

Assessment Grants

Application Form for 2008-2009

The name of the project: **Development of a Protocol to Assess Student Learning Outcomes in Certificate Programs**

Total dollar amount requested from Assessment Grant funds: **\$4,600**

If the department intends to provide matching funds, please include the total dollar amount of matching funds. The department will provide **\$1,000 in matching funds**

Primary contact: Dr. Gary Witt, Sky Harbor Campus, Phoenix, AZ
Gary.witt@erau.edu
602-275-5533

The goal(s) of the project:

1. Create a protocol to accurately determine needed skills, appropriate learning outcomes, and assessment measures for Certificate Programs that meet the needs of students seeking job advancement. Learning outcomes and assessments will be linked to demonstrated employer needs for particular knowledge and career ladder skill sets in the marketplace. Guidelines will be developed for devising valid outcomes and assessments for any Certificate Program.
2. Beta test this protocol for accuracy in determining and assessing learning outcomes. This beta test project will assess needed learning, establish learning objectives, develop appropriate curricula and classroom assessments, and later follow-up assessments of student and employer satisfaction with the students' ability to apply their learning in the workplace. The model protocol developed will be refined so it is applicable for the successful development and assessment of new certificate programs in any academic area.
3. Once the protocol is tested and validated, it can then be fully put to use in creating and testing new Certificate Programs that will attract new student enrollments.

Project abstract:

As the need of prospective and former students for additional competitive training increases, the need for ERAU to develop specialized Certificate Programs to meet this need will increase. Advancement in the workplace is often decided by the thinnest margins, including additional, specialized training. Employees need to advance up the ladder, or to change careers, both of which often require skills sets beyond the original classroom learning.

The need for a well-trained workforce that can perform more efficiently and effectively sends employees and employers searching for specifically designed, skill-based continuing education. Certificate programs help to fill the need for such training.

Specific learning outcomes and appropriate assessment methods are necessary for any curricula-based program. Matching student and employer career learning needs to curricular educational outcomes has also been a challenge, especially in designing shorter-term skill-improvement Certificate Programs. This project develops a protocol to (a) determine needed learning outcomes, (b) design

curricula to meet those workplace needs, (c) accurately assess the student outcomes, and (d) design a model process protocol for continuing modification of learning outcomes based on changing workplace needs.

Objective of the Project

The objective of the project is to create and test a protocol with which to develop rigorous Certificate Program learning outcomes and accurate assessments that address needed workplace skills.

Key questions to address:

- (1) Establish need: What is the best way to identify specific skill sets and knowledge required in any particular career ladder to meet the needs of employees seeking competitive advancement, and the requirements of employers?
- (2) Develop a protocol and 'beta' test a classroom curricula (learning objectives) and assessments: How can learning outcomes be designed to best reflect the specific knowledge and skill sets required? How can we accurately assess outcomes in the classroom?
- (3) Workplace relevance and continuous model/protocol improvement: How should skills and knowledge be assessed in the workplace to insure needed learning outcomes are being met and the training needs are being achieved? How do we use these assessment data for continuous improvement?

Participants:

Dr. Gary Witt, Director of Academics
Sky Harbor and Phoenix/Chandler Campuses
Phoenix, AZ
602-275-5533
Gary.witt@erau.edu

Dr. Wendy Wolfersteig, Adjunct Assoc. Professor
Sky Harbor, Luke and Phoenix/Chandler Campuses
Phoenix, Arizona
Phone: 480-227-9230
wendy.wolfersteig@erau.edu

4. Description of project:

1. Determine the knowledge and skill sets needed by employers via focus group interviews and surveys.

- 1a. Expert Advisory Panel Established. The first step is to establish an ad hoc group of aviation industry, military and government (aviation) representatives to serve as both advisors and conduits to their managers with supervisory responsibilities for a variety of departments. The targeted companies are Boeing, Honeywell, U.S. Airways, City of Phoenix Municipal Airport and FedEx. Luke AFB will also be invited to participate.
- 1b. Conduct Focus group. Invite several managers recommended by each advisory panel member to attend a focus group; these individuals (department managers, HR managers, squadron leaders, etc.) will have direct knowledge of the requirements for advancing in a variety of departments or squadrons at their company or base. These managers and officers will also be asked to provide their standard job evaluation forms. The groups will be co-facilitated by an ERAU faculty member employed by the company, as well as the Researchers.
- 1c. Survey current ERAU students regarding their perceived job skill needs. Current and former students in the ERAU Phoenix area Campuses will be asked to complete a short survey (paper or web) of their specific career advancement educational needs.

2. Develop a protocol for Certificate program development and implement a ‘beta’ program.

2a. Analysis of current Certificate Program learning outcomes and assessments.

Analyze learning outcomes and assessments of representative ERAU Certificate Programs. This analysis will suggest ways in which the protocol being developed can ensure a strong relationships between outcomes and assessments in future Certificate Programs.

2b. Formulate a preliminary protocol for developing Certificate Programs.

