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東京大学
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UTokyo ffdp GLOBAL
Future Faculty Development Program

Video for DAY 3

Assessment, CATs, & technology

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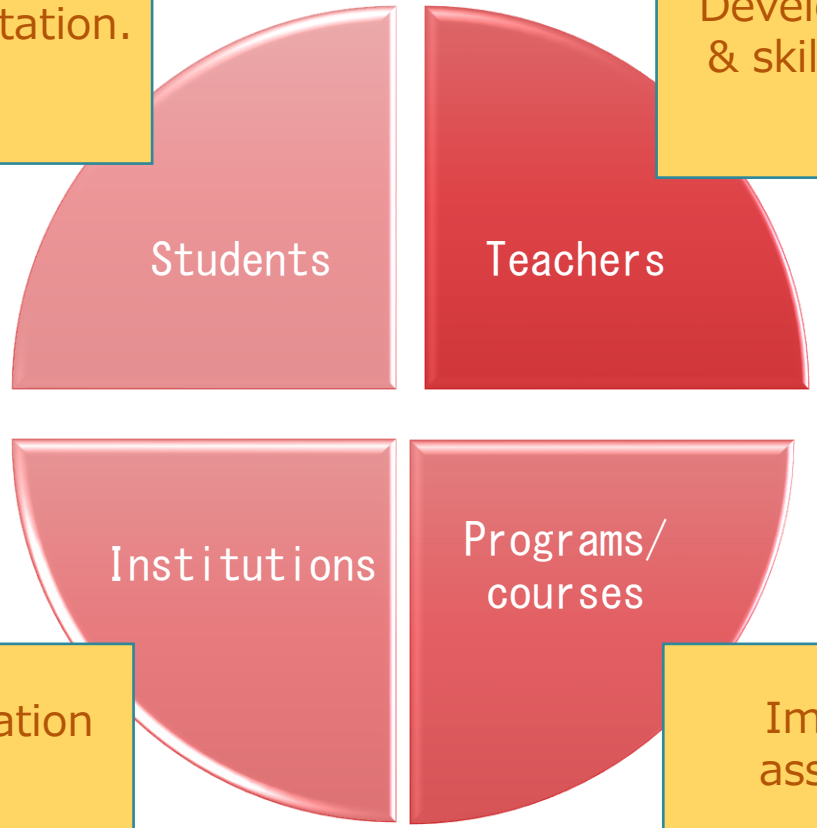
In this video

- Assessment vs evaluation
- Purposes
- Main questions
- Quality of assessment
- Classroom assessment techniques
- Assessing and EduTech

What can be assessed/evaluated

...we not only assess/evaluate students' learning...



Guide learning & accreditation.
Multiple agents

Develop educational knowledge & skills (SoTL) & accreditation.
Multiple agents

Accountability, accreditation quality assurance.
Multiple agents

Improving (SoTL), quality assurance & accreditation.
Multiple agents

ASSESSMENT/EVALUATION OF STUDENTS' LEARNING

Assessment and evaluation. Fundamentals

- The notions: assessment and evaluation. Perceptions.

  - Why?
  - When?
  - Who?
  - What (we determine)?
  - How?

Main questions

The notions: assessment and evaluation

Process of gathering information to…

Submit a **judgement** and determine value/quality/achievement

EVALUATION

- Grading
- Accrediting
- "Summative assessment"

Depending on the context, their use varies

Inform the learning process and make (help make) **decisions**

ASSESSMENT

- Diagnostic
- Formative
- Summative

Perceptions

Beliefs and self-beliefs impact learning (Day 1)

Also, students' **perceptions** about assessment significantly **influence** their approaches to **learning** and studying (Struyven et al., 2005).

Are teachers' and students' perceptions about assessment aligned?

Perceptions

- **Faculty** members are likely to view assessment as a **trustworthy** process **aiding** T-L.

