Continuous Improvement in Learning: Data from the Open Learning Initiative

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The Open Learning Initiative

Created 12 web-based colleges courses which provide the complete enactment of instruction online

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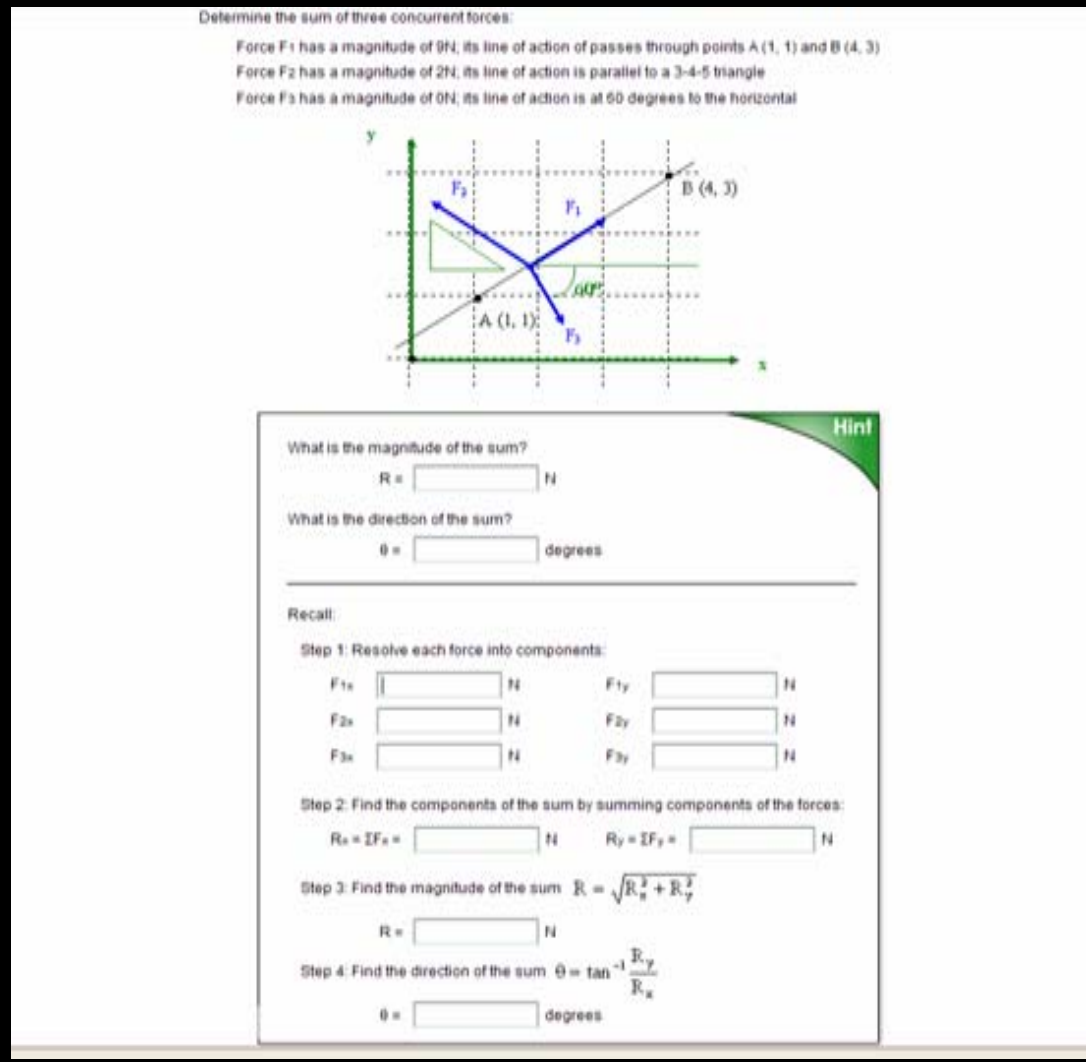
The Open Learning Initiative: Principles

- Course design is guided by results from the learning sciences
- Course creation is done by a team rather than a single person
- Virtual learning environments are instrumented to continuously gather data about student learning outcomes
- Rich feedback data is used for continuous improvement

