

**Chemistry Teaching**

**Because the Office of Undergraduate Studies is now requiring program assessment reports that are similar to CTL program assessment reports; The Office of Research, Evaluation, and Assessment (OREA) has identified where a response to this report may satisfy both reports. In the future, the University Assessment Committee is committed to redesigning a format that will eliminate the need for two reports. In the meantime, the CTL report requires a bit more data in order to comply with the new 2008 NCATE Standard 2: Assessment System and Unit Evaluation.**

This is a reminder of the standards language:

*“The unit has an assessment system that collects and analyzes data on applicant qualifications, candidate and graduate performance, and unit operations to evaluate and improve the performance of candidates, the unit, and its programs.” (NCATE 2008 Standards, p.25-27).*

*“Data show the clear relationship of assessments to candidate outcomes. Data are regularly and systematically collected, compiled, summarized, analyzed and reported publicly to multiple audiences for the purpose of improving candidate performance, program quality, and unit operations. The unit has created a professional culture in which evidence and data are a regular part of faculty conversation.” (WA. 2007, Standard 2b)*

*“The unit has fully developed evaluations and regularly searches for stronger relationships in the evaluations, revising both the underlying data systems and analytic techniques as necessary. The unit studies the influence of such changes to assure that there are clear indicators that the program has improved.” (WA. 2007, Standard 2b)*

*“The unit has fully developed evaluations and continuously searches for stronger relationships in the evaluations, revising both the underlying data systems and analytic techniques as necessary. The unit not only makes changes based on the data, but also systematically studies the effects of any changes to assure that programs are strengthened without adverse consequences. Candidates and faculty review data on their performance regularly and develop plans for improvement based on the data.” (NCATE, 2008, Standard 2c, Use of Data for Program Improvement, p. 16).*

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The CTL assessment system is comprehensively designed to be purposely redundant in the measurement of standards, flexible enough to meet specific program requirements, and robust enough to provide unit wide analyses for the purpose of improving the unit operations. Multiple assessment data are collected and aggregated both at the program level and unit level using CTL, state, and national standards as criterion measurements. To view all of our graphically displayed data use this link for a quick access

[http://www.cwu.edu/~ectl/ncate\\_wastate/ncate/graphicsummaries.html](http://www.cwu.edu/~ectl/ncate_wastate/ncate/graphicsummaries.html)

**This report contains embedded prompts guided by University, State, and NCATE compliance standards, which are aligned with data summaries. Program coordinators are asked to share these summaries to facilitate discussions among program faculty. The culminating synthesis of those conversations (interpretations and conclusions of the data summaries) should be written in the spaces provided in this report. The primary purpose of the report is to demonstrate how the CTL uses data to update (improve) programs, unit operations, as well as the assessment system.**

The measurement data should represent:

- a) All candidates in Teacher Residency Program
- c) Candidates by Endorsement Program
  - 1) Program student performance data from Live Text Exhibit Room (c)
  - 2) WEST B Exam Summaries (a and c)
  - 3) WEST E Exam Summaries (a and c)
  - 4) EBI Teacher Survey Summaries (a)
  - 5) EBI Principal Survey Summaries (a)
  - 6) Disposition Inventory Summary (a)
  - 7) Final Student Teaching LiveText Rubric Summary Report (a)
  - 8) Career Services Program Completer Summaries (a and c)

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Please describe your program's assessment process and what standards you are measuring in relation to the NCATE and State standards of knowledge (content, pedagogy and professional), skills (professional and pedagogical) and dispositions. Please describe your program's assessment protocols.

The following are to be used as guiding questions:

- Is the system course based, end of program based, or other?
- What measures are used and when are they administered?
- How does the program eliminate bias and test for measurement fairness, accuracy, and consistency?
- What technologies are employed to compile, aggregate, summarize, and report the data?
- How is the program assessment process administered (all program faculty or a designee)?
- How often do faculty meet to examine data?
- How are data shared with candidates to help them reflect and improve?
- How does the process maintain a record of formal complaints and subsequent resolutions?
- How are these records taken into consideration during discussions of program improvement?