- **Students** viewed assessment as focused primarily on **accountability** and perceived it as **irrelevant** or ignored in the T-L process.

(Fletcher et al., 2012)

The purposes of assessment

- **Diagnostic**: diagnosing departing point to adjust the T&L process.
- **Formative**: improving the learning process, at the service of learning (**low stakes**). Hand-by-hand with feedback.
- **Summative**: measuring ("final") **achievement** of learning outcomes (pass/fail; grade; etc.) (**high stakes**).

When

- **Diagnostic**: beginning of learning process (tasks, lessons, courses, etc.).
- **Formative**: across learning process. Continuous.
- **Summative**: generally, end of learning process (tasks, lessons, courses, etc.).

Who

- **Diagnostic**: mostly teacher (also, self-diagnose).
- **Formative**: teachers, peer-, and self-assessment (also other agents)
- **Summative**: mostly teacher, but we can involve peer- and self-assessment.

Assessment engagement

For all purposes and involving in decision-making about assessment

What we determine

- **Diagnostic**: previous knowledge, skills, attitudes, values, interests, etc. Learning needs at the beginning.
- **Formative**: learning progress, learning needs (across the process).
- **Summative**: learning achievement.

What we determine (another way to think about it)

- They all involve (can be thought in relation with) the assessment of learning outcomes. **Distance**.
  - **Diagnostic**: "**distance**" from the desired learning outcomes at the beginning: *do they know (do, are…) what they need to know to begin to learn and achieve the learning outcomes?*
  - **Formative**: "**distance**" from the desired learning outcomes across the learning process: *are they learning what/how they need to learn to achieve the learning outcomes?*
  - **Summative**: "**distance**" from the desired learning outcomes at the end: *have they (and at what degree) achieved the learning outcomes?*

How

Nature of content (or learning outcomes). Many techniques/instruments can be adjusted to serve diagnostic, formative, or summative purposes.

- **Conceptual**/factual knowledge: *"objective tests"/surveys, essays/open questions, concept maps, resumes, presentations, debates/forums/discussions, one-minute paper, muddiest point, …*
- **Procedures/skills/attitudes/competences**: **PRACTICE**. We assess by observation of a process or the analysis of its results/products. *Presentations, essays, laboratory work, simulation, dramatization, debates/forums/discussions, "-based" strategies, capstones, "genius-hour" works, etc.*
- **Metacognition**: *essays, self-/peer-assessment, debates/forums/discussions, reports, etc.*

*Competence: capability to apply combination of knowledge, skills, attitudes to perform successfully: discipline specific or key/soft/core/transversal (critical thinking, communication, collaboration, global citizenship, ,…).

Assessment

Comments, ideas, & doubts so far…

Take note of them, stop the video when needed.

Remember to take a break

QUALITY OF ASSESSMENT (ASSESSING ASSESSMENT)

Assessing assessment

Why?

Continuous professional development

SoTL

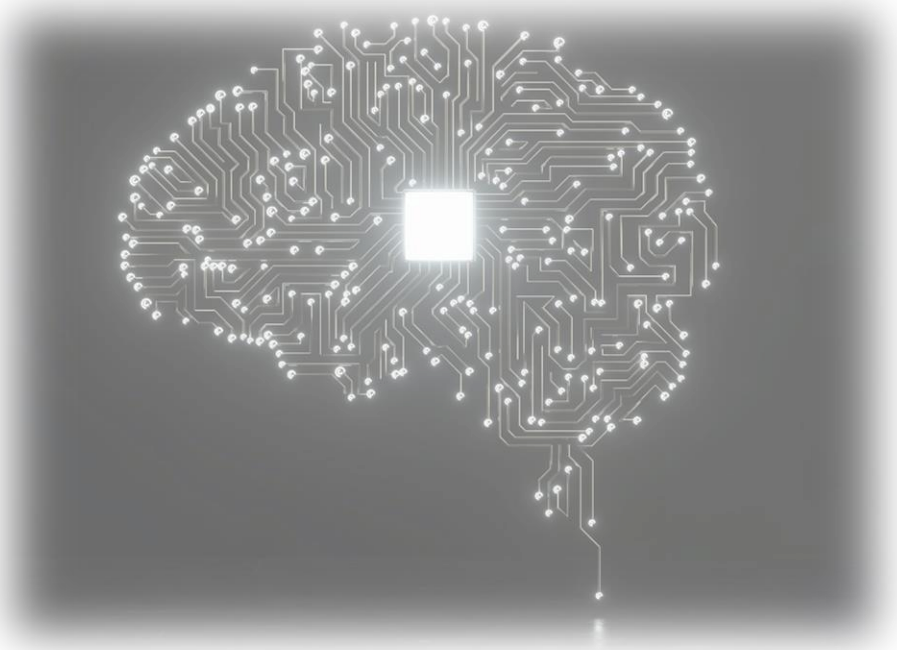
Assessing teaching quality as an attitude/duty