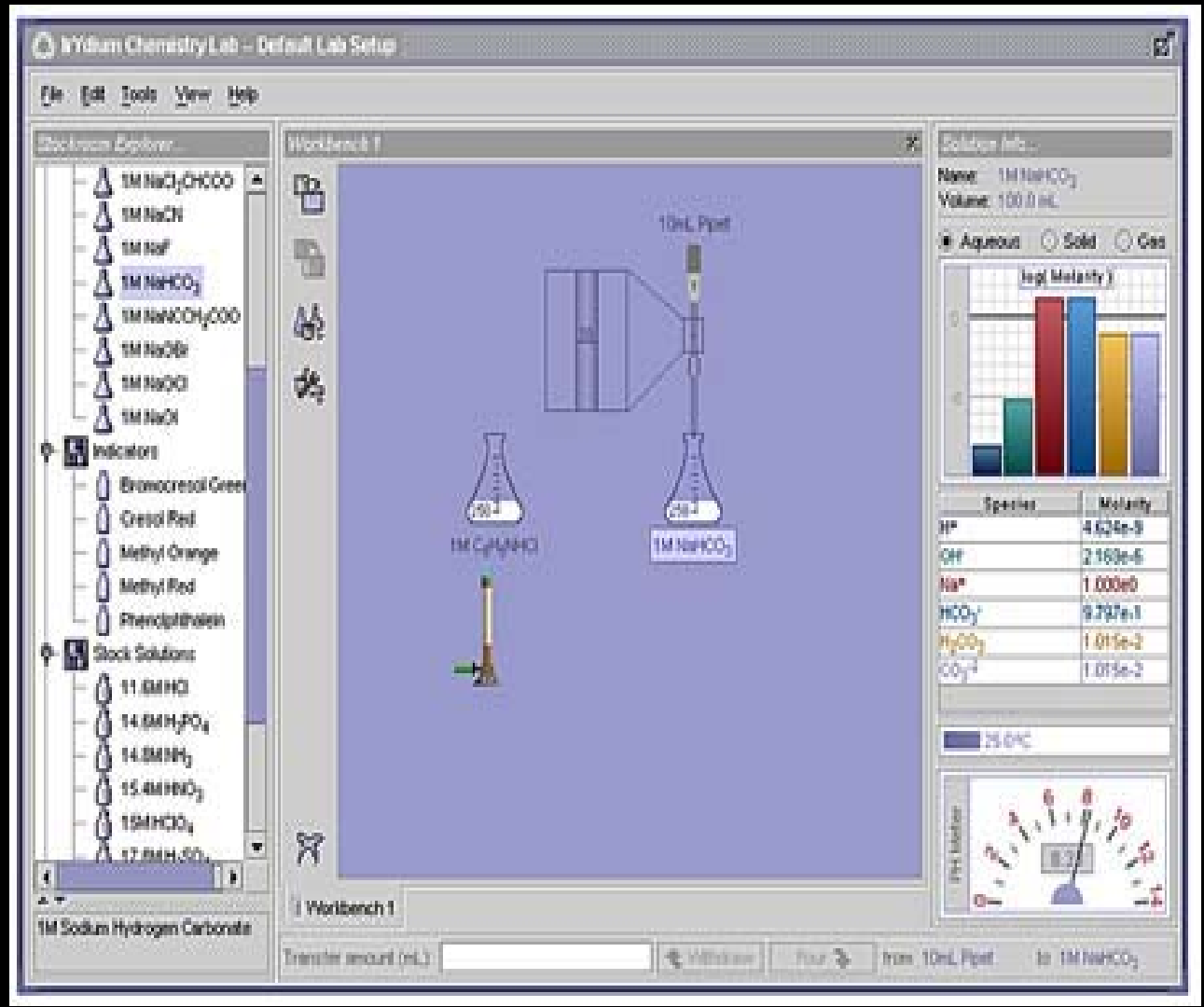
Course Design Guided by Learning Science Principles (LSPs)

