Student Assessment In Problem-based Learning

Serina Diniega, 10/23/06
Group Dynamics Seminar
Class Settings

- Traditional class setting
  - lecture-based
  - deliver as much information as possible, as quickly as possible
  - students rely on transcription, memorization, and repetition

- Problem-based learning (PBL)
  - students work on teams and teach each other
  - learn in context of compelling problem and from experience
  - no change in amount of knowledge acquired
  - but, are more likely to use it spontaneously to solve new problems
  - overall greater student satisfaction/study habits

Major, Palmer (2001)
The purpose of assessment

The chosen method of assessment should:

- effectively assess the objectives of the unit of study,
- be aligned with the overall aims of the program,
- include the development of disciplinary skills.
Assessment Type

- Objective or Subjective
  - Specific observable/measurable criteria?

- Atomic, Analytic, Holistic, General Impression
  - Atomistic = quantify presence of specific part (multiple choice)
  - Analytic = judgments about parts and appropriateness of parts (scoring an essay based on number of citations, proper grammar, etc.; using a rubric)
  - Holistic = determination of overall quality of a work through standardized consideration of various aspects, without tallying (overall score for presentation)
  - General = scoring is unique to individual evaluator

- Self, Peer, Collaborative, or Instructor-based
Assessment Methods (Oxford)

- **Thinking critically and making judgments**
  - Developing arguments, reflecting, evaluating, assessing, judging

- **Solving problems and developing plans**
  - Identifying problems, posing problems, defining problems, analyzing data, reviewing, designing experiments, planning, applying information

- **Performing procedures and demonstrating techniques**
  - Computation, taking readings, using equipment, following laboratory procedures, following protocols, carrying out instructions

- **Managing and developing oneself**
  - Working co-operatively, working independently, learning independently, being self-directed, managing time, managing tasks, organizing
Assessment Methods (Oxford)

- Accessing and managing information
  - Researching, investigating, interpreting, organizing information, reviewing and paraphrasing information, collecting data, searching and managing information sources, observing and interpreting

- Demonstrating knowledge and understanding
  - Recalling, describing, reporting, recounting, recognizing, identifying, relating & interrelating

- Designing, creating, performing
  - Imagining, visualizing, designing, producing, creating, innovating, performing

- Communicating
  - One and two-way communication; communication within a group, verbal, written and non-verbal communication. Arguing, describing, advocating, interviewing, negotiating, presenting; using specific written forms
Assessment Methods for PBL

A non-traditional approach calls for non-traditional measures.

Focus on the contextual nature, require an authentic and relevant product, and help students make judgments about their performance.

- Outside/expert evaluation of final product
- Content analysis of projects
- Focus groups
- Peer evaluations
- Journals or activity logs
- Personal reflections

Major, Palmer (2006)
Considerations

- Fostering creative thinking
  - subjective and end product evaluations preferred
  - Chamorro-Premuzic (2006)

- Use of peer assessments
  - students’ view as a technical tool to facilitate assessment processes and to aid comparisons with others, but not as learning aid or forum for peer-criticism
  - should be small part of total course grade
  - Wen, Tsai (2006)
Creative Assessment

Chamorro-Premuzic (2006)

- 307 undergrad psych. students from 2 UK universities
- Creative thinking/personality inventory during first week
- Academic performance measures collected throughout 4 year period (overall exam grades, continuous assessment through tutorial reports, final dissertation)
- At the end, asked students about preference regarding assessment methods (multiple choice, timed essays, oral, final project, continuous assessment, and group work)
Creative Assessment

Chamorro-Premuzic (2006)

- Strong (0.46/0.35) correlation between creative thinking/openness to experience and final dissertation
- Strong correlation (0.42) between conscientiousness and overall exam grades
- Strong preference against multiple choice (-0.58), timed exams (-0.3), and continuous assessment (-0.34) by creative students
- Strong preference for oral exams (0.45) by creative students
- Overall preference against multiple choice, timed exams
### Table 2. Correlations among creative thinking scores, personality traits, and academic performance

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<th>6</th>
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<td>0.05</td>
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<td>0.22**</td>
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<td>0.14*</td>
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<td>6 Conscientiousness</td>
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### Table 4. Follow up correlations of creative thinking and big five with preference for assessment methods inventory

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<th>Multiple choice</th>
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<td>-0.01</td>
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Peer Assessment

Wen, Tsai (2006)

- 280 university students from 2 Taiwan universities
- 34-item questionnaire regarding view of peer assessment and proportion of grade
- Controlled for effect of education level (85% undergrad), gender (58% male), and prior peer assessment experience (59%)
- 66.2% thought peer assessment should count for small portion of grade; none wanted 100%
- Generally, students have positive view of peer assessment, with stated guidelines
- Male students were more positive (more confident about ability to rate peers?)
Citations


http://www.rapidintellect.com/AEQweb/mop4spr01.htm

