (1967). *The methodology of evaluation*. In B. O. Smith (Ed.), *Perspectives of curriculum evaluation*. Rand McNally

- distinction between `formative` and `summative`



Figure 1: Figure 1. Author's bicycle overlooking Okanagan Lake.



**Bloom, 1968**

Bloom, B. (1968). Learning for Mastery. Instruction and Curriculum. Regional Education Laboratory for the Carolinas and Virginia, Topical Papers and Reprints, Number 1. *Evaluation Comment*, 1(2), 12.

- Incorporated **formative** and **summative** distinction into his ideas about **mastery learning**

**Mislevy, 1994**

Mislevy, R. J. (1994). Test theory reconcieved. *ETS Research Report Series*, 1994(1), i–38. <https://doi.org/10/gjm236>

- test theory is machinery for reasoning from students' behavior to conjectures about their competence, as framed in a particular conception of competence."(p. 4).

**Black and Wiliam, 1998**

Black, P., & Wiliam, D. (1998). Assessment and Classroom Learning. *Assessment in Education: Principles, Policy & Practice*, 5(1), 7–74. <https://doi.org/10/fpnss4>

- major review of the literature on **formative assessment**
- describe formative assessment as encouraging gains in achievement that were  
> among the largest ever reported for educational interventions (p. 61)

**Pellegrino et al., 2001**

Pellegrino, J. W., Chudowsky, N., & Glaser, R. (2001). *Knowing What Students Know: The Science and Design of Educational Assessment*. National Academies Press. <https://doi.org/10.17226/10019>

- “a process of drawing reasonable inferences about what students know on the basis of evidence derived from observations of what they say, do, or make in selected situations” (p. 112)
- “reasoning from evidence” (p. 43)

**Assessment Triangle****Cognition**

- a cognitive model of the domain

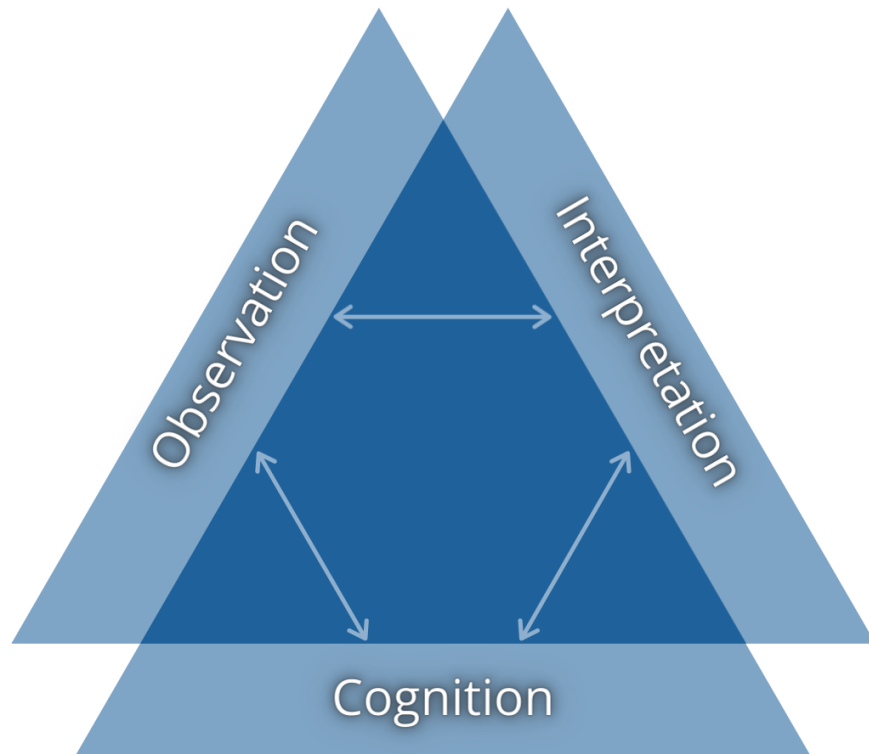


Figure 2: Figure 2. Assessment Triangle from Pellegrino et al. (2001)

### Observation

- a performance task used to gather data regarding learner achievement

### Interpretation

- an inference or judgement of the learner's achievement in relation to the model of the domain

