Central Washington University
Assessment of Student Learning
Department and Program Report Example

Please enter the appropriate information concerning your student learning assessment activities for this year.

Academic Year of Report: *2010-2011*
College or Support Area: *College of Education & Professional Studies*
Department or Program: *Technology Education, IET*

Check here if your assessment report covers all undergraduate degree programs: [*X*]
Check here if your assessment report covers all graduate degree programs: [   ]

1. What student learning outcomes were assessed this year, and why?
In answering this question, please identify the specific student learning outcomes you assessed this year, reasons for assessing these outcomes, with the outcomes written in clear, measurable terms, and note how the outcomes are linked to department, college and university mission and goals.

Our program assessed six outcomes this year. They included:

1. Students will demonstrate effective oral and written communication skills. This goal is related to CWU Goal 1. The goal is also related to the CEPS goal 1: to provide for an outstanding academic and professional growth experience for students at all CWU locations. It also relates to the IET department goal 5: to continuously improve the cultural educational environment. This goal was chosen because we wanted to improve both the oral and written communication skills of our students.

2. Students will be able to demonstrate effective planning, preparation, and delivery of technology education lessons and plans. This goal is related to CWU goal 1: Maintain and strengthen an outstanding academic and student life… The goal is also related to the CEPS goal 1: to provide for an outstanding academic and professional growth experience for students at all CWU locations. It also relates to IET department goal 1: To nurture programs in technology related disciplines…This goal was chosen because we wanted to be sure our students are able to apply knowledge and concepts learned in the professional education program.

3. Students will acquire knowledge of the components of the design world, with competence in at least one area. This goal is related to CWU goal III: …strengthen infrastructure to support academic and student programs. The goal also relates to CEPS goals 1: provide for an outstanding academic and professional growth experience for students, and goal 5: provide professional, high-quality staffing, facilities, technologies, and appropriate resources to ensure the highest levels of academic development. The goal also relates to the IET department goal 1: to nurture programs in technology, and engineering technology related disciplines. This goal was chosen because we wanted to evaluate the program to see which areas of the design world were being adequately addressed and which areas might need to be improved.

4. Students will demonstrate, practice, and use safety and safety principles as used currently in industry and public schools. This goal is related to CWU goal IV: build mutually beneficial partnerships with the public sector, industry, professional groups, institutions, and the communities surrounding our campuses. It also relates to CEPS goal 4: build mutually beneficial

partnerships with alumni, industry, professional groups, institutions, and the communities surrounding our campus locations. The goal is related to three IET department goals: 1. (goal 1) to nurture programs in technology, and engineering technology related disciplines..., 2. (goal 4.2) maintain and improve lab equipment and lab experiences consistent with current industry practices, and 3. (goal 4.3) maintain and upgrade educational delivery tools. We chose this goal to be sure our students acquired the skills necessary to have safe, productive careers, and had the skills necessary to maintain safe facilities when they become teachers.

5. Students will demonstrate familiarity with the concepts, theoretical perspectives, and historic trends in vocational education/Career & Technology Ed. (CTE). This goal is related to CWU goal VI: build inclusive and diverse campus communities that promote intellectual inquiry and encourage civility, mutual respect, and cooperation. The goal also relates to CEPS goal 2: prepare students to participate in an increasingly diverse economy and environment. It also relates to IET department goal 1: to nurture programs in technology, and engineering related fields. This goal was chosen to see if program changes needed to be made so students could be successful in passing the WEST E exam for technology education.

6. Students will be committed to ongoing personal and professional development via participation in club activities and professional memberships. This goal is related to CWU goal IV: Build mutually beneficial partnerships with the public sector, industry, professional groups, institutions, and the communities surrounding campus. The goal also relates to CEPS goal 4: build mutually beneficial partnerships with alumni, industry, professional groups, institutions, and the communities surrounding our campus locations. It is also related to IET department goals 1: student will demonstrate the knowledge, skills, and attitudes to be successful in their field, and 5: faculty and students will be provided opportunities for teaching, professional development, scholarship, and other leadership opportunities. This goal was chosen, because CTE teachers must be proficient in three areas: 1. classroom teaching, 2. laboratory, and 3. leadership, and we wanted to be sure our students were acquiring proper leadership skills and opportunities to develop professional growth beyond academic classes.

