

All of this information was then uploaded to the ePortfolio, which is an institution-wide Internet-based system for displaying and evaluating student work via the online rubrics, with the capability of collecting aggregated and disaggregated assessment data electronically and giving valuable feedback to the student, to each department and school, and to the university.

Personnel

A number of individuals throughout the university accepted responsibilities related to the administration and maintenance of the ePortfolio system. An ePortfolio administrator oversees the ePortfolio program across the university, including the training of students and faculty members. The administrator also acts as the liaison between the university and Chalk & Wire. Each academic department also has a subadministrator, whose duties are to 1) enter the department's Table of Contents, rubrics, and demographic survey questions; 2) run reports; 3) aggregate and disaggregate data; 4) analyze the performance data; 5) inform the department/school about the degree to which learning outcomes have been achieved; 6) conduct research; and 7) export raw or filtered data to Excel or SPSS for further analysis. In addition, there are ePortfoliologists, who service the Help Desk email and phone lines, assist with training and troubleshooting, maintain ePortfolio databases, and conduct ePortfolio Help Nights for students four times per semester. Selected faculty members and students are periodically paid to run training labs designed specifically for an academic department or for new students.

The Assessment Process

Each undergraduate student creates a minimum of two ePortfolios, one for General Education and one for the major. Each graduate student creates an ePortfolio specifically tailored to his or her graduate degree. The ePortfolio contains a personal library of artifacts (pre/post tests with differential scoring, essays, analytical lab reports, speech video clips, service learning reports, field tests, music files, etc.) generated from pre-determined course assignments focused on the attainment of a specific proficiency. Both curricular and co-curricular aspects of student life are assessed because academic subjects do not exist in a vacuum. The departmental lists of artifacts and rubrics (called "Tables of Contents") may be viewed at http://portal1.oru.edu:7777/pls/portal/dynmgr.doc_get.doc?p_id=209.

All students submit required artifacts to faculty members who then assess the work using the electronic-based rubrics that interface online with the artifacts. Assessment results are automatically entered into an assessment database. Thus, the ePortfolio acts as a tool that facilitates and documents the achievement of student learning outcomes. As students receive specific assessment feedback and advisement on areas where improvement is needed to achieve the outcome for each artifact submitted, they become aware that the development of the learning outcomes transcends individual courses within general education and the majors, and they can track their journey to a transformed life. The university is supplied with data and direct evidence of learning for each individual student and has the capability of aggregating and disaggregating the data for all students by cross-referencing it with demographic information and other selected parameters in order to make informed decisions for improvement of courses, programs, departments, and the university as a whole.

For example, students enrolled in the Principles of Chemistry general education lab course write a 250-300 word abstract for a Meat Analysis Lab exercise. They are asked to hypothesize and identify one of four types of meat as the healthiest and most cost-effective before they analyze the results of the lab experiment. The abstract is submitted to faculty via ePortfolio under the Intellectually Alert Outcome and Critical Thinking Proficiency, where it is assessed according to the Critical Thinking rubric criteria that include a clearly identified purpose and hypothesis, accurate and appropriate data, crucial and consistent assumptions, and valid inferences and conclusions supported by content. Individual students receive assessment feedback for each component from the faculty via their ePortfolio according to the following scale: Exemplary (4.0), Competent (3.0), Acceptable (2.0), Unacceptable (1.0), or Not Attempted (0). The faculty member also has the opportunity to add comments to the assessment to augment the quantitative data. A sample Meat Analysis Lab Abstract individual assessment can be viewed below.

Assignment: Meat Analysis Lab Abstract (CHE 101L/Principles of Chemistry Laboratory) (2A)

Criterion	Rating	Comments
Purpose or goal	3.0	
Hypothesis	3.0	
Evidence	2.0	You did not directly report the findings of the experimentation but only indirectly reported them, thus the lower rating.
Conceptual understanding	3.0	
Assumptions	3.0	
Inferences	3.0	I liked your conclusions statement about how the results of this lab don't affect you now but might in the future.

Analyzing Assessment Data

Assessment results for all of the students taking the course can then be aggregated. During the 2004-2005 academic year, 240 students took the Principles of Chemistry course. Aggregated assessment results are presented in the following chart.

Principles of Chemistry Results 2004-2005						
ePortfolio Performance Levels by Rubric						
Rubric	Exemplary	Competent	Acceptable	Unacceptable	Not Attempted	N
Meat Analysis Lab Abstract (CHE 101L/Principles of Chemistry Laboratory) (2A)	3%	62%	32%	3%	0%	240

These results can also be compared and contrasted with the other General Education assignments offered in the Chemistry department designed to assess Critical Thinking. The following chart summarizes these results for the 2004-2005 academic year.