Using the results of research steps 1b, 1c and 2a above, develop a protocol to identify and link established workplace needs with specific program and course learning outcomes. These preliminary procedures will be reviewed by our advisors, focus groups participants, and ERAU students and faculty. Changes will be made based upon the comments, ensuring that the protocol will result in learning outcomes that address the precise workplace needs of employers and employees.

2c. Formulate strategies for creating valid assessments of each identified learning outcome in a Certificate Program and its courses.

Once the learning objectives are established, determine valid assessments for measuring classroom learning. Overall assessment types will be recommended as part of the protocol. Advisors and faculty will review these assessments as well.

2d. Develop a beta-test of a (mini) Certificate Program.

The strategies, learning outcomes and assessments developed in the previous steps will provide the basis for formulating a selected (mini) Certificate Program and its courses. Our advisors and students will review this work and make recommended change.

2e. Classroom Testing of Learning Outcomes and Assessments in beta (mini) Certificate Program.

A subset of identified learning outcomes in each course in the (mini) Certificate Program will be selected. An experienced instructor, along with the researchers, will devise a set of instructional methods and readings designed to teach the subsets of learning outcomes. Volunteer student subjects will attend the mini classroom sessions during a four week timeframe (approximately 12 hours). Students will complete the assigned lessons. The instructor will assess the level of mastery of each learning outcome using the designed assessment tools.

3. Assess the outcomes of the program in meeting the workplace needs of employees and employers with opportunities for continuous improvement.

3a. Field Testing of Assessments of Learning Outcomes in beta (mini) Certificate Program.

Managers in participating companies, who may also be ERAU instructors, will evaluate students’ performance in actual workplace settings using company job evaluation forms (see Assessment plan).

3b. Protocol Guidelines evaluated and modified. Researchers and other instructors will evaluate the difference between the classroom and field testing results, and make recommendations on changes in the procedures or research methodology used in the testing phase. Protocol will be changed as necessary, and a set of Guidelines will be developed to assist those developing new Certificate Programs.

3c. Final Report: Researchers will draft a written report and present their findings, final protocol and recommendations to ERAU administrators and Chairs.

3d. Continued testing, evaluation, and modifications of strategy for quality improvement. As new Certificate Programs are developed using this protocol and Guidelines, periodic sampling will be done of the assessment results, and contact with employers will be made to determine students’ ability to apply mastered learning outcomes in the field. Modifications to the strategy and Guidelines will be made as results warrant.

5. Timeline:

1. Determine the knowledge and skill sets needed by employers via focus group interviews and surveys.
 - Expert Advisory Panel Established, Conduct Focus Groups, Survey current ERAU students, Analyze Current Certificate Programs: July to Sept 2008;
 - Analyze data and write report: October 2008
2. Develop a protocol for Certificate program development and implement a 'beta' program
 - Formulate preliminary development strategy protocol and program assessments: Nov-Dec 2008;
 - Development of a beta-test (mini) Certificate Program: January-February 2009
 - Classroom Testing of Learning Outcomes and Assessments in beta (mini) Certificate Program: February-March 2009
3. Assess the outcomes of the program in meeting the workplace needs of employees and employers with opportunities for continuous improvement.
 - Assessment of student learning by on-the-job evaluations: April-May 2009
 - Preparation and presentation of final report: June 2009

6. Assessment plan:

1. Determine the knowledge and skill sets needed by employers via focus group interviews and surveys.
 - Analysis of data from Focus Group Interviews, student surveys, skills indicated on employer annual evaluation forms. Focus groups will be conducted by a trained faculty member who is an employee/colleague of those being interviewed; a researcher will take the notes. Both researchers will develop the interview questions and the student survey questions, and both will see to the web and/or paper administration of student surveys. Wolfersteig will compile and analyze the data and prepare a summary report that indicates the knowledge and skills most needed by employers and employees. The faculty co-facilitators and some advisors will be asked for input on the draft report.
2. Develop a protocol for Certificate program development and implement a 'beta' program.
Several of the major activities described earlier are also assessment activities. Specifically, step 2a, the Analysis of current Certificate Program learning outcomes and assessments is an assessment. The next three activities develop the protocol.
 - Ability to develop the protocol and implement the beta test.
Step 2e, Classroom Testing of Learning Outcomes and Assessments in beta (mini) Certificate Program, is assessment by implementation – what works and what does not work when the design is tested. The classroom instructor will be given a fidelity instrument designed by the researchers and faculty input to track implementation. Students will also receive pre and post test assessments of their learning. Researchers will observe and survey students as well.
3. Assess the outcomes of the program in meeting the workplace needs of employees and employers with opportunities for continuous improvement.
 - Managers of the beta students will be asked to complete company employee evaluations. Using researcher-designed assessment instruments (paper or web) based on the needs assessment and learning objectives, managers will also rate the on-the-job performance of

employees on the learning objectives. Students will be asked to rate their performance on the job. Witt will be responsible for data collection.

- Comparison of the results between Classroom and Field Testing; modifications made. The analysis of the data from the various sources will be conducted by Wolfersteig and others. Researchers will modify protocol and Guidelines accordingly. Final report and presentation developed and written by both researchers.
- Periodic testing, evaluation, and modifications of protocol for continued improvement.