- Translating scientific results from the learning sciences into effective instruction requires significant design and assessment efforts
- Such an effort by one faculty member for a single class is exceptional and impacts comparatively few students
- Such efforts made by a team for online virtual learning environments produces effective materials that can be used by many faculty and learners

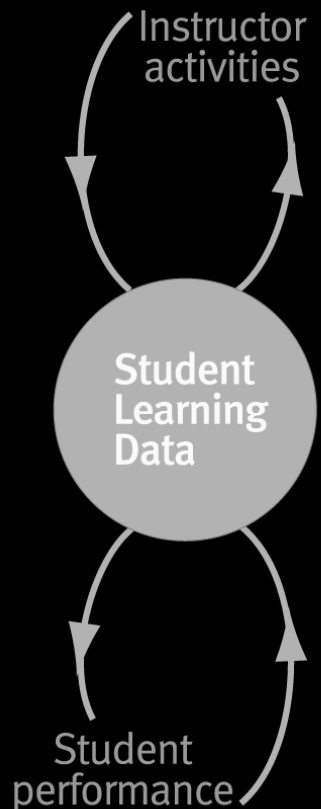
LSP1 - Goal directed feedback and targeted practice enhance learning:



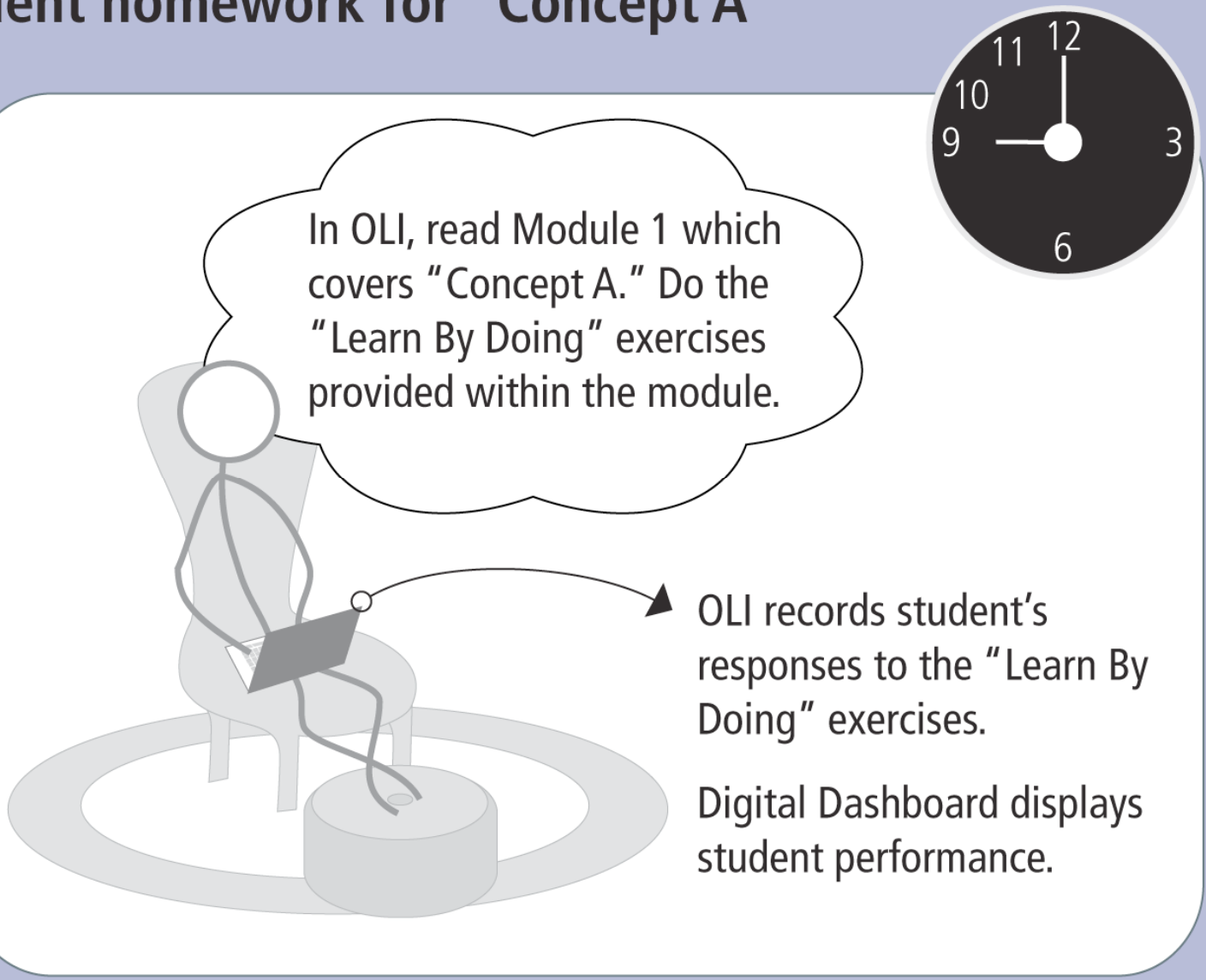
LSP2 - Meaningful engagement creates robust learning:



