

2006-2309: ELECTRONIC COURSE PORTFOLIOS FOR PEER-EVALUATION OF TEACHING

Alan Kalish, Ohio State University

Director, Faculty and TA Development

David Tomasko, Ohio State University

Professor, Chemical and Biomolecular Engineering

Jerry Masty, Ohio State University

DVM, MS, PhD Associate Professor, Veterinary Biosciences

Steve Acker, Ohio State University

Director, Learning Technologies Research and Innovation and Associate Professor of Communication

Sally Rudmann, Ohio State University

Program Director, Division of Medical Technology, School of Allied Medical Professions

Jennifer Forbush, Ohio State University

RN, MS, CNP Clinical Instructor, College of Nursing

Electronic Course Portfolios for Peer-Evaluation of Teaching

Introduction

An increasingly common requirement for promotion and tenure at Colleges and Universities is some type of peer-evaluation of teaching.¹⁻⁴ This paper will discuss efforts by an interdisciplinary group of university faculty to develop a mechanism for authentic, efficient peer-evaluation and assessment through shareable, electronic “course portfolios”. The course portfolio is a more manageable amount of effort in comparison with a full teaching portfolio as described in the literature.^{5,6} The system we have explored is easily compatible with the increasing use of course delivery software such as WebCT and Desire2Learn in that electronic resources can easily be transferred into the portfolio as artifacts of teaching.

“Shares” or “views” of the portfolio can be individually tailored for different purposes such as external or internal evaluation of teaching, sharing teaching innovations with colleagues, or documenting historical development of a course. The portfolio provides a more substantial documentation of teaching than can be obtained in a small number of direct classroom observations.

Based largely on Hutchings, *The Course Portfolio*,⁷ we have created a template using the Open Source Portfolio (OSP) 1.5 that documents not only the mechanics and logistics of an individual course but also reflections on teaching methods and philosophy. Our template is a web-based interface that prompts the instructor to offer descriptions, explanations, artifacts, and reflections in each of 6 categories: Course Description, Vision, Design, Interaction, Outcomes, and Analysis. Straightforward prompts with descriptions and sample answers guide the user through a short reflection exercise such that the finished portfolio incorporates and exemplifies the instructor’s philosophy. A concurrent effort is aimed at developing a rubric for evaluation to guide assessment by viewers of the portfolio.

Features of the Course Portfolio

The structure we have developed for the course portfolio resulted from a few simple design objectives: 1) Ease of use – because not every person being evaluated for their teaching enters into the process with enthusiasm. Our team used the model of the popular TurboTax[®] software in which the user is guided through an unfamiliar and perhaps undesirable task by simple prompts with examples and short, clear instructions; 2) Coax out reflection – to properly evaluate the act of teaching it is important to understand the teachers intent. Asking them to answer the question: “Why do you do things the way you do?” gets to that intent and prods them to put it in words.

In detail, each category is comprised of several elements. Each element has a description and sample answer that prompts the user to enter their own answer along with artifacts of their teaching that support and document their answer. Table 1 shows the CPort template with all the elements and descriptions.

Table 1. CPort Template

Category: Course Description	
<i>Element: Course Number</i>	Self-explanatory
<i>Element: Course Title</i>	Self-explanatory
<i>Element: Class Level</i>	Curricular level of typical student enrolled
<i>Element: University Descriptor of Class Type</i>	Lecture, Recitation, Seminar, Lab, Conference, Independent Study, Hybrid, etc.
<i>Element: Typical Class Size</i>	Self-explanatory
<i>Element: Prerequisites</i>	What courses (subject matter not course numbers) are pre-requisites or co-requisites.
<i>Element: Grading</i>	How is the course graded? Letter Grade, Pass/Fail, Satisfactory/Unsatisfactory, etc.
<i>Element: Course Catalog Description</i>	The published description of the course.
<i>Element: Delivery Method</i>	Mode of interaction (face to face, hybrid, on-line)
Category: Vision	
<i>Element: Goal</i>	What is your goal for this course?
<i>Element: Objectives/Student Outcomes</i>	What do you want students to know and/or be able to do at the end of the course that they might not have been able to do at the beginning? What attitudes do you want to affect?
<i>Element: Conduct of Class/Teaching Strategies</i>	Typical modes/strategies for class conduct.
<i>Element: Personal Outcomes</i>	What are you trying to achieve as a teacher?
<i>Element: Curricular Fit</i>	How does this course fit into the department/college curriculum?
<i>Element: Community Outcomes</i>	What affect does your teaching have on the larger community (department, profession, academia)?
Category: Design	
<i>Element: Syllabus</i>	The document/website distributed at the beginning of the course.
<i>Element: Instructional Materials</i>	Textbook, new instructional materials-revised outlines and notes, manuals, case studies, study guides, review sheets, computer simulations, models, video productions, web pages.
<i>Element: Assignments</i>	What is the purpose and required student effort? Are they individual or group?
<i>Element: Rationale</i>	How do: learning outcomes support/reflect/align with course goals? Assignments reflect course goals? How are instructional approaches suitable to reach the course objectives? Refer to previous elements in this category (syllabus, instructional materials, assignments) to demonstrate this.
Category: Interaction	
<i>Element: Teaching and Learning in the classroom</i>	Describe what happens in your classroom. You might answer any of the following questions that are most relevant