**(This response will satisfy CWU Assessment of Student Learning Report # 2 and 3)**

The Chemistry Teaching Program has a formative and summative assessment system comprised of several elements: 1) a performance-based, standards-aligned electronic program portfolio, 2) entry and exit surveys, 3) WEST-E and American Chemical Society Standardized content examinations, and 4) a comprehensive performance spreadsheet.

The Chemistry Teaching Portfolio is based on a common template collaboratively designed and constructed by all members of the Science Education Department, with additional insight provided by K-12 teachers. The portfolio conceptual framework is based on best practices research on inquiry and how people learn (National Research Council, 2005). Overall, program assessment focuses on: a) determining student preconceptions, b) engaging candidates in authentic inquiry and investigation to build a mental framework, c) developing and applying robust content knowledge, and d) promoting meta-cognitive awareness of learning process and critical thinking.

The main portfolio elements, or dimensions, were conceived through a consensus process by examining commonalities in three sets of professional standards; National Science Education Standards for Teaching, National Science Teacher Association Standards, and the Washington Competencies for Chemistry. The common dimensions include: 1) Inquiry and Nature of Science; 2) Teaching; 3) Learning Environments; 4) Assessment and Evaluation, 5) Relevance, and 6) Professional Growth. A distinct dimension for Content in the Chemistry Teaching Portfolio is further subdivided into the major disciplinary themes in biological science, and include: a) Analytical/Instrumental Chemistry, b) Organic Chemistry, c) Biochemistry, d) Inorganic Chemistry, e) Physical Chemistry, e) Application of Mathematics and Physics to Chemistry.

Candidates must demonstrate knowledge, skills, and disposition proficiency by providing tangible, verifiable evidence chosen from coursework, research and field work, and related disciplinary and educational experiences. Each portfolio dimension contains several strands designed to focus student effort and evidential support. For example, for the Inquiry and Nature of Science dimension, students must provide separate evidence

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for inquiry, nature of science, and independent research. In an effort to promote critical thinking and meta-cognitive awareness and reduce bias, students are required to supply evidence they deem suitable rather than evidence prescribed by faculty. Candidates must also justify their choice of evidence and connect these to progress in meeting professional standards through a reflection that accompanies each portfolio dimension. Candidates are required to demonstrate minimum proficiency for each portfolio dimension in order to be allowed to student teach. Compliance is accomplished via an advising hold that may only be removed by a Science Education faculty member.

Candidates entering the Chemistry Teaching Program must complete an entry survey that includes basic demographics as well as written items that assess candidate disposition. These results are embedded within the Chemistry Teaching Portfolio. At the completion of the Chemistry Teaching Program, each candidate must also complete an exit survey whereby they evaluate program effectiveness, including all courses in the Professional Education Sequence as well as Science Education courses. Experiences that were particularly useful are described, as are met and unmet candidate expectations. Exit and entry survey results are subsequently compared and a comparative reflection completed. Candidates work on the portfolio throughout their program, with most work done in an end-of-program seminar course (SCED 487), which may be directly substituted for CHEM 488.

Content knowledge is assessed via evidence provided by candidates in the Chemistry Teaching Portfolio as well as content examinations. The WEST-E in Chemistry and ACS (American Chemical Society) Standardized examinations. Total and component scores are posted within the Content dimension of the Chemistry Teaching Portfolio.

This year a summative spreadsheet was developed to evaluate candidate performance across the entire program. The spreadsheet provides aggregate and disaggregate data so that performance trends can be readily identified and proactive strategies developed to maximize program effectiveness.

Faculty meet several times during the academic year to discuss candidate data, and to reflect on assessment process effectiveness. Annual improvements to course and program portfolios and other measures are collaboratively done by all Science Education faculty.

Collectively, these assessment procedures are used to evaluate candidate competency and to ensure knowledge, skill, and disposition proficiency for future chemistry teachers.