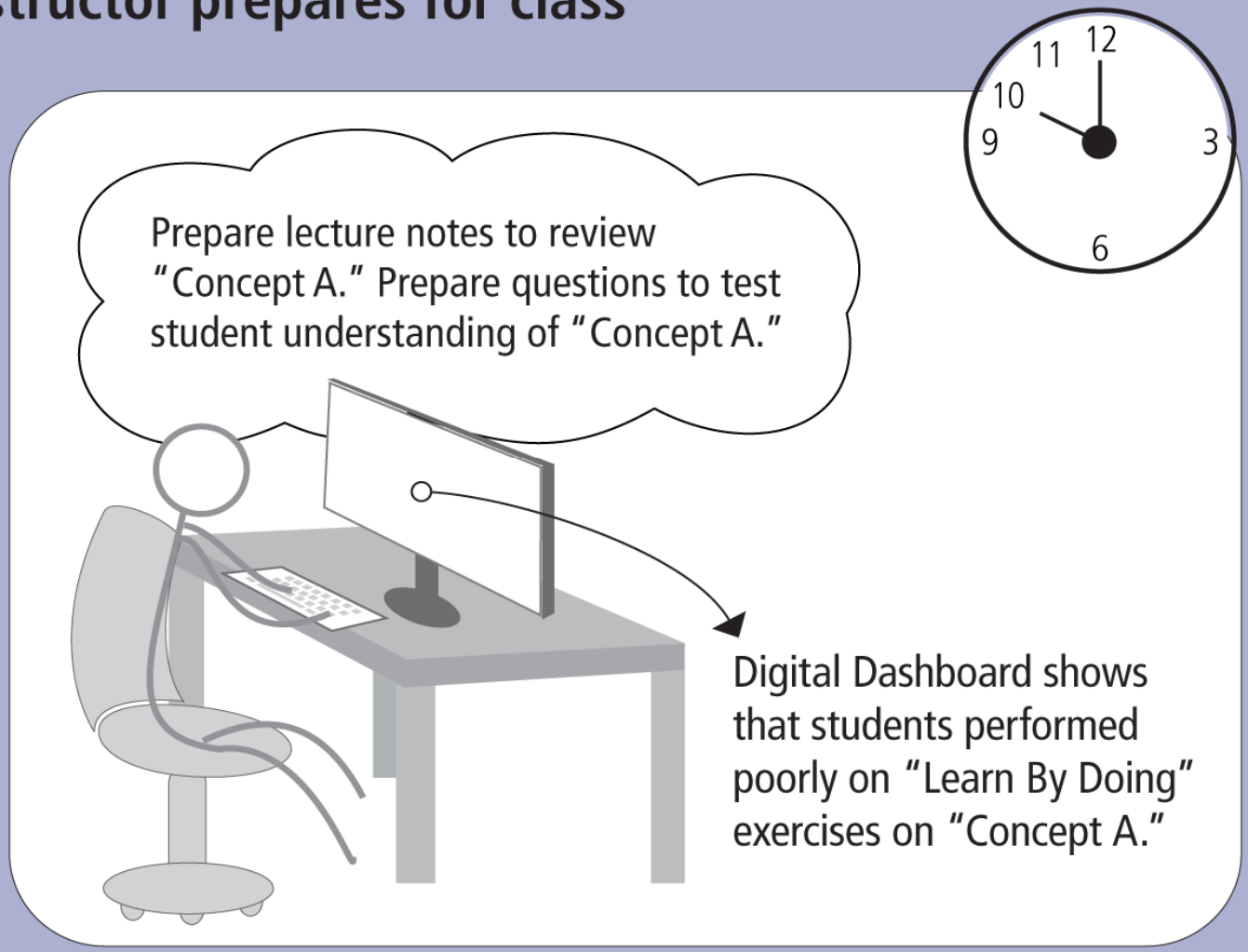
Feedback: Changing the Effectiveness of both Learners and Faculty



