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Enhancing Student Learning Through Continuous Course Assessment

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Enhancing Student Learning Through Continuous Course Assessment



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Continuous Improvement Process

Questions:

- How can student learning experiences be improved on an ongoing basis?
- How do we enable our students to actively take charge of their own learning process?
- Formative versus Summative Assessment?



Formative: Before-the-fact assessment
Summative: After-the-fact assessment

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Continuous Improvement Process

Existing Scholarship:

- Classroom Assessment Techniques (CATs) – Angelo and Cross
- Learning Outcomes Assessment – ABET, AAHE



Continuous Improvement Process

■ Intervention

- Survey of topic-specific Intended Learning Outcomes (ILOs) at the end of each module
 - measures student learning in and out of class
- Surveys administered in online/on-campus sections of:
 - Structural Analysis
 - Structural Steel Design
 - Reinforced Concrete Design



Continuous Improvement Process

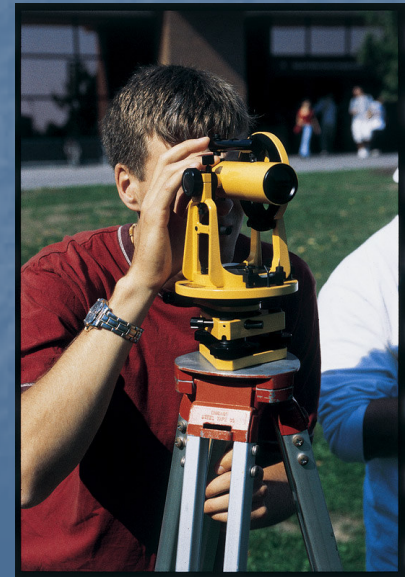
- **Intervention (contd.)**
 - Surveys are not anonymous - in order to track students who may need individual help
 - Surveys are typically completed by students outside of class – gives them more time to reflect on their learning
 - Modules/ILOs are tied to the course notes or textbook
 - important for online students



Formative Assessment Using ILO Survey

- Each course is divided into up to 8 modules with topic-specific Intended Learning Outcomes (ILOs)
 - The modules and ILO survey serve as road maps helping the students track their progress in the course

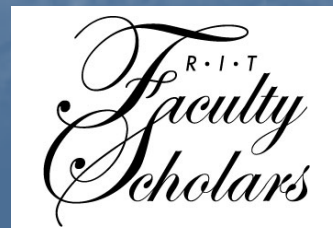
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Formative Assessment Using ILO Survey (ILO Survey Format)



Name:					
Topic-specific ILOs	5 Very well understood	4 Understood	3 Somewhat understood	2 Not well understood	1 Not understood at all



Formative Assessment Using ILO Survey

- Students rate each ILO in each module on a scale of **1** (not understood at all) to **5** (very well understood)
- Two open-ended questions included with each module - Most meaningful and still unclear topics (Minute paper)
- Students typically submit one module survey per week



Formative Assessment Using ILO Survey

- Open-ended questions regarding effectiveness of ILO surveys administered at the end of the quarter
- Students with ILO survey ratings of 2 or less on any topic are contacted by the instructor and given one-on-one tutoring
- Topics where student ratings of 2 or less are pervasive are revisited in class; the identity of the students is protected