	to your course. When your students are learning, what are they doing? How do you engage your students? Give a narrative of how your course unfolds.
<i>Element: Teaching and Learning outside the classroom</i>	Describe what happens in your course outside of the classroom. Office hours, e-mail, homework, projects, clinical, etc.
<i>Element: Role of Course Materials</i>	What materials do students use and how do they help the students meet the course objectives?
<i>Element: Role of Teaching Assistants and other Instructors</i>	How do you interact with your teaching assistants or other instructors and what roles do they play in the course?
<i>Element: Rationale</i>	Why do you do things the way you do?
Category: Outcomes	
<i>Element: Evidence of Teaching Effectiveness</i>	Examples of student papers and their revisions, exam results, course projects, student presentations, midcourse evaluations and adjustments, institutional student evaluation results.
<i>Element: Future Value to Students</i>	What influence did this course have on student attitudes/careers?
Category: Analysis	
<i>Element: Course Successes</i>	How well did student work meet your intellectual goals for the course? Did the distribution of student achievement meet your expectations? Does the evidence of student performance you've documented above indicate that students are prepared for other courses or have achieved the aims of the broader curriculum?
<i>Element: Opportunities for Change</i>	What did you try that was not as successful as you anticipated? What changes could be made to help more students achieve in the higher categories of learning?
<i>Element: Growth as a Teacher</i>	Description: How will your teaching methods change as a result of student performance/comments? What is the effect of peer evaluation of your teaching in this course? What are your short term and long term teaching goals for this course? What does student feedback indicate about the course/teaching effectiveness?

The portfolio is structured in such a way as to draw the user into a deep reflection about the particular course. By asking for easily provided artifacts early (e.g. instructional materials), the user would typically have these materials at hand or in recent memory when asked to reflect on their use. Note also, that although the portfolio asks for evidence of teaching effectiveness such as teaching evaluations, there is ample opportunity for the instructor to place those ratings in context by describing where the course fits within the curriculum, who is taking it, and rationalizing why the course is taught the way it is. In this way, student ratings are placed in a properly supported context that we would argue is the way they should properly be used.

The on-line nature of CPort allows it to be much more dynamic than the typical documentation provided, for example, for an ABET evaluator. For courses offered via course delivery software

(WebCT, Blackboard, Desire2Learn) much of the materials will already be in electronic format for inclusion in the portfolio. The main challenge is scanning evidence of student work that may still be in paper form. One can also envision providing video clips of class interactions to document teaching style.

The amount of effort to produce a portfolio is significant. In our experiences, the first portfolio took 7-8 hours to prepare. As with any documentation process the primary effort is in collecting and presenting the artifacts of teaching. Since all of the participants in this project were quite interested in the idea of documenting their teaching, the learning curve for using the portfolio was not that steep. The challenge of this work is in convincing not so enthusiastic users of the advantages.

Rubric for Course Portfolio Evaluation

A rubric for evaluation allows those who may be unfamiliar with portfolios an opportunity to assess quality with a certain amount of objectivity. Table 2 shows a sample rubric for evaluators of course portfolio that was developed after reviewing literature in the area of portfolio evaluation.^{5,8} Each category is described separately and the representation of the elements of each category comprises the quality characteristic of that category. For example, one aspect of an exemplary portfolio in the “Outcomes” category is in the representation of the “Value to Students” element: “Value to students is supported with specific artifacts and reflections.” In an insufficient portfolio, this element would be represented less completely, i.e. “Value to students described in only general terms.”