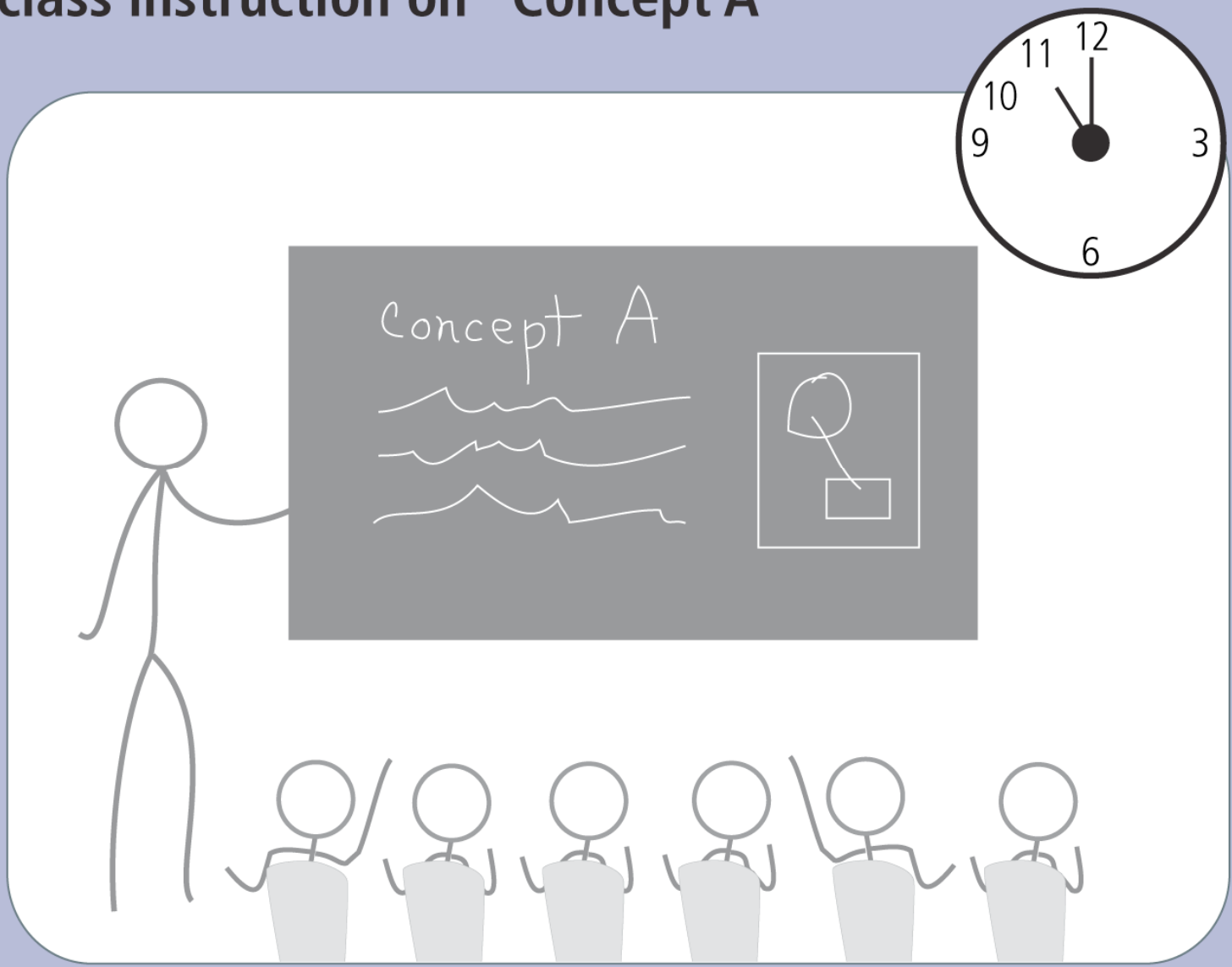
Student homework for "Concept A"