2. How were they assessed?
In answering these questions, please concisely describe the specific methods used in assessing student learning. Please also specify the population assessed, when the assessment took place, and the standard of mastery (criterion) against which you will compare your assessment results. If appropriate, please list survey or questionnaire response rate from total population.

A) What methods were used?
B) Who was assessed?
C) When was it assessed?

1. The program goal "students will demonstrate effective oral and written communication skills" was evaluated through a written reflection in IET 433. In this course, students submit examples of their oral and written work compiled from courses in their major and submit them via LiveText. Then, they provide a reflection on their work submitted. The rubric contains three categories (target, acceptable, unacceptable). The tech. ed. program had four seniors who completed the portfolio and reflections during winter quarter 2011. Data from the writing portion of the WEST B exam was also examined for all candidates.

2. The goal that "students will be able to demonstrate effective planning, preparation, and delivery of technology education lessons and plans" will be evaluated by an approved technology education lesson developed and taught by students enrolled in IET 430 – Methods of Teaching

Technology Education to a local middle school or high school technology education class. Six tech. ed. students were assessed during fall of 2010. Students were evaluated on completeness of the lesson plan including relating the plan to the "Standards for Technological Literacy" (National Standards), creation and utilization of a teaching aid, as well as delivery and management of the lesson.

3. The goal that "students will acquire knowledge of the components of the design world, with competence in at least one area" is a state competency (Technology Education Common Core: Design World Context 10.0) that will be evaluated based on the state standard for technology education. This outcome was assessed during review of the exit portfolio in 433 during the student's senior year.

4. The goal that "Students will demonstrate, practice, and use safety and safety principles as used currently in industry and public schools" will be evaluated by safety exams in lab courses IET 160 and MET 255. Instructors in these courses will observe student's safety behavior and will make recommendations to program coordinator if problems arise.

5. The goal that "Students will demonstrate familiarity with the concepts, theoretical perspectives, and historic trends in vocational education/Career & Technology Ed. (CTE) will be evaluated by student performance on the WEST E exam (end of program endorsement exam). Seniors will take this exam prior to student teaching.

6. The goal that "Students will be committed to ongoing personal and professional development via participation in club activities and professional memberships" will be evaluated by a professional development survey taken in IET 430 and a Yes/No check off system on whether students are involved with university student clubs, state and/or national organizations, and professional growth opportunities beyond academic classes.

3. What was learned?
In answering this question, please report results in specific qualitative or quantitative terms, with the results linked to the outcomes you assessed, and compared to the standard of mastery (criterion) you noted above. Please also include a concise interpretation or analysis of the results.

1. Students will demonstrate effective oral and written communication skills:

CTL WEST B Data Summary 2005 to 2011

WEST-B Exams Administered 07/01/06-06/30/11	Family & Consumer Sciences		Technology Education		Business & Marketing Education	
Reading						
Exams Administered	52	86.5%	25	92.0%	7	100.0%
Students Taking Exam	46	97.8%	23	100.0%	7	100.0%
Passed 1st Attempt	39	75.0%	21	84.0%	7	100.0%
Passed 2nd Attempt	6	11.5%	2	8.0%		0.0%
Passed 3rd Attempt		0.0%		0.0%		0.0%
Passed >3 Attempts		0.0%		0.0%		0.0%
Incomplete	1	1.9%		0.0%		0.0%
Additional Attempts	6	11.5%	2	8.0%		0.0%
	52	100.0%	25	100.0%	7	100.0%
Mathematics						
Exams Administered	54	83.3%	25	92.0%	7	100.0%
Students Taking Exam	52	86.5%	23	100.0%	7	100.0%
Passed 1st Attempt	40	74.1%	21	84.0%	7	100.0%
Passed 2nd Attempt	3	5.6%	2	8.0%		0.0%
Passed 3rd Attempt	1	1.9%		0.0%		0.0%
Passed >3 Attempts	1	1.9%		0.0%		0.0%
Incomplete	7	13.0%		0.0%		0.0%
Additional Attempts	2	3.7%	2	8.0%		0.0%
	54	100.0%	25	100.0%	7	100.0%
Writing						
Exams Administered	62	72.6%	25	76.0%	9	77.8%
Students Taking Exam	53	84.9%	21	90.5%	8	87.5%
Passed 1st Attempt	35	56.5%	16	64.0%	5	55.6%
Passed 2nd Attempt	7	11.3%	2	8.0%	2	22.2%
Passed 3rd Attempt	2	3.2%		0.0%		0.0%
Passed >3 Attempts	1	1.6%	1	4.0%		0.0%
Incomplete	8	12.9%	2	8.0%	1	11.1%
Additional Attempts	9	14.5%	4	16.0%	1	11.1%
	62	100.0%	25	100.0%	9	100.0%