Peer Evaluation of Teaching using the Course Portfolio

The portfolio also attempts to generalize the course and teaching description beyond the authors home institution. For example, pre-requisite courses are listed in terms of subject matter (e.g. a full year of general chemistry) rather than course numbers. The purpose here is to present the course portfolio as a semi-quantitative representation of the authors teaching that could reasonably be evaluated by someone external to the authors home institution. This external evaluation can be helpful in cases where an instructor teaches a highly specialized course or courses that few other faculty have taught (classic examples from chemical engineering include Unit Operations Laboratory and Process Design). One could envision external review by instructors of unit operations or dynamics laboratories at other institutions who can evaluate materials, assignments, and rationale from first-hand experience with the same course. The portfolio concept extends external review beyond just the course content as previously described.⁹ Furthermore, the CPort is suitable to a variety of disciplines. The developers represent the fields of chemical engineering, communications, veterinary medicine, nursing, allied medical professions, and English. We have developed portfolios to represent traditional lecture courses, laboratories, and clinical environments.

Although not shown in the template, an additional feature of electronic portfolios is the ability of the author to control the information that is shared with different audiences. For example, in the development of a course one may wish to collect much more assessment information from students and colleagues that would help with a formative review but be too much or too

disorganized for an external summative review. With all that information available but not necessarily displayed, the author can show their growth and development as a teacher and showcase their best efforts much as one would do in preparing a manuscript for publication.

Table 2: Evaluation/Review Rubric for Electronic Course Portfolios

	Exemplary	Adequate	Insufficient
Description	Information Complete & Accurate		Incomplete
Vision	Goals clearly elucidated. Relevance and fit within broader curriculum identified and easy to understand. Objectives for students well stated, internally consistent with goals, and achievable	Goals identified. Curricular fit described minimally. Objectives for students exhibit general congruence with goals.	Goals too broad or missing. Curricular fit missing or identified only with pre-reqs. Objectives missing or unmeasurable.
Design	Detailed syllabus. Rationale completely explains and connects all the artifacts. Everything consistent with course goals/objectives.	Appropriate syllabus. General agreement between rationale and artifacts. Some artifacts inconsistent with others or unclearly connected to course objectives.	Minimal syllabus. Very little connection between artifacts and rationale or among artifacts. Artifacts exhibit no support of course goals/objectives.
Interaction	Rationale takes into account and clearly explains the possible interactions among all participants in the course. Each interaction is described in detail sufficient to support the outcomes.	Rationale emphasizes some interactions over others. Interactions described well and generally connected to outcomes.	Rationale doesn't explain interactions clearly. Interactions described in general terms and not clearly connected to outcomes.
Outcomes	Artifacts clearly and obviously demonstrate student learning and are numerous enough to demonstrate achievement of <u>all</u> course objectives and goals. Value to students is supported with specific artifacts and reflections.	Artifacts demonstrate assignments completed and imply demonstration of student learning. Artifacts show nearly complete coverage of course objectives and goals. Value to students supported with only artifacts or only reflection.	Artifacts not connected to student learning in any obvious manner. Artifacts address only a few of the course objectives and goals. Value to students described in only general terms.
Analysis	Assessment of artifacts is objective and quantitative. Follows accepted practice in the field. Reflective statements represent thoughtful analysis of teaching style. Evidence of growth supported by multiple independent	Assessment of artifacts includes some subjective analysis or deviates slightly from standard practice in the field. Reflections represent a factual/experiential account of teaching. Growth supported with single type of artifact.	Assessment missing or completely subjective. Reflective statements too general. Evidence of growth is completely self-reported and unsupported by artifacts.

The portfolio would not necessarily supplant in-class visitation but would provide powerful supporting evidence in the case of teaching review. Again, the on-line nature of the CPort is such that a link can be provided without collecting and shipping massive quantities of documents in much the same way that journals are now providing manuscripts to reviewers. In our view, this type of portfolio begins to move teaching evaluation into the sphere of peer-reviewed research.

Summary

An electronic course portfolio (CPort) has been developed for the purpose of documenting teaching in a convenient manner for both formative and summative review. Peer-evaluation of teaching has become a pressing issue on many campuses and imposes on faculty the need for tools and methods for implementation. The web-based portfolio described here has the potential to be such a tool. It is designed to draw the instructor into a reflective discourse about teaching philosophy on a course by course basis. The flexibility inherent in the portfolio makes it applicable across a range of course types (instructional settings) and disciplines. The structure of the portfolio provides for a semi-quantitative and objective assessment of the the teaching and learning in a particular course.

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