

INTRODUCTION TO COURSE ANALYSIS

(See Program Description in Portfolio Section A.5, Course Analysis Data, Reports, and Professor Examples in B.5.a, 1, 2, 3 and B.5.b, 1, 2, 3; also, Worksheets in C.1)

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Professors each chose one course for the faculty development program on teaching and learning. The selected course (taught Fall 2005) was the vehicle for learning. Analyzing a real course, instructional practices, student assessments, and other aspects of teaching and learning ensured an authentic problem based learning scenario and process. The 2005 course was changed according to the analyses results and as the learning process progressed through each of the program components. The course was then re-developed during particular program components, once again ensuring authentic and problem-based learning through performance tasks. The re-developed course was taught during the Fall 2006 research semester as the context for implementing the changes and the experimental research on teaching and learning by each professor. Therefore, professors taught a completely re-developed course and engaged in the Scholarship of Teaching through classroom research Fall 2006.

The faculty development program engaged professors in an intense analysis of their existing 2005 courses. For example, they analyzed the quality of the course content using the ABET/TAC/NAIT outcomes; they considered how the courses were taught, the quality of their teaching strategies, and if students had opportunities to use or expand their individual learning styles. The professors analyzed their tests and expanded the student assessment tools for the course by developing performance tasks and rubrics. They considered their grading strategies and philosophies, the quality of their syllabus and what it communicated, and much more.

The learning process was led by the program leader; however, it was also led by the professors themselves in that they used self-assessment through a portfolio assessment process. This provided them the opportunity to critically reflect on and analyze the “current reality” of the 2005 courses and then determine what needed changing regarding the course, teaching, or assessment aspects. The program process involved presentations, group process using the jigsawing of information, a myriad of worksheets with corresponding reference information in written form, group review, sharing, and critique, and finally redevelopment. The process was inquiry based and guided discovery in action, which resulted in a performing-while-learning process. As the professors analyzed their courses for a variety of teaching and learning factors, they were also learning about teaching and learning. Performing the analyses was performance-based learning, resulting in educational products, and the learning process itself.

Each professor performed the analyses listed below on the selected 2005 courses:

1. Knowledge Content (content breakout outline; content priorities; content timeline)
2. Content Sources
3. Embedded NIU General Education Goals
4. Content Schedule
5. Teaching Models
6. Teaching Styles
7. Student Learning Styles
8. Bloom's Cognitive Process Dimension (Traditional or Revised)
9. Bloom's Knowledge Dimension
10. Dale's Cone of Learning
11. Level of Critical Thinking
12. Teacher, Knowledge, Assessment, or Learner-Centered?
13. Instructional Design Gaps
14. Student Learning Outcomes by
 - a. Bloom
 - b. Dale
 - c. Knowledge Sources
 - d. Assessments (Tests) by
 - i. Bloom
 - ii. Dale
 - e. Test Items by
 - i. Bloom
 - ii. Dale
 - f. Other assessments, projects, etc. by
 - i. Bloom
 - ii. Dale
15. GAPS Analysis Summary
 - a. Outcomes Summary
 - b. General Education Summary
 - c. Outcomes by Teaching Models Summary
 - d. Outcomes by Teaching Styles Summary
 - e. Outcomes by Student Learning Style Opportunity Summary
 - f. Outcomes by Bloom's Cognitive Process Dimension
 - g. Outcomes by Bloom's Knowledge Dimension
 - h. Outcomes by Dale's Cone of Learning Levels
 - i. Outcomes by Critical Thinking Levels
16. Test Analyses
 - a. Item quality
 - i. item discrimination
 - ii. item difficulty
 - iii. other

(See each data table for the outcomes of this process in Portfolio Sections B.0-B13 and worksheet forms in Section C)

The professors studied the results of the 2005 analyses, made decisions about what changes would benefit student learning, and engaged in redeveloping the courses for the 2006 research semester. Course re-development involved them in

1. Student Learning Outcome development by ABET/TAC/NAIT standards or outcomes
2. Identification of embedded NIU's General Education Goals
3. Determination of Bloom's Knowledge Dimension for each student learning outcome
4. Bloom's Cognitive Process Dimension for each student learning outcome
5. Development of a course calendar identifying for each week/course day:
 - a. Teaching Models
 - b. Teaching Styles
 - c. Student Learning Style opportunities
 - d. Dale's Cone of Learning Levels
 - e. Course Content Topics
 - f. Course Labs or Activities
 - g. Course Due Dates
6. Test Development
 - a. Table of Specifications
 - b. Item Bank
 - c. Test Assembly
 - d. Charting student learning outcomes by tests and test items
7. Performance Assessments
 - a. Performance Tasks
 - b. Corresponding Rubrics
8. Multifaceted Assessment Plan
 - a. Identification of other types of student assessments
 - c. Charting assessments by Bloom's Cognitive Process Dimensions
 - d. Charting student assessments
6. Teaching Models and Instructional Design for Course Context
 - a. Choosing additional teaching models
 - b. Designing instruction for entire course

(See Data Tables and Teaching Portfolios for these products B.0-B.13.)

The professors tested the effectiveness of their redeveloped course, teaching and learning strategies, and new student assessments during the research semester, Fall 2006. They also engaged in experimental research on a particular teaching and learning question.

After teaching the re-developed courses, the professors engaged in reflection about their teaching practices and student learning during the 2006 semester. They confirmed, or identified where they did or did not achieve, the planned

1. Teaching Models and Teaching Styles
2. Student Learning Style opportunities
3. Student Learning Outcomes
4. Bloom's Cognitive Process Dimensions
5. Dale's Cone of Learning Levels

In addition, they engaged in critical reflection on the student assessment plan and analyzed the effectiveness of the new tests and performance assessments:

1. Midterm exam test analysis and diagnostic write up
2. Final exam test analysis and diagnostic write up
3. Performance assessment/rubric reflection and diagnostic write up

(See Portfolio Section B6)

Important Note: In the Course Analysis Data Sections, most of the worksheets provide summaries of data across professors. However, several worksheets are not shown with data, as the GAPS Analysis Summary provides that same information. The analysis information professors generated during those processes was then summarized in the GAPS Analysis Summary. The information in those two analyses was so specific to each professor, it would be impossible to present a coherent composite for 1) Content Schedule, Models, Styles, Bloom's, etc. and 2) Instructional Design GAPS. Thus, that same information was summarized by the professors in the overall GAPS Analysis Summary composite. All other worksheets are presented as complete composites.