Assessment and Learning

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+ BELIEFS ABOUT LEARNING

Methods of assessment are determined by our beliefs about learning. According to early theories of learning, complex higher-order skills had to be acquired bit-by-bit by breaking learning down into a series of prerequisite skills: i.e. a building-blocks approach to knowledge. It was assumed, incorrectly, that after basic skills had been learned by rote, they could be assembled into complex understandings and insights. However, contrary evidence from contemporary cognitive psychology indicates that all learning requires deep thinking and the active construction of evolving mental models.

+ LEARNING IS NOT LINEAR

Contrary to past views of learning, cognitive psychology suggests that **learning is not linear.** Rather, it proceeds unevenly in many simultaneous directions. Moreover, conceptual learning is not something to be delayed until a particular age, or until all the facts in any given area have been mastered. People of all ages and ability levels constantly use and refine concepts. There is also tremendous variety in the modes and speeds with which people acquire and retain knowledge, and in the ways in which they demonstrate personal meanings they have created.

Current evidence concerning the nature of learning makes it apparent that instruction which strongly emphasises structured drill and practice, on discrete, factual knowledge does students a major dis-service. For example, **learning isolated facts and skills is more difficult in the absence of meaningful ways to organise, retain, and apply those facts and skills.**

Moreover, because some students experience great difficulties in mastering decontextualised ‘basics’, they may not be given the opportunity to use and develop higher-order thinking skills – the very skills that would help them remember information in the first place!

Recent studies concerning the integration of learning and motivation have also highlighted the importance of affective and metacognitive skills in learning. For example, **recent research suggests that novice problem solvers differ from expert problem solvers not so much in the particular skills they possess as in their failure to use these skills appropriately.** Thus, acquisition of knowledge skills is a necessary but not sufficient pre-requisite of competent problem solving. Students also need to acquire the disposition to use problem solving skills and strategies, as well as the knowledge of when and how to apply them. All these aspects of learning are appropriate targets of assessment.

+ SOCIAL LEARNING

The role of the social context in learning has also received recent research attention. **Real-life problems often require people to work together in groups when solving problems.** Despite this, most traditional instruction and assessment techniques have involved independent rather than collaborative problem solving strategies. Now, however, it is known that groups facilitate learning by:

(a) modeling effective thinking strategies,

(b) scaffolding complicated skills and knowledge structures,

(c) providing mutual constructive feedback, and

(d) valuing the elements of critical thought.

For these reasons, group assessments can provide important means of maximising students’ cognitive engagement and performance, in learning and assessment.

+ AUTHENTIC ASSESSMENT

In light of the above, there has recently been a sustained movement away from traditional methods of assessment to more meaningful types of assessment. Such assessment methods have has been labeled *authentic assessment*. **Data for authentic assessments include responses to open-ended questions, exhibits, demonstrations, experiments, computer simulations, writing in many disciplines, and portfolios of student work over time.** These types of data collection better capture significant student outcomes, and better match the kinds of tasks in which students are involved in 'real life' situations.

Some **key characteristics** which define authentic assessment include that:

(a) students are involved in setting the goals and criteria for assessment,

(b) students perform, create, produce, or do something during assessment;

(c) assessment tasks require students to use higher-level thinking and/or problem solving skills,

(d) assessment tasks often provide measures of metacognitive skills and attitudes, collaborative (inter-personal) and intra-personal skills, as well as the more common intellectual products;

(e) assessment tasks measure meaningful instructional activities,

(f) assessment tasks often are contextualised in real-world applications,

(g) student assessable responses are scored according to specific, mastery based criteria;

(h) assessment criteria define standards for good performance, and are publicly disclosed in advance of actual assessment(s).