Washington Center for Information Technology

ASSESSING ASSIGNMENT EFFECTIVENESS

Case Study B: Comptia A+ Certification for Hardware and Software

Job Corps Center serving students aged 16- 20.

Instructor: Barbara Vaughan

Summary:

Curriculum strategies

BEFORE

skill standards-based curriculum development

- Used one textbook and software
- Used hands-on to teach technical skills using multiple computers
- Had students study sample test taking software
- Searched for internet resources to enhance technical knowledge
- Polled Test Administrators and Support Technicians for study ideas

Curriculum strategies

AFTER

skill standards-based curriculum development

- Expanded internet research and added periodicals and user friendly textbooks
- Added additional group assignments for computer maintenance
- Added work-based leaning assignments
- Crosswalked the Computer + curriculum against the NWCET IT Skill Standards
- Discovered that there are observable employability skills for Support Technicians
- Evaluated technical and employability skills in light of market research
- Added written and verbal components to study procedures
- Assigned students record keeping duties, including a form to keep track of information
- Assigned students self-evaluation rubrics
- Circulated skill standard information to the work-based learning supervisor

Future plans for curriculum strategies

- Preparing to make and expended list of employability skills
- Developing a job shadow experience for students with a local technical employer
- Develop an employer feedback procedure

(Narrative continues on next page……)

Narrative:

Knowledge and understanding of the IT skill standards helped Barbara identify areas within her Technical Support training program which needed strengthening. Reviewing the skill standards with the student was an important component in enabling the student to build his career toolkit, highlight strengths and identify weaknesses.

Hands-on trouble-shooting exercises using donated equipment gave students experience in applying skills. Barbara developed rubrics with clear objectives that identify levels of competency and provide consistent assessment that enable students to assess their own progress through the exercise. Barbara used PowerPoint presentations, Internet research, and several text books to present data from different points of view. Technical and employability skills from the IT skill standards and the Comptia Core Program were stressed, and repetition and practice were benchmarks of success. A 90% average was required on multiple-choice tests related to technical skills.

Meeting with students individually gave Barbara the opportunity to monitor and adjust assignments relative to the IT skill standards and make employability and technical skills meaningful in multiple contexts. Ongoing student feedback was an important element in gauging assignment effectiveness and achieving desired outcomes. Skills that required more understanding were re-taught from a different perspective. Students were asked to explain the activities and outcomes they experienced. This verbal presentation revealed gaps in understanding, knowledge and learning styles that could then be addressed in subsequent activities.

During market analysis exercises with Boeing, ESD#189 and Cascades Job Corps Center Network Support for the WCIT project, Barbara learned that employers were eager to participate and offer feed back on curriculum. Data from this research strongly suggested that employability skills, such as the ability to build good working relationships, communicate effectively and demonstrate strong customer service skills, were highly valued by employers and should be taught and practiced in conjunction with technical skills. Her market research activities also revealed that, although her program was targeting basic skills essential for successful employment for her students, interacting with industry using the IT skill standards as a common language allowed for individualization of curriculum to meet market needs.

Further, information gathered from work-based learning supervisors helped assess student classroom learning and the ability to transfer lessons to the job site. This valuable input from industry enabled Barbara to enhance curriculum and set learning objectives related to the real world.

When student performance fell below expectations, the assignment structure was analyzed in light of the skills standards data collected during market analysis. Rubrics and assessment procedures based on the skill standards simplified the process of pinpointing where student learning fell short of the mark. Instructor-student interaction before, during and after the rubric was presented allowed for greater student understanding of goals and expectations for success. Continued monitoring of the training process holding the skills standards up as the benchmarks for employability and technical knowledge allowed for adjustments in assignments and goals. Self-assessment was an important part of the learning process. Other-assessment allowed the student to become aware of his personal blind spots. Positive objective feedback ensured that the student met personal and skill standard expectations.

Barbara constructed her assignments to encourage the student to use higher level thinking skills and thus come closer to replicating a real work environment. Constructing a PC from the ground up developed an understanding of the basic concepts behind the operation of a system. Hands-on practice and work in teams expanded opportunities to use higher level thinking skills. Querying internet databases and technical websites provided a broader view of what is expected in the workplace. Work-based learning effectively reinforced classroom instruction.

Barbara built on the composition of her classes, and with team activities was able to leverage the strength of each student to enhance the learning of the entire group.

Since Barbara's course is geared toward a specific certification preparation, up to date technology information is crucial. Textbooks proved to be somewhat out of date, so the next step was to research resources on the

internet. After researching the internet, it was discovered that much of what was available online was not as up to date as anticipated. Subscribing to technical journals and newsgroups on the web proved to be the most productive resource for leading edge technology information. Adding this data to the already existing curriculum made success more accessible.

Through student feedback, Barbara discovered that the textbook she was using was not enhancing student learning – students actually found it to be overwhelming. More research and discussions with colleagues led her to more user-friendly textbooks.

In addition to good internet research and effective textbook materials, Barbara found that her students needed exposure to a variety of test taking strategies and higher level thinking if they were to succeed on the Comptia A+ Certification test. More internet research netted software and resources designed to help with information memorization and gave students the opportunity to experiment with a variety of problem-solving test questions. A website that enabled students to practice the multiple-choice types of questions commonly found on certification tests was an invaluable opportunity for students to practice and hone their test taking skills.

Originally, students had problems getting scores high enough to pass both parts of the Comptia A+ Certification test when taken together. Frequently, students missed the mark by only one or two points. It became evident that they needed to take the test in small bites. Study and test taking was divided into two parts. Because technical skills seemed easier for some students, Barbara first focused her program on hardware knowledge. After students took and passed the hardware test, the curriculum switched focused to operating systems and network software information. Success built upon success and students were then able to pass the both tests with well above average scores and achieve certification – the ultimate goal of the course!

There were still some missing pieces to the puzzle. Did training really allow students to learn technical and employability skills they could apply in the real world? To test the adequacy of training, a work-based learning component was added to the curriculum. Students practiced the skills and terminology they acquired through class study with industry technical professionals. Finally, Barbara provided a copy of the Skill Standards to work-based mentors as a guide for the training experience.

Barbara found that measuring industry data objectively via market research has provided her with tools to enhance her curriculum in a meaningful way and ensure the market-ready validity of her students. Ongoing assignment and curriculum effectiveness assessment enables her to provide her students with meaningful and skills-enriching activities. For future strategies for her program, Barbara will continue to focus on technical language, hands-on experience, communication skills, teamwork, and self-evaluation of employability skills.