## Approaches to Learning

### Biggs, 1993

Biggs, J. B. (1993). From Theory to Practice: A Cognitive Systems Approach. *Higher Education Research & Development*, 12(1), 73–85. <https://doi.org/10/ccdmd9>

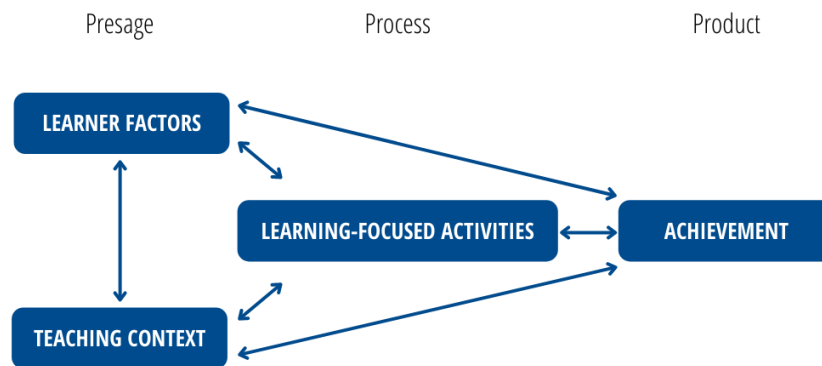


Figure 3: Figure 3. 3-P Model of Teaching and Learning adapted from Biggs (1993)

### Presage

- factors that precede learning activities
  - learner factors
    - \* prior knowledge
    - \* educational experience
    - \* affective states
    - \* wellness (physical & mental)
  - teacher factors

- \* vertical & horizontal discourses (Bernstein, 1999)
- \* institutional policies
- \* department norms
- \* educational experiences

### Process

- learning focused activities
  - reading, writing, discussing, building, creating, synthesizing, researching, sharing, debating, publishing...
- surface approaches
  - using low-level cognitive skills when high-level cognitive skills are required
- deep approaches
  - using high-level cognitive skills for tasks which require them

### Product

- learner achievement of outcomes (intended or emergent)
- fed back into the system
  - informs learners and instructors

## Conceptions of Assessment

### Brown, 1994; 1996

Brown, G. T. L. (2004). Teachers' conceptions of assessment: Implications for policy and professional development. *Assessment in Education: Principles, Policy & Practice*, 11(3), 301–318. <https://doi.org/10.1080/0969594042000304609>

Brown, G. T. L. (2006). Teachers' Conceptions of Assessment: Validation of an Abridged Version. *Psychological Reports*, 99(1), 166–170. <https://doi.org/10/bf67hf>

- general mental structure, encompassing beliefs, meanings, concepts, propositions, rules, mental images, preferences
  - improvement of teaching and learning,
  - school accountability,
  - student accountability, or
  - treating assessment as irrelevant.

**Fletcher et al., 2012**

Fletcher, R. B., Meyer, L. H., Anderson, H., Johnston, P., & Rees, M. (2012). Faculty and Students Conceptions of Assessment in Higher Education. *Higher Education*, 64(1), 119–133. <https://doi.org/10.1007/s11269-012-9380-0>

- instructors were more likely than learners to view assessment as consistent and trustworthy methods to understand and improve learning
- learners were more likely to have negative views of assessment and viewed it as a measure of student and institutional accountability.

**Earl, 2013**

Earl, L. M. (2013). *Assessment as learning: Using classroom assessment to maximize student learning (Second edition)*. Corwin Press.

- Assessment *OF* Learning
  - summative
- Assessment *FOR* Learning
  - formative
- Assessment *AS* Learning
  - metacognitive

**Approaches to Assessment**

Both learning and assessment are complex phenomena which are impacted by myriad factors.