While the chart shows the results of the writing portion of the WEST B over a 5 year period for all students in career and technical education programs at CWU, the highlighted red section shows how students enrolled in the technology education program performed specifically. About 36% of the students who take the exam do not pass the written portion on the first attempt. Tech. Ed. students have a higher pass rate than other areas of CTE, but improvement can and should still be made.

2. Students will be able to demonstrate effective planning, preparation, and delivery of technology education lessons and plans:

Students in the Technology Education program, complete a series of courses in the department of education that helps prepare them for teaching. In IET 430 students are given additional content and prepare and teach a lesson related to a technology concept to a local middle or high school class. During this report period, six students were enrolled in IET 430 with this requirement. Prior to teaching a lesson, students must do a visitation to a technology education classroom and prepare a written and oral report. They then must write a lesson plan, create a teaching aid, and prepare a lesson. An evaluation is provided by the public school teacher and the university instructor. Five students met the criteria established. One student was unable to complete the lesson and was given an incomplete. He was provided additional information, and an opportunity to reteach the lesson. He managed to meet the established criteria on the second attempt. The program would like to increase the exposure to "real" classrooms in the future.

3. Students will acquire knowledge of the components of the design world, with competence in at least one area:

	Target (3 pts)	Acceptable (2 pts)	Unacceptable (1 pts)	Mean	Mode	Stdev
Medical Technologies Artifact	0	11	1	1.92	2	0.28
Agriculture Technologies Artifact	0	11	1	1.92	2	0.28
Biotechnologies Artifact	2	9	1	2.08	2	0.49
Energy & Power Technologies Artifact	4	7	1	2.25	2	0.60
Information & Communication Technologies Artifact	3	7	2	2.08	2	0.64
Transportation Technologies Artifact	0	10	2	1.83	2	0.37
Manufacturing Technologies Artifact	8	3	1	2.58	3	0.64
Construction Technologies Artifact	5	5	2	2.25	2	0.72
Materials Science Technologies Artifact	6	6	0	2.50	2	0.50
Design World Context Reflection	7	4	1	2.50	3	0.65

Medical Technologies Artifact
CWU-CTL-1.1, CWU-CTL-1.2, WA-COMP-TECH.6, WA-COMP-TECH.7, WA-COMP-TECH.9

11 (91%)   1 (8%)

Agriculture Technologies Artifact
CWU-CTL-1.1, CWU-CTL-1.2, WA-COMP-TECH.6, WA-COMP-TECH.7, WA-COMP-TECH.9

11 (91%)   1 (8%)

Biotechnologies Artifact

2 (16%)   9 (75%)   1 (8%)

Energy & Power Technologies Artifact
CWU-CTL-1.1, CWU-CTL-1.2, WA-COMP-TECH.6, WA-COMP-TECH.7, WA-COMP-TECH.9

4 (33%)   7 (58%)   1 (8%)

Information & Communication Technologies Artifact
CWU-CTL-1.1, CWU-CTL-1.2, WA-COMP-TECH.6, WA-COMP-TECH.7, WA-COMP-TECH.9

3 (25%)   7 (58%)   2 (16%)

Transportation Technologies Artifact
CWU-CTL-1.1, CWU-CTL-1.2, WA-COMP-TECH.6, WA-COMP-TECH.7, WA-COMP-TECH.9

10 (83%)   2 (16%)

Manufacturing Technologies Artifact
CWU-CTL-1.1, CWU-CTL-1.2, WA-COMP-TECH.6, WA-COMP-TECH.7, WA-COMP-TECH.9

8 (66%)   3 (25%)   1 (8%)

Construction Technologies Artifact
CWU-CTL-1.1, CWU-CTL-1.2, WA-

5 (41%)   5 (41%)   2 (16%)

COMP-TECH.6, WA-COMP-TECH.7,
WA-COMP-TECH.9

Materials Science Technologies Artifact	6 (50%)	6 (50%)	
Design World Context Reflection	7 (58%)	4 (33%)	1 (8%)

■ Target   ■ Acceptable   ■ Unacceptable

Though the sample is small, it shows our students are most able to produce target levels of artifacts in manufacturing. It is not surprising the lowest artifact levels occurred in the areas of medical, agriculture, and transportation technology, since we do not have specific courses required in the major for these areas of technology. The data is not completely representative of what a student "knows" about each technology, but rather the artifacts that they upload to Livetext.

