Introduction

The Missouri Department of Elementary and Secondary Education requires that completers of career programs take a Technical Skills Assessment, wherever such an assessment is available and appropriate. The assessment should be industry-recognized. Many, but not all, of the MCC career programs have a TSA. Beginning with the 2011-12 school year, all programs are also expected to assess at least one program outcome, report the results, and identify any needed interventions or follow-up actions.

The information summarized here was collected as part of the program review process and refers to assessment activities conducted during the 2012-13 school year.

Apparel and Textiles

APTX is evaluated through the APTX 275 Portfolio class. In this class, a panel of judges who work in various facets of the industry interview graduating students and evaluate their portfolios. The rubric and procedure has been approved by DESE as a TSA. All seven program completers passed this spring. There are no planned changes based on these results.

Automotive

Automotive TSA results (NA3SA exams) are in the 81% percentile nationwide with a 100% pass rate. The program faculty are reviewing the task areas of the TSA to determine possible improvements in the automotive curriculum. The curriculum has undergone a major revision effective Fall 2013, and the TSA will be imbedded into the AUTO280, which will serve as the capstone course.

In addition, the AUTO program assessed the following program outcome: Students will demonstrate the knowledge of thorough application of safety rules and regulations. The written exam used to assess this outcome is an online product through CCAR called SP2 (Safety and Pollution Prevention). One hundred and thirty five students took the assessment during Fall 2011 or Spring 2012 with a 100% pass rate.

As an action step, all safety items were embedded into AUTO 100. It is now mandatory that all students pass the safety quiz before performing any tasks in the automotive laboratory.

Child Growth and Development

Students exiting the program are required to take the NOCTI (National Occupation Competency Testing Institute) test for Early Childhood Education and Care. The results for spring 2012 students were slightly lower than the national average.

In response, faculty immediately began implementing changes within the classrooms by focusing even more on student reflection, guided group work encouraging higher level thinking, and strengthening the internship placements by making sure the students have opportunities with at least two age groups. Interning with those two age groups will strengthen knowledge and application of needed higher level teaching concepts, as well as developmental domains.
As a result, the spring 2013 class showed higher overall results (now five percentage points above the national average). All areas were above the national average except creativity, which was slightly below the national average. Progress is being made.

In addition, CDCG uses a major project to assess multiple outcomes at once as part of the CDCG 260 course offered every fall. The following insights were gained from the Fall 2012 results.

- The key assessment is very detailed and requires a lot of focused work, so students tend to put off writing the report until right before the assignment is due.
- Several of the students struggled with multi-step directions.
- It was also noted that advocacy is still an issue for students as they seem to struggle with their role as it relates to children and families.
- In identifying reputable resources and web sites for families, the students did well in utilizing technology.
- The reflective section of the paper showed that students were able to make important connections between their research, observations, and their learning.

In response to this analysis, the assignment will be broken into two parts. Students will be required to begin the project sooner. They will be required to turn in three sections mid-semester. Those sections would be the “Resource Information”, “Disability Information”, and “Advocacy”. This will not only assist the students in starting the project in a timely manner, but it will also address the Advocacy section. More information will be given to guide the students in completing the Advocacy section in a more detailed manner. These sections will be graded and feedback will be given so the student will have this information as they complete the rest of their paper. The points from the first section will apply to the second section. Should a student have additional information to add as it relates to the advocacy or disability section, they can submit that with the final information.

One of the concerns that were identified as a result of analyzing this assessment, as well as observing student work in the classroom, was that many of our students have difficulty with multi-step directions unless they are separated out or numbered. Since this is an internet course, that is another change that can be made to the directions. Although the document will be longer, each section can be separated out.

Finally, this was yet another reminder that students need abundant opportunities throughout the program to learn about and apply assessment, advocacy, and knowledge of special needs. They also need ample opportunity to reflect upon and make strong connections between prior knowledge/experience and new learning. They need to thoroughly comprehend the “Why” as to the existence and content of each course that is taught. Then they can be busy about learning “How” to apply each component in their work with children and families!
**Computer Science - Cisco**

The Cisco Exam serves as the TSA, and is required for all students taking CSIS 290 as their capstone class. CSIS 290 is being revamped to include 8 required practice assessments as part of their grade. Students will be able to take the practice assessments over and over again thus replacing any low scores in the grade book. The ability to replace the low scores should provide additional incentive to continue practicing as they prepare to the TSA.

Also, based on the TSA results for Fall 2012, as of January 2013 the program is requiring students in the CCNA4 class to take all practice certification exams, practice skills based assessments for CCNA1, CCNA2, CCNA3 and CCNA4 as well as all practice theory based finals. Faculty will assess whether this helps to improve the pass rate with the Fall 2013 CSIS 290 class. A purchase of assessment practice software is also planned for Fall 2013.