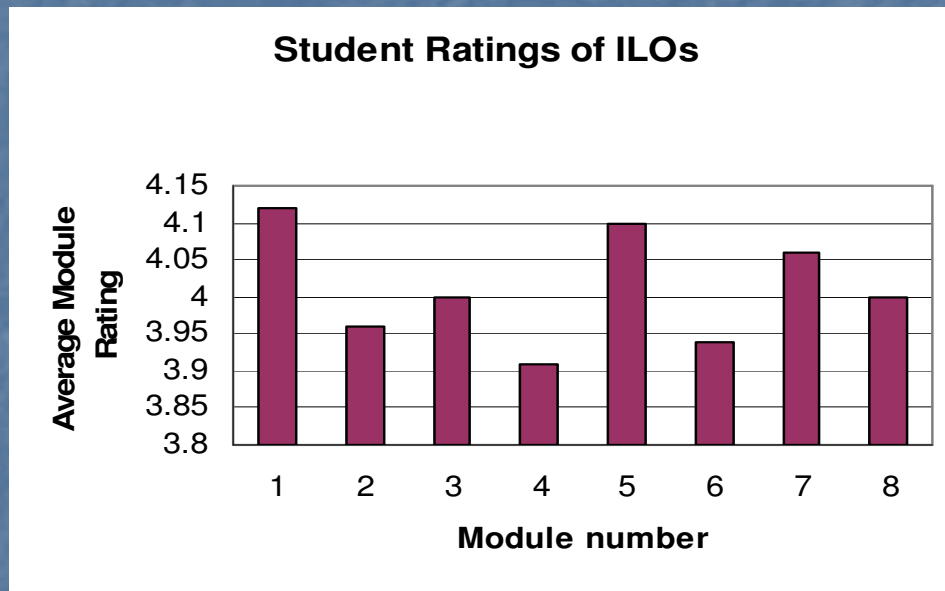


Benefits of ILO Surveys

- Used to assess student learning on an ongoing basis
- Used to determine the need for midstream course corrections or individual student tutoring
- Forces students to reflect on their learning process throughout the course – Deeper understanding of subject
- Reinforces the faculty-student partnership
 - Impresses on the students that their input is important
 - Promotes a “culture of caring”



Survey Results – Structural Analysis



A

B

- Overall average module rating: 4.03 \Rightarrow student learning
- Module #4 – Internal shear/moment had the lowest average module rating at 3.91

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Survey Results – Structural Analysis

- Slight differences or variations across modules in the course – Action taken to improve ratings of modules 2, 4 & 6 during next offering
- The correlation between the average module ratings and final course grades was +0.50
⇒ Student ILO ratings consistent with final course grades
- Higher overall course average compared to average of three previous offerings of the course



Students' Perspective on ILO Surveys

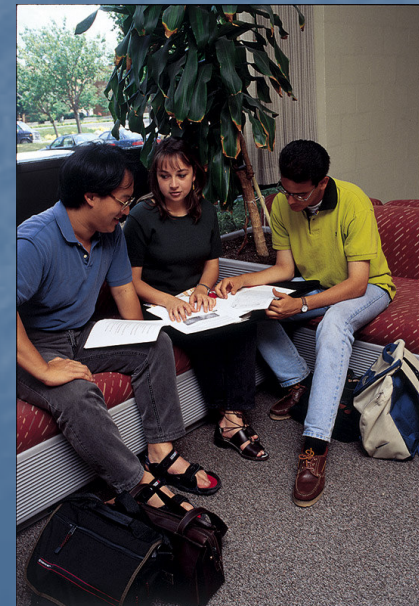
- Dan Clark
- Eric Lindheimer
- Alex Adekoya
- Jason Mroz



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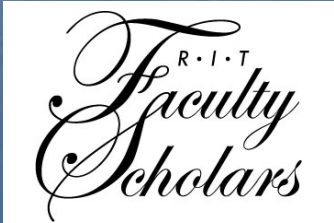
Summary and Conclusions

- Student feedback on the effectiveness of ILO surveys has been positive
- Higher overall course average compared to previous offerings of the course
- ILO survey forces students to reflect on their own learning
- Irrespective of course grade, student perception of their understanding of the course material is improved
 - based on end of quarter survey



Summary and Conclusions

- Other Benefits of the ILO Surveys:
 - Useful for determining the need for midstream corrections
 - Useful in identifying students who may be in need of extra help
 - Enables the instructor to provide *immediate* help to students
 - Enhances student learning and participation in the learning process
- Improved student learning is achieved through this continuous assessment method.



Summary and Conclusions

- Satisfies the “closed loop” continuous improvement requirements of accrediting agencies
- Involves additional workload for the instructor, but the benefits to student learning makes it worthwhile!
- Future directions:
 - Monitor changes in average ILO ratings for each module from year-to-year
 - Adoption of module surveys in other courses





Thank You!

Now it's time for your questions!