Contributing to students' learning

Assessing assessment

- **Fairness & flexibility**: attention to individual differences and moments of learning (equity, inclusiveness, diversity)
- **Validity**: assesses/measures what it intends to assess/measure or decisions are based on performance (credibility & transferability, from a qualitative stance)
- **Reliability**: consistent & dependable (student, rater, administration and test reliability) (dependence and confirmability, from a qualitative stance)
- **Practicality**: efficiency of design and use (time, economy, administration)

- Others:
  - **Washback**: impact of assessment over T and L
  - **Authenticity**: realistic vs real
  - **Transparency**
  - **Supportiveness of learning**



Features of quality educational assessment

- **Systematic**, comprehensive and continuous, BUT **sustainable** and feasible.
- **Participated** by students adding transparency.
- **Planned** (including the feedback), BUT adaptable and **flexible**.
- Meaningful: with **purpose** (decision making, adding value for teaching-learning).
- **Rigorous**, valid (for purpose with explicit and non-arbitrary criteria).
- **Aligned** with learning goals/outcomes and methods.
- **Cumulative**: coming back to and interleaving rather than assessing isolated blocs (retrieval!)
- Makes students' **thinking visible**.

CLASSROOM ASSESSMENT TECHNIQUES (CATS)

CATs. What are they?

During class-instruction.

Although named techniques, they are more like **short-term activities** that, in general, involve **low stakes assessment (non-summative)**

Purpose of getting information on the ongoing learning and learning process

CATS. Examples

- Tests/polls/**quizzes** before/during the class to check learning or diagnose knowledge, etc.
- Checking for understanding. **Questioning**, re-asking, rephrasing, redirecting questions, etc.
- Asking students to generate questions, **paraphrasing** ideas, retelling, summarizing, etc.
- Brief written reflections: one-sentence summaries, **one-minute paper**, muddiest point, anticipation of learning, chain notes, interactive writing, etc.
- Feedback on the **learning process**: additional questions within other assignments (difficulties, time, etc.), asking for suggestions (explicit question or anonymous box), etc.
- Making **thinking visible** in assignments: asking for additional comments arguing responses to identify gaps, etc.
- Problem/principle/**main idea recognition** tasks, steps for problem solution, etc.
- **Completing tables, pros & cons**, concept maps, knowledge/fact checklists, completing slides/sentences, etc.

CATS. Why?

- Asking students about their own learning might not be effective: "Did you understand?".

- Opportunity to **adjust** instruction/T-L to students' learning moment (although, CATs not necessarily mean an enhancement of students' learning. See Simpson-Beck, 2011).

- Opportunity for students to **think about their own learning**, seeing **T-L as a process**, & noticing our interest on their learning.

- Many of them useful when working with **large groups**, can be used **frequently** (not necessarily), can be **anonymous**, etc.