For 2012-13, the program outcome assessed was: *Use industry specific software and/or apply troubleshooting skills to solve problems*. Specifically, the following performance indicators were measured using the CSIS 213 “Accessing the WAN” practical final:

- *Uses internetworking operating system software for router and switch configuration to control the flow of information through a network.*
- *Troubleshoots and repairs problems with information flow through a network.*

In spring 2013, 91% of the students adequately achieved the skills measured in the program outcome. It was decided that no actions are necessary at this time, but the faculty will continue to monitor the results of this program outcome; and take any necessary future actions for improvement.

**Computer Science and Information Systems**

The CIW certifications were used in the Web Technologies program as a TSA for the first time during fall 2012. Two students took the certification exams. Curriculum and teaching strategies have not been modified based on the results due to the small number of students being assessed.

The program outcome assessed was: *Demonstrate professional oral and written communication skills*. The following indicators were used:

- *Generates documentation organized in accordance with MLA/APA (or other) guidelines.*
- *Creates business communications documents (letters, memos, etc.) that are readily understood by others (clearly organized with correct grammar and spelling).*

No action is planned due to positive overall results.
Dental Assisting

The national board exam serves as the TSA, and it has three parts: radiology, infection control, and chairside assisting. After the 2011 results, the program instituted mock board exams and added some resources to the HRC. Of the 2012 graduates, all 16 passed all three parts (one passed infection control on a retake), which is a significant improvement over 2011 results.

The program assessed the outcome: *Carry out the role and function of a dental assistant*. This was assessed using the Clinical II course evaluation results. The pass rate was 100%.

Emergency/Paramedic

The national registry exam serves as the TSA for this program. It is anticipated that a practical skills section will be added to the exam for 2016. The program is adding practical skills lab courses to help with student preparation.

The program outcome being assessed is: *Demonstrate the ability to competently deliver pre-hospital emergency medical care*. The assessment is done through successful completion of clinical fieldwork. The program has also begun doing test item analysis, and plans to try to address any deficiencies discovered.

Engineering Technology

This program has no TSA available. The ADDA exam is a possibility for CADD but involves considerable expense to become an ADDA testing center.

The program outcome assessed is: *Produce a completely dimensioned and annotated orthographic construction document from a three-dimensional representation of an object*. This document should be produced to a standard scale and to an established set of CADD and drafting standards using an industry standard CADD software package. The results were good and no changes are planned this year based on the results.

Environmental Health and Safety

The OHST will be offered for the first time in Spring 2014 as a TSA. Questions from databases used to prepare for the exam have been embedded in all the courses. After review of the exam questions, curriculum was changed to address areas that were not being covered.

The program outcome assessed was: *Demonstrate an understanding of OSHA regulations as used in industry*. Every student who turned in the assignment used as the assessment passed.
**Graphic Design**

A portfolio assessment scored by local industry representatives serves as the TSA. Results have been shared with the faculty who teach the upper level Graphic Design courses and they have discussed the key points to focus on to help prepare students. As the program just went through an overhaul last year, no further curriculum changes are planned at this time.

The program outcome assessed was: **Demonstrate the ability to learn and apply required software and technical tools according to industry standards.**

**Health Information Technology**

The RHIT exam serves as the TSA for this program. Several years ago the program implemented strategies to encourage students to take the TSA, and worked with them on strategies on how to study for it. In the final PPEIII lab, students are required to complete an exercise to identify areas of weakness. Assigned reviews and student presentations are focused on these areas. The students are also required to compile a notebook, which includes a timeline indicating a plan for studying for the exam and a target date for taking the exam. Since implementing this, exam scores have improved and more students are taking it in a timely manner. Since 2011, the program has had a 100% pass rate.

The program outcome assessed was: **Demonstrate and apply knowledge and Principles of Healthcare Technology and Information Systems.** The TSA results were used as a check on this outcome.

**Heating and Air-conditioning**

The program is planning to begin using ICE exams as the TSA in spring 2014. They have switched texts and begun using online support materials in preparation. The program outcome assessed was: **Analyze and interpret wiring schematics.** The results were excellent and no further changes are planned for this year.

**Industrial Technology**

The program has no available TSA. The program outcome assessed was: **Demonstrate ability to install electrical components using schematics and prints.** Student results were outstanding and no changes are currently planned.

**Land Surveying**

The program outcome assessed was: **Students will apply technical skills and critical thinking skills to solve surveying related problems.** It was assessed through the indicator: **Demonstrate the ability to perform both basic and advanced surveying calculations** on written exams in SRVY 235. The score was an average between mid-term and final exam. Revisions to the term project were completed in the summer of 2012 based on WAC training. The revisions were designed to improve delivery and clarify expectations of written assignment.
Lineman

This program has no TSA available. The outcome assessed was: the program will graduate individuals who exhibit certified competence in electrical safety.

