Learning Theory: The Building Blocks of Effective CPD

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Disclosure

- I have nothing to disclose.

Objectives

- At the end of the workshop, participants will be able to….

  - Describe at least 3 learning theories relevant to CPD
  - Explain how these theories are being used to inform curriculum, improve educational outcomes and ensure high-quality evaluation and feedback
  - Determine at least one change that will be made based on learning theories discussed during the workshop

Definition of Theory

- *Scientifically acceptable set of principles offered to explain a phenomenon.*
- *Theories*
  - *Create frameworks for interpreting environmental observations*
  - *Serve as bridges between research and education*
  - *Enable organization of research findings and linkage to theories.*
- *Without theories, research findings would be disorganized collections of data, because there would not been an overarching framework to which data could be linked. (Schunk 2009)*

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What is learning?

- Learning is an enduring change in behavior or in the capacity to behave in a given fashion which results from practice or other forms of experience

  - Schunk, Learning theories, 5th ed, 2008

Goal in Learning Theory for CPD

- Create explanations and frameworks about what phenomenon facilitate learning, under what circumstances and why
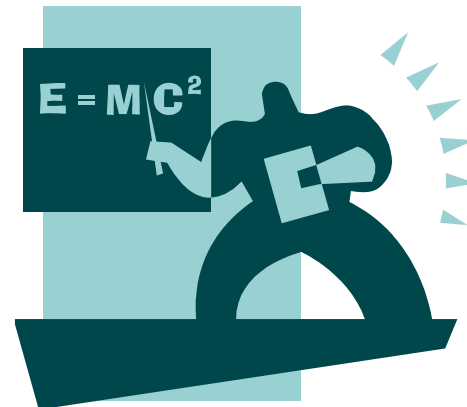
Learning theories

- Learning theories have two chief values.
  - Provide a vocabulary and a conceptual framework for interpreting the examples of learning that we observe
  - Suggest where to look for solutions to practical problems.
    - Hill (1977)

Your use of theory…(What theories do you use as an educator?)

- Do you think about or use theory in your teaching and assessment work? Consciously or unconsciously?
- What role do the theories play?
- How do the theories inform your work?

Next task

- Examine 'best practices' for some of the common ways we learn or facilitate learning and look at the underlying theories that we use to explain why we structure learning the way we do…..

Best practices for

- Lectures
- Small group workshops
- Simulation
- E-learning
- Post course assessment (Post activity)
- Self assessment

Lecture Best Practices

- From RCPSC & CFPC expectations
  - Learning needs identified
  - Objectives
  - Learner interaction
  - Teaching techniques and conducive to learning and aligned with objectives
    - Varying activities within presentation
    - Pacing of presentation
    - Narration (cases, stories)
    - Interactive handouts

- What theories (and research) underlie these expectations?

Lectures & Learning Theory

- Learning needs of targeted learners identified
  - Gap analysis
  - Beginning where learner is
- Objectives
  - Usually behavioral with clear statements of intended outcomes
  - Example: *By the end of this session, you will be able to...*
  - Behavioral learning theory
    - Learning is viewed as a change in behavior, as a consequence of environmental events.

Lectures & Learning Theory

- Pacing
  - Cognitive learning theories
    - Attention span is limited need to vary activities
- Cases and stories
  - Constructivist learning
    - Create meaning for self based on own understanding and knowledge of the world through experiencing things and reflecting on those experiences
  - Information processing theories
    - People encode information to be learned and relate it to knowledge in memory, store new knowledge in memory, and retrieve it as needed.

Lectures & Learning Theory

- Interaction (including interactive handouts in which learner has to do some writing)
  - Constructivist
    - Individual constructs own meaning
  - Social cognitive theories
    - Learning is a social activity in which we learn through interactions with others

Small group learning best practices

- Best practices
  - 8-10 people (depends on learning task)
  - Set up space so all can see one another (round tables, circles)
  - Set goals and expectations
  - Engage all learners
  - Trigger used
    - Cases, problems, videoclip

- What theories (and research) underlie these expectations?

Small group learning and learning theory

- Social Cognitive Theories
  - Learning is a social activity
  - Learning takes place by
    - Observing others
    - Hearing about other experiences
    - Getting feedback (from others)

Simulation Best Practices

- RCPSC Simulation programs must
  - Provide participants with a strategy to assess their knowledge, skills, clinical judgment and attitudes in comparison to established evidence.
  - Enable participants to demonstrate their abilities across the key areas of the scenario(s), topic(s) or problem(s).
  - Provide detailed feedback to participants on their performance to enable the identification of any areas requiring improvement through the development of a future learning plan.

- What theories and research underlie these practices?

