Participatory Learning and Assessment in e-Learning Contexts

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Abstract: Expository e-learning efficiently supports coverage and accountability, but is shallow and unsuited for inquiry & participation; constructivist e-learning emphasizes choice and projects but is uneven and exhausting. This presentation introduces a comprehensive design model that combines the best of both approaches while exploiting and preparing for new digitally networked knowledge contexts. Four general e-learning design principles are presented, along with specific features and evidence from an online graduate-level education course on cognition and learning.

The explosion of e-learning has highlighted enduring tensions between “expository” and “constructivist” methods. Expository instruction relies on highly structured content and frequent tests (Clark & Mayer, 2007). Tight structure, broad coverage, and regular tests mean that expository courses are easy to teach and well-suited to traditional assessment and evaluation. But many argue that expository instruction is too mechanistic and focused on basic skills (Hmelo-Silver, et al. 2007).

Conversely, constructivist approaches generally view knowledge as higher order schema (Bransford et al., 2001) and assume that meaningful learning involves individual problem solving and personalized inquiry, along with social-constructivist features such as discussion forums and wikis. But they require instructors who are knowledgeable about the domain, teaching the domain, and e-learning technology. The idiosyncratic nature of constructivist learning calls for open-ended and portfolio assessment methods, which clash with institutional accountability goals.

While efforts are ongoing to compare these two methods, the underlying philosophical and epistemological differences confound direct comparison. More insidiously, combining them leads to paradoxical practices like high-stakes traditional exams in constructivist courses and mandated discussion forums for factual content. More importantly, neither of these approaches is particularly well suited to the way knowledge is likely to be used and learned in digitally networked environments (Brown & Adler, 2008).

Participatory Assessment

Interest-driven social networking inspires a very different model of e-learning (Ito, 2009). Low barriers to expression & engagement, strong support for creating & sharing, informal mentorship, and strong social connections foster “participatory cultures” (Jenkins, 2009). Connectivism (Siemens, 2005) captures this educational potential by emphasizing diversity of opinions, connections across networks of networks, the value of learning over knowledge, and the value of current knowledge. Connectivism is consistent with situative theories of learning (e.g., Greeno, 1998) that focus on the social and technological contexts of learning. Situative theories characterize learning as interactive participation in social and technological practices (rather than individual change). This allows them to treat individual learning as “special cases” of social change. Situative theories of assessment (Hickey & Anderson, 2007) push very hard on this distinction to uncover new strategies for obtaining broad and otherwise antithetical learning outcomes.

The four general design principles that currently define Participatory Assessment have emerged across a decade of design-based studies in a range of innovative instructional contexts. These include the Concord Consortium’s GenScope genetics software, three inquiry-oriented multimedia programs in NASA’s Classroom of the Future, Indiana University’s Quest Atlantis multi-user virtual environment, Project New Media Literacies’ Teacher Strategy Guide, and two graduate level e-learning courses.

This presentation introduces the four general design principles that make up Participatory Assessment, along with the specific principles and specific e-learning features that emerged after four semester-long design cycles of Learning and Cognition in Education. This course serves a challenging mix of working educators, future administrators, and experienced doctoral students, ranging from anxious e-learning newcomers to tech-savvy students in online degree programs. This course was completed using the Sakai open-source course management system. In addition to evidence of shared participation, individual understanding, and aggregated achievement, this presentation shows how this approach accomplished two ambitious goals that had previously been tackled in a more advanced doctoral-level course. The first challenge was helping students appreciate the difference between assumptions about knowing & learning and corresponding methods for teaching, motivating, and assessing. Most students initially conflate learning and teaching, often referencing very different methods without recognizing underlying conflicts. The second challenge concerned the nuances of scholarly referencing.
General and Specific Design Principles

The primary “results” from design-based research are the design principles and features that emerged from iterative refinements. Following are the four general principles that make up Participatory Assessment; the presentation shows examples and evidence associated with each principle as it was transformed into a more specific principle and specific e-learning features.

1. Focus Primarily on Contextual Knowledge

This means transform domain-specific skills and procedures into procedural and conceptual “tools” so that learning can be reframed as practicing using those tools appropriately in particular contexts. This principle builds on the assumption that this contextual knowledge is (a) easily conceptualized and shared, (b) essential for helping struggling (i.e., less experienced) learners engage in discourse and practice using these tools, and (c) crucial to ensure that the residual knowledge readily transfers to new contexts. In this e-learning context, each student first defines a personally-relevant instructional goal. The class is then organized into professional networking groups associated with one of the five primary domains in education (literacy, comprehension, writing, math, or science). Learning is organized around weekly wikifolios and groupwikis.

2. Scaffold Participation in Context x Concept Discourse

This means structuring assignments so that students discuss how the targeted concepts and skills take on different meaning in different contexts. Most of the assignments involve articulating and discussing the relative relevance of the main ideas in each chapter from the perspective of each student’s instructional goal and their educational role (teacher, administrator, or scholar). Most discourse occurs via threaded comments posted directly to the wikis within and across networking groups. Instructor efficiency is established by providing extensive feedback on early posts, and then directing other students to those interactions as appropriate.

3. Assess Reflections Rather than Artifacts

This principle is intended to keep agency with the learner and avoid students expecting overly specific guidelines or unsustainable levels of individualized feedback. In this e-learning context, each student includes three reflections directly on their weekly wikifolios (or posts individual reflections on the groupwiki): consequential engagement concerns the consequences of the ideas presented that week for practice; critical engagement concerns the way each student’s context gave meaning to the course concepts; collaborative engagement concerns how comments from one’s classmates and the instructor shaped understanding.

4. Assess Understanding Prudently and Test Achievement Discreetly

This means using assessments and tests primarily to assess the effectiveness of the prior instruction and not to directly drive learning and instruction. Overall understanding of targeted concepts is summatively assessed with essay items on an online midterm and final exam. Overall knowledge of the domain is prudently evaluated with a timed online exam using multiple-choice items randomly selected from the textbook item bank. But the exams only count for 20% of the grade and do not drive the curriculum or instruction.