**Shepard (2000)**

Shepard, L. A. (2000). The Role of Assessment in a Learning Culture. *Educational Researcher*, 29(7), 4–14. <https://doi.org/10.3102/0013164400000007>

- traditional assessment structures originated in behaviourist models of teaching and learning
  - emphasis on culture of summative assessment
- modern constructivist models of teaching and learning are less compatible with previous assessment structures, yet a culture that emphasizes summative assessment seems to persist alongside emerging models of assessment

**DeLuca, 2016**

DeLuca, C., LaPointe-McEwan, D., & Luhanga, U. (2016). Approaches to classroom assessment inventory: A new instrument to support teacher assessment literacy. *Educational Assessment*, 21, 248–266. <https://doi.org/10.1080/10670869.2016.1191111>

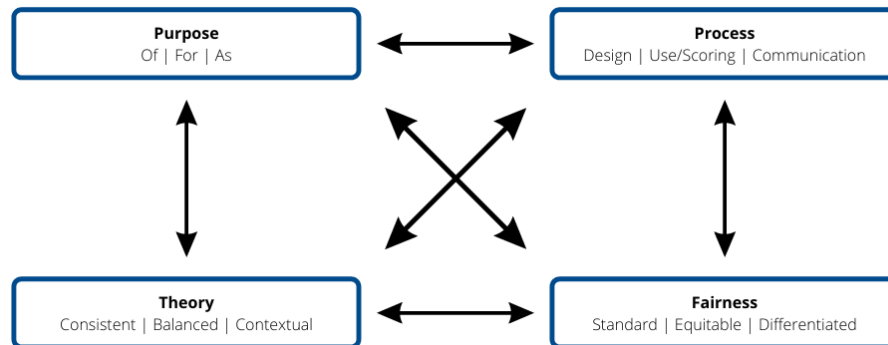


Figure 4: Figure 4. Approaches to Classroom Assessment from DeLuca et al. (2016)

- *Approaches to Classroom Assessment Inventory*
  - designed to inventory K12 teachers' thoughts, beliefs, actions related to assessment
    - \* Assessment purpose (of, for, as learning)
    - \* Assessment process (design, use/scoring, communication)
    - \* Assessment fairness (standard, equitable, differentiated)
    - \* Assessment theory (consistent, balanced, contextual)

## Technology-Mediated Assessment in Higher Education

### Contrasting with K12

There is a very large body of literature on assessment in K12 learning contexts, and a not-quite as large, but still substantial body of literature on assessment in higher education. It may be tempting to conflate the two contexts, but K12 teachers typically complete 2 full years of pedagogical training as part of their academic and practical preparation. These two years often include specific courses on assessment, learning theory, as well as domain-specific pedagogies.

On the other hand, higher education instructors (from part-time sessionals to adjuncts to tenure-track and tenured faculty) tend to engage in little academic preparation in learning theories or assessment, although they seem to absorb the signature pedagogies of their discipline.

## Impact of Technology

- Impact on higher education is ubiquitous (SIS, LMS/VLE, CRM, etc.)
- Tends to emphasize **efficiency** (however ill-defined that may be)
  - doing the same things with greater speed and/or reduced effort
  - reinscribes mis-aligned assessment structures

## Pockets of Innovation

### Bearman et al. 2020

Bearman, M., Dawson, P., Ajjawi, R., Tai, J., & Boud, D. (Eds.). (2020). *Re-imagining university assessment in a digital world*. Springer.

- cognitive offloading
- artificial intelligence
  - “personalized” learning; recommender systems, automated item generation, automated essay scoring
- dialogic feedback
  - video, audio, screencast
- data & learning analytics
  - process data
- peer/self-assessment
- micro-credentials

However...

- critical to consider ethical and social impacts!
  - surveillance
  - equity
  - algorithmic assessment

### Bower, 2019

Bower, M. (2019). Technology-mediated learning theory. *British Journal of Educational Technology*, 50(3), 1035–1048. <https://doi.org/10.1111/bjet.12771>

In technology-mediated learning contexts, agentic intentions reside with humans, and not with technology.

- 3 (select) premises
  - technology **mediates** between learners and outcomes

- beliefs, knowledge, practices, and environment are mutually influential (add this to the complexity of assessment)
- role of teachers is to optimise learning through the **purposeful deployment** of learning technologies

## Revisiting Shepard (2000)

### Using `hypothes.is`

- 22 years have passed...
- What has changed?
- What is your experience of technology-mediated assessment in higher education?
- What are your greatest challenges related to technology-mediated assessment?

## Research Directions

- assessment as conversation in digital environments
- validity exploration of *Approaches to Assessment* in higher ed.
  - revised instrument
- humanizing assessment

## Questions? Comments?

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