Simulation and Learning Theory

- Theory of deliberative practice (Ericsson)
  - Extensive practice and experience is important but insufficient to reach expert levels of performance
  - Practice activities contribute most if they are specifically designed and structured to develop performance aspects that need improvement and allow feedback and repetition
  - Deliberative practice requires
    - motivation to improve performance and engage in sustained efforts to refine knowledge and skills
    - Resources (time and energy) on training
    - Access to teachers, coaches to support and enable learning

E-learning Best Practices

- CFPC
  - There must be an opportunity for participants to interact with faculty and other participants (direct or asynchronous).
  - When a discussion is closed, a summary of the discussion points, conclusions, and recommended additional readings should be provided

- What theories and research underlie these practices?
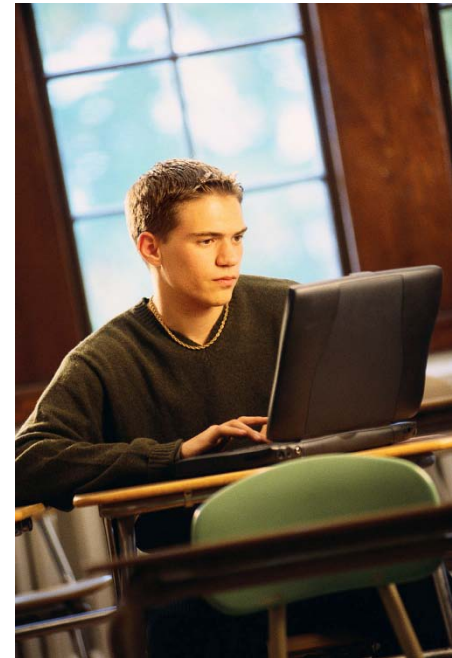
E-learning and Learning Theory

- Wong/Greenhalgh/Pawson Realist Review of what works for whom and under what circumstances identified 2 theories at work
  - Davis's Technology Acceptance Model
    - Learners were more likely to accept a course if it offered a perceived advantage over available non-Internet alternatives, was easy to use technically, and compatible with their values and norms.
  - Laurillard's model of interactive dialogue.
    - 'Interactivity' led to effective learning only if learners were able to enter into a dialogue - with a tutor, fellow students or virtual tutorials - and gain formative feedback.
      - Wong, Greenhalgh, Pawson, BMC Medical Education, 2010

Post Course Assessment/Evaluation

- Best practices
  - Assessment
  - Commitment to change exercise

- What theories and research underlie these practices?