4. Students will demonstrate, practice, and use safety and safety principles as used currently in industry and public schools:

IET 145 Safety Test	Below 80%	80%-89%	90%-100%
Winter 2011 Test Scores	1	1	5

Unsafe Observations	YES	NO
IET 145		X
MET 255		X

Our students are exposed to many machines and equipment requiring the practice of safety. Our students are modeling appropriate behavior and demonstrating safety knowledge on written exams.

5. Students will demonstrate familiarity with the concepts, theoretical perspectives, and historic trends in vocational education/Career & Technology Ed. (CTE):

Endorsement Area	2010-2011			2009-2010		
	Exams	Passed	%	Exams	Passed	%
Bilingual Ed	6	5	83%	10	7	70%
Biology	15	6	40%	11	6	55%
Bus & Mkt Ed	2	2	100%	3	3	100%
Chemistry	5	4	80%	7	2	29%
Dance				2	2	100%
Theatre Arts (Drama)	2	2	100%	1	1	100%
Early Childhood Ed	72	50	69%	85	57	67%
Earth & Space Science	8	5	63%	3	3	100%
ElEd: Math/Science/Health	382	223	58%	517	284	55%
ElEd: Eng LA/SS/Art	386	212	55%	496	309	62%
English Language Arts	30	25	83%	39	35	90%
English Lang Learners	89	72	81%	73	65	89%
Family & Consumer Sci	6	6	100%	14	14	100%
Health/Fitness	26	24	92%	29	28	97%
History	8	8	100%	11	10	91%
Library Media	8	8	100%	9	9	100%
Mathematics	59	23	39%	44	28	64%
ML Lang Arts	13	11	85%	9	8	89%
ML Math	57	34	60%	47	26	55%
ML Science	44	9	20%	43	13	30%
ML Soc Studies	15	5	33%	7	3	43%
Music: General	16	13	81%	22	19	86%
Music: Choral	17	16	94%	13	13	100%
Music: Instrumental	14	13	93%	14	14	100%
Physics	2	1	50%	2	1	50%
Reading	69	44	64%	68	49	72%
Science	10	6	60%	4	2	50%
Social Studies	40	19	48%	25	12	48%
Special Education	39	36	92%	54	46	85%
Technology Education	4	4	100%	6	6	100%
Traffic Safety	2	2	100%	2	2	100%
Visual Arts	11	7	64%	3	3	100%
World Languages	7	7	100%	6	6	100%
	1464	902	62%	1679	1086	65%

Although the number of students in the Technology Education program is small, the students have a 100% pass rate (on the first attempt). Despite the low numbers of students taking the exam, the 100% pass rate on the first attempt indicates that students are being adequately prepared.

6. Students will be committed to ongoing personal and professional development via participation in club activities and professional memberships:

Club/Assoc. Membership	Yes	No
CTEA (Student club member)	10	9
WITEA (State association member)	10	9
ITEEA (International association member)	0	19

Workshops/Conf. Attended	Yes	No
TSA Leadership Training	0	19
TSA Conference	13	6
WITEA Conference	5	14
ITEA Conference	0	19

Regarding membership, students in the "No" column often attended the meetings, but did not necessarily pay their membership dues and therefore were not counted as members. As students progress toward

upper classman status, their involvement in club activities tends to increase. Students, who paid for CTEA club membership, automatically had their WITEA membership paid.

The Technology Education program requires a student to participate in the "state" activities shown in the chart at least once during their collegiate career. This seems to be appropriate since the WITEA conference and the TSA conference typically occur during the student's finals week and spring break (respectively) each year. Student officers of CTEA are simply encouraged to try to attend the International conference (ITEEA). Students are clearly recognizing the benefits of belonging to professional association and attending the WITEA annual conference.