Instructor prepares for class



In-class instruction on "Concept A"



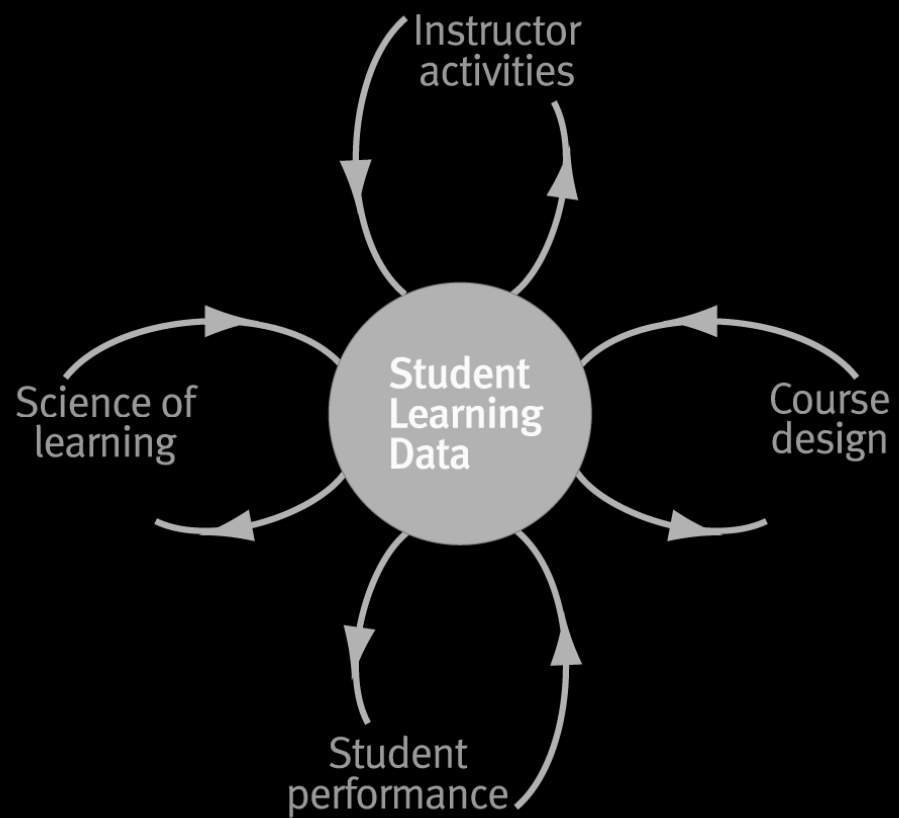
Accelerated Learning Results

- OLI students completed course in half a semester, meeting half as often during that time
- OLI students showed significantly greater learning gains (on the national standard “CAOS” test for statistics knowledge)
- No significant difference between OLI and traditional students in follow-up measures of knowledge retention given a semester later
- These results on improvement on CAOS test have now been replicated with a much larger sample