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Please cut and paste here a sample of one of your program's Live Text Reports that identifies an aggregation of candidate performance data. Discuss the accuracy, consistency, and fairness of the data, as well as what improvements could be made in the program assessment rubrics, courses, artifacts, or reporting (using your own discretion place any of these samples in the report). Please interpret how well your candidates are meeting program standards.

Please be certain you separate performance by referencing:

- A) Pedagogical Content Knowledge and Skills - This section requires a thorough understanding of the content to teach it in multiple ways, drawing on the cultural backgrounds and prior knowledge and experiences of students. For further description read the target level of 1b. on page 17 of the NCATE 2008 standards.

Assessment accuracy, consistency, and fairness are ensured by involving all Science Education faculty collaboratively in the design and construction of science teaching portfolios and basing the Chemistry Teaching portfolio on a common template. Improvements to assessment rubrics, courses, artifacts, and reporting are based on feedback from candidates, K-12 teachers, and assessment data, with any changes done collaboratively and with consensus agreement from all Science Education faculty. The table below represents a sample of recent candidates at various stages of portfolio completion.

Overall, candidates are performing at or above expected levels for content knowledge and skills. Improvements could be made to make sure candidate completion of content exams occurs earlier in the program, and that data is reported in the Chemistry Teaching portfolio in a more timely manner.

**Rubric: Dimension 2: Content Knowledge Rubric**

	Excellent (6 pts)	Good Quality (5 pts)	Proficient (4 pts)	Partially Proficient (3 pts)	Incomplete or Absent (0 pts)	Mean	Mode	Stdev
Analytical/Instrumental Chemistry Artifact	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.80	6	0.40
Organic Chemistry Artifact	<u>4</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	5.60	6	0.80
Biochemistry Artifact	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	6.00	6	0.00
Inorganic Chemistry Artifact	<u>4</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	5.60	6	0.80
Physical Chemistry Artifact	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	6.00	6	0.00
Applications of Mathematics and Physics Artifact	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	6.00	6	0.00
Dimension 2 Reflection	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.80	6	0.40

Analytical/Instrumental Chemistry Artifact	4 (80%)	1 (20%)			
Organic Chemistry Artifact	4 (80%)	1 (20%)			
Biochemistry Artifact	5 (100%)				
Inorganic Chemistry Artifact	4 (80%)	1 (20%)			
Physical Chemistry Artifact	5 (100%)				
Applications of Mathematics and Physics Artifact	5 (100%)				
Dimension 2 Reflection	4 (80%)	1 (20%)			



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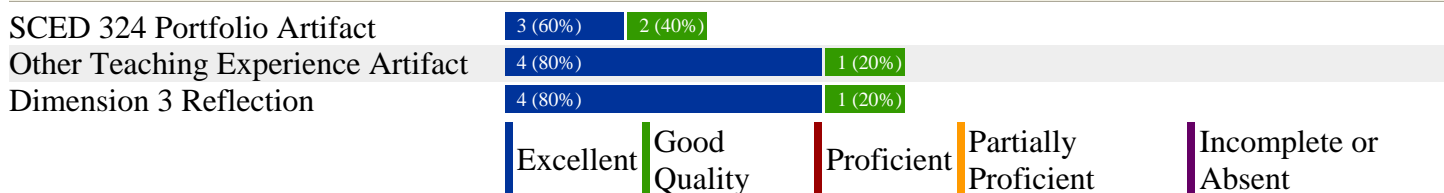
B) Professional and Pedagogical Knowledge and Skills - This section relates to those program standards associated with historical, economic, sociological, philosophical, and psychological understandings of schooling and education. It also includes knowledge about learning, diversity, technology, professional ethics, legal and policy issues, pedagogy, and the roles and responsibilities of the profession of teaching. For a description read the target level of 1c. on page 18 of the NCATE 2008 standards.