The hurt man rescue assessment uses a checklist to verify competencies. The program is planning to increase field assessments.

Occupational Therapy Assistant

The program TSA is the national board exam from NBCOT. The class of 2012 had a 100% pass rate, and the three year average is 98% for first time test takers. Current course content, schedule, clinical assignments and instructional methodology appear to be successfully supporting student success.

The program outcome assessed was: Integrate and articulate knowledge of basic tenets of OT. This is assessed in OTHA 222, Level II Fieldwork. In the Spring 2012 class, all students successfully passed.

Paralegal

There is no standard national test available as a TSA for the program. The capstone Internship class is the primary assessment tool. The program outcome assessed was: Perform in a professional and ethical manner as a working paralegal and a productive member of the legal team. The outcomes were good, and no major changes required.

Physical Therapy Assistant

The program uses the national boards from NPTE as a TSA. Results have historically been excellent (nearly always 100% first-time pass rate). They have continued earlier implemented changes including requiring students to enroll in an online score builder course during clinical rotations, requiring students maintain a portfolio of old quizzes and exams for study purposes, and a comprehensive internal end-of-program exam required for all.

The program outcome assessed is: Communicates effectively. They began to monitor this based on concerns from clinical instructors and patients. They use an instrument called the CPI to track this during clinical rotations.

Practical Nursing

The NCLEX national exam is used as the TSA. The program improved student performance by increasing live clinical simulation along with the utilization of more ATI practice examinations. A curriculum alignment with ATI has also been completed. Evaluation of the nursing process was assessed through the use of the ATI Comprehensive Predictor, which also predicts the probability of passing the NCLEX exam. NCLEX test review has also been initiated due to the evaluation tool. Skills learned in the first semester will now be incorporated throughout the entire program, and products currently in use will be rearranged in a format that better evaluates the student’s knowledge after integration of more content.
**Radiological Technology**

The program uses the national registry exam from ARRT as its TSA. No changes have been made recently, as pass rate has stayed consistently above 90%. The program outcome assessed was: *Students will think critically and apply problem solving skills*. The specific performance indicator was: *Students will evaluate radiographs for technical quality*. Both a written assessment and an image evaluation were used, and 100% of students passed.

**Registered Nursing**

The RN/ADN program had previously implemented several strategies to improve student learning.

- **Tegrity** has been employed for several years as a lecture capture system for the benefit of auditory learners. It allows students to listen to the lecture multiple times. Anecdotal evidence collected by the faculty suggests that this does indeed assist students and increase test scores, particularly for ESL students.
- In the senior semester, students attend an information session with Kaplan Test prep, and many sign up to take the Kaplan NCLEX review course. The effect of this has not been examined.
- **Student course fees** also cover the Virtual ATI (VATI) online preparatory plan of study for the NCLEX exam. If the student follows the plan of study prescribed by the online coach, the company guarantees a 98% success rate on NCLEX.
- **The program also administers ATI exams** at the end of each course to measure competency level. At the recommendation of ATI and the State Nursing Board, the program raised the passing standard on these exams from level one to level two. This caused five students to fail a course, and two of these were dropped from the program because it was their second failure. This change is expected to have an impact on licensure pass rates, especially once we start having program graduates who had the higher standard in effect the whole time.

For the 2012 calendar year, the graduates exceeded both the state and national average pass rate on the NCLEX licensure exam.

**Surgical Technology**

The national certification exam (CST) is used as a program TSA. Some steps being taken to boost scores are: the program is making a remediation/intervention course available multiple times through the year. Students are strongly recommended to join AST and utilize practice exams available through membership. The program is also recognizing and rewarding students who pass the exam. They also coach students on test-taking strategies, incorporate questions from old national exams in to chapter quizzes and tests, require the student to purchase the Surgical Technologist Certifying Exam Study Guide as a textbook, use intervention strategies to identify students who need extra help, and use the CST Exam Flashcard Study System.
Veterinary Technology

The program uses the national exam as its TSA but does not have access to scores by student. The curriculum was recently updated in 5 courses to reflect current industry standards.

The program outcome assessed was: Obtain national certification and was based on NTVE results. Based on the results, the program is now less likely to allow students re-entry into the program if they fail out during the program. They also encourage students to complete general education courses during the program to allow them to take the national examination without delay.

Welding

The AWS SENSE Modular exams are used as the TSA. The welding textbook was changed to a publisher that also has on-line tutorial material to assist with student understanding of the material.

The program outcome assessed was: The program will graduate individuals that meet or exceed the American Welding Society’s guidelines for entry-level employees in welding technology. It was assessed using the indicator: Demonstrate ability to apply welding, cutting, and print reading skills to layout and fabrication. The results were excellent, but the instructor is writing a rubric that will assist students in focusing on the key points of the assessment. These points are outlined on the prints the students use in the fabrication of the parts but a rubric will reinforce the importance of them.