Post course Assessment/Evaluation and Learning Theory

- Assessment (testing of knowledge)
  - Cognitive psychology
    - Tests can directly affect learning by promoting better retention of information, a phenomenon known as the testing effect.
    - Repeated testing of information produces superior retention relative to repeated study, especially when testing is spaced out over time. Tests that require effortful retrieval of information, such as short-answer tests, promote better retention than tests that require recognition, such as multiple-choice tests.
      - Larsen, Butler, Roediger, Medical Education, 2008
- Commitment to Change
  - Please identify the things you will do differently based on participation in this event?
  - Contract law (promises and desire to keep promises)
    - If you make a promise (particularly a public one) and one that is follow-up, you are more likely to make the change.
      - Overton & MacVicar, JCEHP 2008
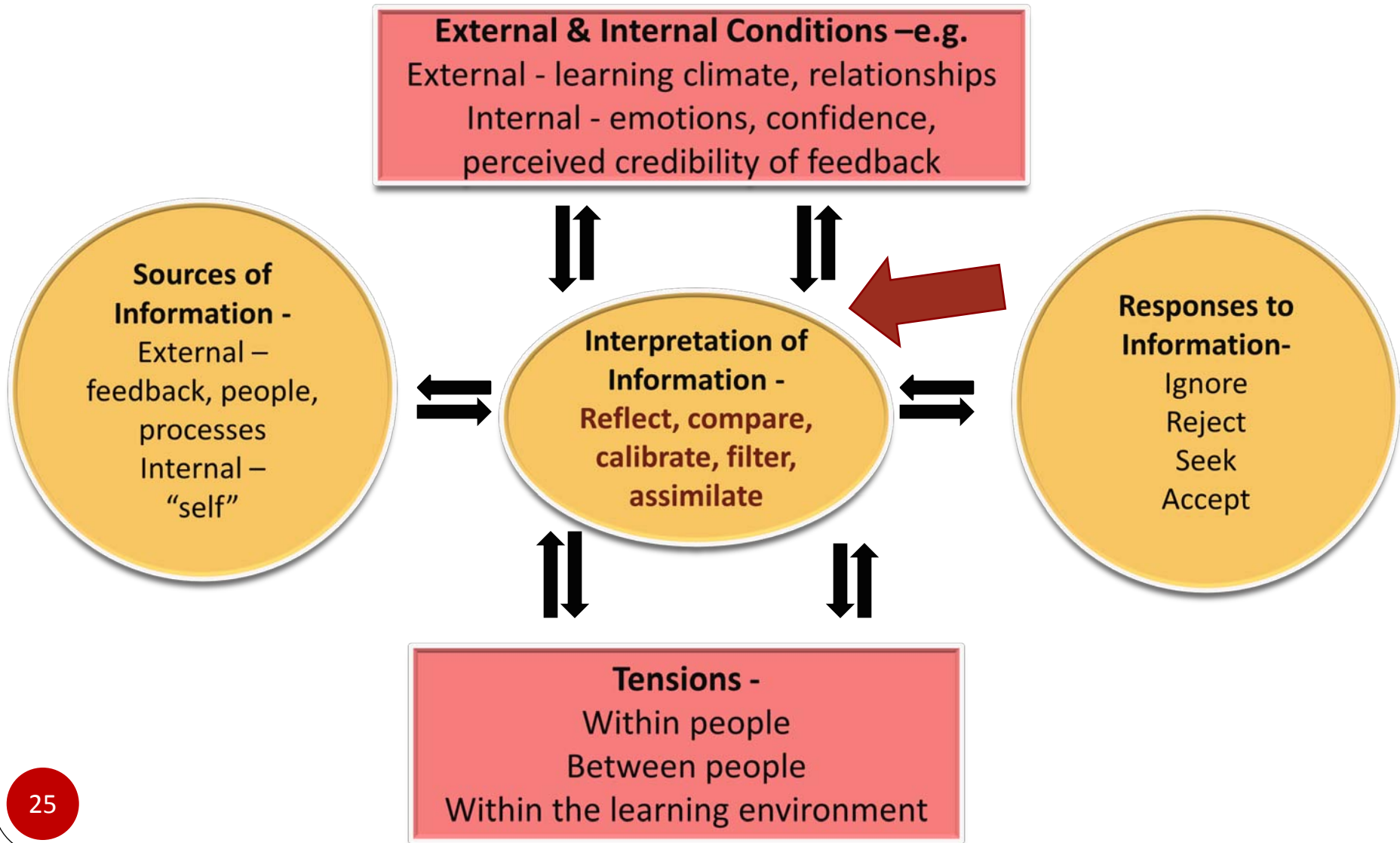
Self Assessment Best Practices

- RCPSC
  - Self-assessment activities must be planned to address the identified needs of the target audience with a specific subject area, topic or problem
  - Self-assessment programs must describe the methods that enable participants to demonstrate or apply knowledge, skills, clinical judgment or attitudes.
  - The self-assessment program must provide detailed feedback to participants on their performance to enable the identification of any areas requiring improvement through the development of a future learning plan.

- What theories and research underlie these practices?

Self Assessment and Theory (Sargeant et al, 2010 & 2011)

- *Self-assessment:*
"a global judgement of one's ability in a particular domain" (Eva, Regehr, 2010)

- *Informed Self-Assessment:*
"a set of processes through which individuals use external and internal data to generate an appraisal of their own performance". (Sargeant et al, 2011)

- Effective self assessment must be informed by quality data and guided feedback

- Interpretation of information draws upon external and internal sources and is affected by internal and external conditions and tensions (Sargeant et al, Acad Med, 2010)

Interpretation in informed self-assessment

External & Internal Conditions –e.g.
External - learning climate, relationships
Internal - emotions, confidence,
perceived credibility of feedback

Sources of Information -
External –
feedback, people, processes
Internal –
"self"

Interpretation of Information -
Reflect, compare, calibrate, filter, assimilate

Responses to Information-
Ignore
Reject
Seek
Accept

Tensions -
Within people
Between people
Within the learning environment

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The end…what is your net gain?

- Behavioral Objective…By the end of the…
  - Describe at least 3 learning theories relevant to CPD
  - Explain how these theories are being used to inform curriculum, improve educational outcomes and ensure high-quality evaluation and feedback
  - **Determine at least one change that will be made based on learning theories discussed during the workshop**

References & Further Reading

- Dochy F, Gijbels D, Segers M, Van Den Bosche P, Theories of learning for the workplace: Building blocks for training and professional development programs, Routledge, 2011

- Ende J(ed), Theory and Practice of Teaching Medicine, American College of Physicians Press, 2010

- Shunk DH, Learning Theories: An Educational Perspective, 5th ed. Upper Saddle River NJ, Pearson/Merrill Prentice Hall, 2008