4. What will the department or program do as a result of that information?
In answering this question, please note specific changes to your program as they affect student learning, and as they are related to results from the assessment process. If no changes are planned, please describe why no changes are needed. In addition, how will the department report the results and changes to internal and external constituents?

1. Written and oral communication: CWU's basic skills requirements for "W" or writing courses specify that a minimum of four courses be taken that include at least seven pages of writing that is assessed for both content and mechanics. This has benefited our students, but more needs to be done. Instructors will be encouraged to assess students on writing with a bigger focus on mechanics. An example of this occurs in IET 433 where students must write a paper on five article reviews. A portion of their grade is based on grammar and writing mechanics.

2. Delivery of a technology education lesson: Our students have been well received by local schools and the teachers have been pleased with the lessons developed and taught by our students. Students must teach lessons that are STEM based. Students must also now film their lesson and provide a self-critique based on their observation. We feel it would be important to increase the visitations and lessons taught, but we are limited by our geographical area and the time and money required for students to do this.

3. Knowledge of the design world: A recent "change in philosophy" from the committee who developed the endorsement competencies for Tech. Ed., changed from requiring competence in five of the seven areas of the design world to requiring "...knowledge of the components of the design world with competence in at least one..." Students have continually demonstrated competence in power and energy technologies, information and communication technologies, transportation technologies, construction technologies, and manufacturing technologies, but have struggled with biotechnologies, agricultural technologies, and medical technologies. It is unrealistic at this time to add courses in all of these areas, so assignments such as article reviews have been added to increase the knowledge of students in these areas.

4. Demonstrate safety: Based on student comments from their reflections, students feel that safety is clearly expected, practiced, and assessed. Nevertheless, the department has recently developed a safety plan that will continue to be utilized and improved. Individual courses will continue to test and assess student's ability to operate machines in a safe manner. Specifically, students are required to take SHM 325 – manufacturing safety and technology education students must create safety aids for an assignment in IET 433.

5. Career and Technology Education pedagogy: The endorsement competencies for Tech. Ed. were last revised in 2007.   The 100% pass rate for the WEST-E exam indicates that no major changes are needed. Emphasis by the state is continually moving toward a Science, Technology,

Engineering, and Math (STEM) curriculum. We will need to continually monitor this "movement" and update and/or add courses as necessary to meet the new requirements. This will obviously be an ongoing process.

6. Professional development: Recent emphasis on joining professional associations, at least the state technology education association, has led to an increase in student membership as well as increased support from the state association (WITEA). CWU had three student presentations at the annual WITEA conference in March. We will continue to improve by encouraging all students who are accepted into the major to become members of the CTEA and WITEA. By continuing to work closely with WITEA we hope students see first-hand the benefits of belonging to a professional organization.

5. What did the department or program do in response to the feedback from last year's assessment report?
In answering this question, please describe any changes that have been made to improve student learning based on previous assessment results. Please also discuss any changes you have made to your assessment plan or assessment methods.

The technology education program is aligned with the state endorsement competencies last revised in 2007. Successful pass rates on the WEST-E exam, suggest that our students are being adequately prepared. However, in an attempt to be sure our students understand the endorsement competencies and properly provide artifacts in Livetext, all assignments in IET 430 and IET 433 have a chart that shows how the assignments align with the Center for Teaching and Learning (CTL) and Technology Education competencies. It also became very apparent that the end of program assessment must be moved out of IET 433. As a result, a new one-credit end of program assessment class was added. The course is IET 435 and students take the class the quarter prior to student teaching.

6. Questions or suggestions concerning Assessment of Student Learning at Central Washington University:

The Tech. Ed. program relies heavily on courses primarily offered for other majors within the department. Because education programs are accredited through the State Board of Education and (formerly) NCATE, technology education majors are required to purchase LiveText for program assessment and reporting. Many accrediting agencies now require electronic data submission. While I am not advocating for LiveText, the University does need to become uniform in the data collection process so that programs can extract data from other programs that do not require LiveText.

Something other than LiveText, that is a bit more user friendly, is suggested. If all programs and departments are using the same system, it would be easier to "buy in" to the overall process and generally make it easier to obtain data for accreditation reports and general program improvement.