Web-references/documents with ideas

- Classroom Assessment Activities (CATs):

https://vcsa.ucsd.edu/_files/assessment/resources/50_cats.pdf
https://facultyinnovate.utexas.edu/sites/default/files/ChecksforLearning-DuringInstruction.pdf
https://teaching.berkeley.edu/resources/course-design-guide/design-effective-assessments/alternatives-traditional-testing
https://www.cmu.edu/teaching/assessment/assesslearning/CATs.html
https://cft.vanderbilt.edu/guides-sub-pages/cats/
https://teaching.utoronto.ca/teaching-support/gathering-formative-feedback/

- Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques*. Wiley.
- Barkley, E. F., & Major, C. H. (2015). *Learning assessment techniques: A handbook for college faculty*. Jossey-Bass.
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- Simpson-Beck, V. (2011). Assessing classroom assessment techniques. *Active Learning in Higher Education, 12(*2), 125–132.

CATs…

Comments, ideas, & doubts so far…

Take note of them, stop the video when needed.

Remember to take a break

ASSESSING LEARNING & EDUC. TECHNOLOGY

How

- Learning analytics (see Tsai et al., 2018):
  - Involves collecting, measuring, analyzing information about students and their learning process to improve learning and the learning environment.
  - Data from students at all stages: performance (in assignments, class, etc.), student surveys, access to LMS, … but also from admissions process, orientations, interactions, students' characteristics/profiles, educational backgrounds, etc.
  - Data quality and management, ethical issues to access data, organizational resources/culture, etc.

How

- Automatic assessment/feedback (see Conejo et al., 2016; Crossley et al., 2016; Ochoa & Dominguez, 2020; Pinheiro Cavalcanti et al., 2021)
  - Different tools and methods to automatize assessment (formative and summative) and feedback (some are open/free). Check references.
  - Contributes to offer timely-feedback in different types of tasks (MCQ, written essays, oral presentations, etc.).
  - Time (no clear evidence that it eases teachers' workload) and resources, integration, features of quality feedback.

Educational resources/technology/tools

- WebPA (peer moderated marking system)
- Irubric, Corubrics, Google Classroom (for creating on-line rubrics)
- Skilltrack (to track and assess skills development)
- Turnitin, Speedgrader, GradeScope (evaluating, grading, feedback, etc.)
- Automatic assessment/feedback references
- Tools seen on DAY 2 (for portfolio, quizzes, etc.)

Educational resources/technology/tools

- PerUsAll (sharing comments on documents)
- Amanote (annotating course materials)
- Mentimeter, Kahoot, Socrative, Quizizz, etc. (polls, quizzes, etc.)
- Scorion, Mahara (e-portfolio)
- Peek, Goosechase (gamified field trips, missions, etc.)
- Flippity, Gimkit (creation of gamified activities)
- Mozzillla Hubs (meet, share, collaborate in 3D virtual space)
  - Virtual/augmented reality (see Radianti et al., 2020)
- VoiceThread (asynchronous voice and video talks, discussions, etc.)
- Padlet (sharing ideas, posts, threads, etc.)
- Skilltrack (to track and assess skills development)
- Turnitin, Speedgrader, GradeScope (evaluating, grading, feedback, etc.)

…

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Web-references/documents with ideas

- Classroom Assessment Activities (CATs):

https://facultyinnovate.utexas.edu/cats
https://facultyinnovate.utexas.edu/sites/default/files/ChecksforLearning-DuringInstruction.pdf
https://vcsa.ucsd.edu/_files/assessment/resources/50_cats.pdf
https://teaching.berkeley.edu/resources/course-design-guide/design-effective-assessments/alternatives-traditional-testing
https://www.cmu.edu/teaching/assessment/assesslearning/CATs.html
https://cft.vanderbilt.edu/guides-sub-pages/cats/

- Online exams:

https://academic-senate.berkeley.edu/issues/coronavirus/best-practices-remote-examinations

- Getting feedback from students

https://bokcenter.harvard.edu/getting-feedback

Thank you

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