General Education Chemistry Results 2004-2005						
ePortfolio Performance Levels by Rubric						
Rubric	Exemplary	Competent	Acceptable	Unacceptable	Not Attempted	N
Meat Analysis Lab Abstract (CHE 101L/Principles of Chemistry Laboratory) (2A)	3%	62%	32%	3%	0%	240
Dimensional Analysis Lab Problem Set (CHE 111L/General Chemistry I Laboratory) (2A)	4%	48%	38%	8%	3%	160

Kinetics Lab Abstract (CHE 112L/General Chemistry II Laboratory) (2A)	8%	47%	37%	7%	2%	104
Science News Report (CHE 101/Principles of Chemistry Lecture) (2C)	10%	38%	49%	1%	2%	235
	45	364	291	30	12	739
TOTAL	6%	49%	39%	4%	2%	100%
General Education Students Scoring Competent or Higher = 55%						

Results can also be compared and contrasted to the Critical Thinking assessment results for courses offered to Chemistry majors in the Chemistry departmental ePortfolio, as seen in the chart below.

Chemistry Department Results 2004-2005						
ePortfolio Performance Levels by Rubric						
Rubric	Exemplary	Competent	Acceptable	Unacceptable	Not Attempted	N
General Chemistry I Laboratory: Dimensional Analysis Lab	13%	56%	31%	0%	0%	16
General Chemistry II Laboratory: Kinetics Lab Abstract	8%	50%	25%	17%	0%	12
	3	15	8	2	0	28
TOTAL	11%	53%	29%	7%	0%	100%
Chemistry Students Scoring Competent or Higher = 72%						

An analysis of this data reveals that 72% of the freshmen Chemistry major students scored at the Competent or Exemplary levels on their required artifacts, but only 55% of General Education freshmen students performed at those levels on their required artifacts. Goals for optimal performance have not yet been formally set, but existing standards in some disciplines use the figure of 80% of the students performing at the Competent or Exemplary levels as a benchmark. Because the data has been collected from freshmen, it is understandable that a lesser percentage is performing up to the expected university standard. However, the data has opened up faculty discussions within the Chemistry Department regarding critical thinking, its definition, the most effective way to teach it in Chemistry, when it should be taught, and the most effective techniques for assessing the skill. The data has also promoted discussions between the Chemistry department and General Education faculty and administrators on methods of tracking improvements in student critical thinking over their education in order to bring them to a mastery level.

Availability of Data

Similar data is available for all rubrics and can be aggregated or disaggregated according to any number of parameters, including demographic information such as age, ethnicity, language proficiency, and student major. There is also the capability of generating a variety of reports to aid decision makers. (A great deal of ePortfolio data can be found in the Oral Roberts University 2005 Assessment Catalog—documentation of all assessment taking place at the university—at http://portal1.oru.edu:7777/pls/portal/dynmgr.doc_get.doc?p_id=198.) Because of the versatility and adaptability of the ePortfolio data and the ability to cross-reference with other institutional parameters, a problem has been how to determine which data is pertinent and necessary for making the numerous decisions that lead to course, program, departmental, and institutional improvements.

Reviews by Accreditors

ePortfolio data has been collected by the ORU School of Education since 2002. They have served as pioneers in the selection, implementation, and analysis phases for the university. NCATE has heralded the School of Education's section of the ePortfolio system as an example for all member institutions. The Oklahoma State Board of Education has done likewise. In 2003-2004, the School of Nursing and the Engineering Department initiated ePortfolio programs. The engineering programs (computer, electrical, and mechanical) were recently reaccredited by ABET with "no deficiencies, no weaknesses, and no concerns." During the Exit Report, the site visitors explained that a major strength of the engineering program is its ePortfolio-based assessment program, which is coupled with the feedback mechanism of the university-wide student learning outcomes assessment system.

Benefits of the University-wide ePortfolio System

Benefits of the ePortfolio and a comprehensive assessment system can be seen not only from data generation, or accreditation reports, but also through the inter- and intra-departmental faculty interaction that began during the planning phase and is continuing through the implementation phase. The process of intentionally examining learning outcomes; developing performance indicators; and examining the curriculum, pedagogy, and assessment (based on the AAC&U's Greater Expectations Project model) in an interdisciplinary and collegial context has raised the quality of both the professorial experience and the educational experience. The documentation of individual student growth in the learning outcomes that reflect the mission of the university through a data-driven, rubric-evaluated ePortfolio has produced an improved learning environment and a more cohesive education where students can reach their fullest potential. Students are beginning to value this type of assessment tool and the integration of knowledge and skills across disciplines that it promotes, which can only strengthen their ultimate educational experience and impact on society—and the quality of the institution.

References

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