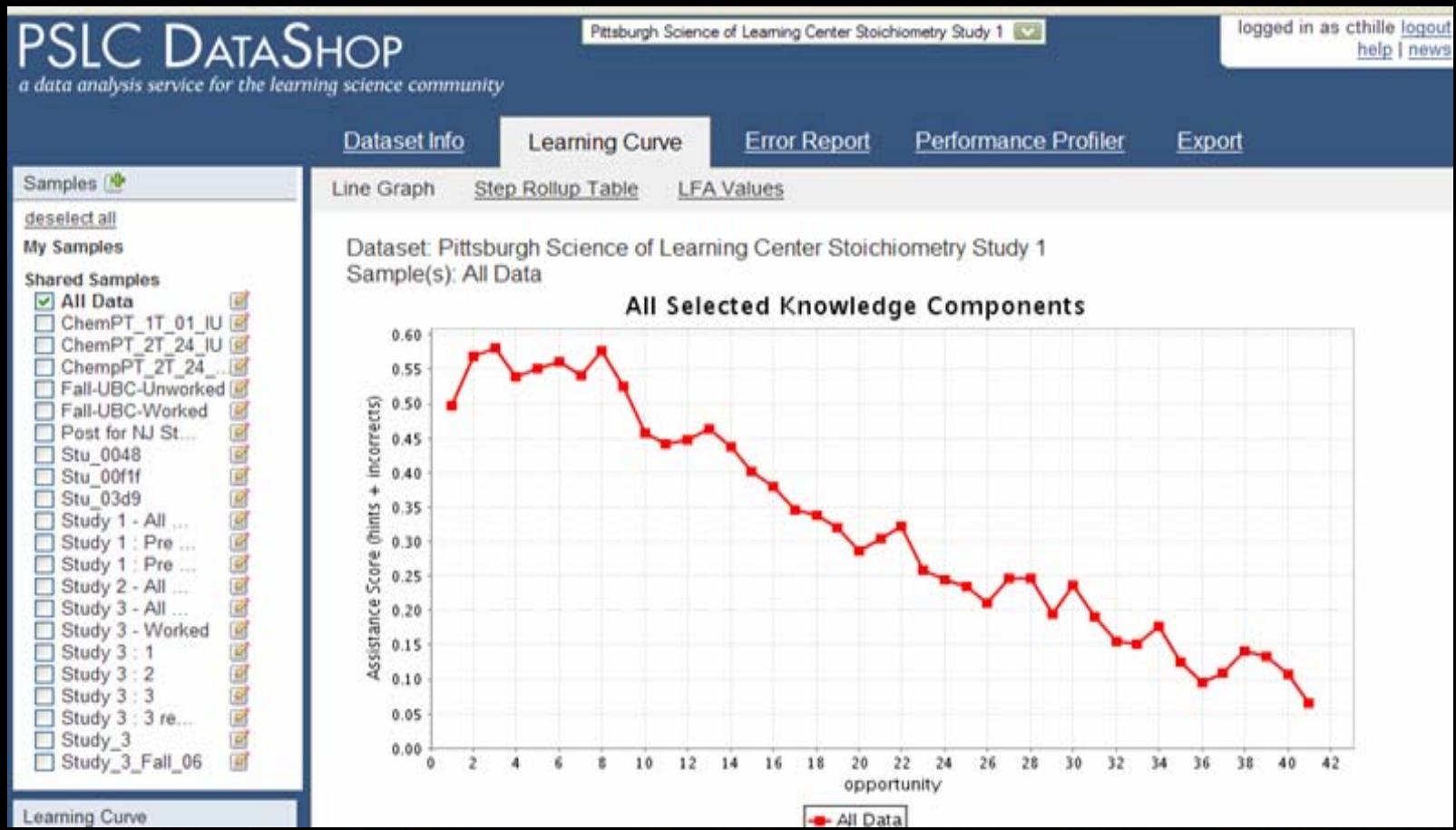
Other Class Results

- Community College accelerated learning study in Statistics
  - OLI: 33% more content covered
  - OLI: 13% learning gain vs. 2% in traditional face-to-face class
- Large State University:
  - OLI: 99% completion rate
  - Traditional face-to-face class: 41% completion rate

Design and Feedback: Continuous Improvement



Learning Curve Analysis on Chemistry Course Data



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"Improvement in Post Secondary Education will require converting teaching from a 'solo sport' to a community based research activity."

—Herbert Simon

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