Historical, economic, sociological, philosophical, and psychological elements of candidate performance are formally evaluated using a course portfolio for secondary science teaching methods (SCED 324). The dimensions of the SCED 324 portfolio are based on the National Science Education Standards for Teaching. Like the Chemistry Teaching portfolio, candidates must choose evidence they deem worthy to meet performance benchmarks, and evaluate how well their evidence meets professional standards. This approach is used to promote critical thinking and metacognitive awareness. Candidates choose specific elements from the SCED 324 portfolio as evidence for their Chemistry Teaching portfolio; these include formal and informal teaching experiences, collaborative learning, diversity, technology, and safety. A sample of recent Chemistry Teaching candidate performance is provided below.

Overall, candidates are performing at or above expected levels for professional and pedagogical knowledge and skills. Improvements include providing more teaching opportunities for candidates in secondary science classrooms and other venues.

**Rubric: Dimension 3: Teaching Rubric**

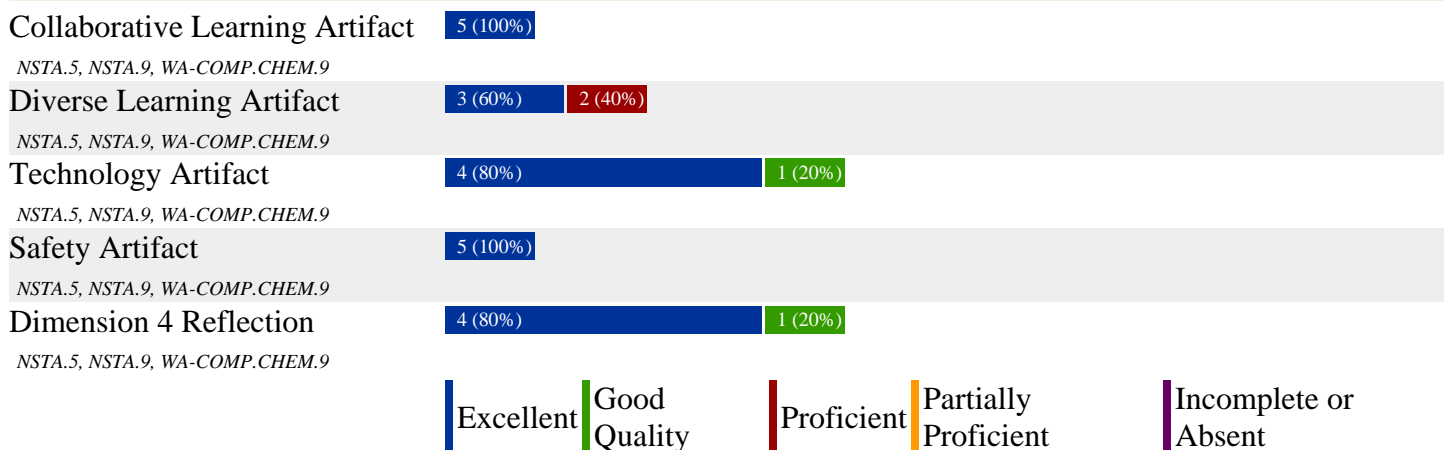
	Excellent (6 pts)	Good Quality (5 pts)	Proficient (4 pts)	Partially Proficient (3 pts)	Incomplete or Absent (0 pts)	Mean	Mode	Stdev
SCED 324 Portfolio Artifact	<u>3</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.60	6	0.49
Other Teaching Experience Artifact	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.80	6	0.40
Dimension 3 Reflection	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.80	6	0.40



**Rubric: Dimension 4: Learning Environments Rubric**

	Excellent (6 pts)	Good Quality (5 pts)	Proficient (4 pts)	Partially Proficient (3 pts)	Incomplete or Absent (0 pts)	Mean	Mode	Stdev
Collaborative Learning Artifact	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	6.00	6	0.00
Diverse Learning Artifact	<u>3</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	5.20	6	0.98
Technology Artifact	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.80	6	0.40
Safety Artifact	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	6.00	6	0.00
Dimension 4 Reflection	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.80	6	0.40

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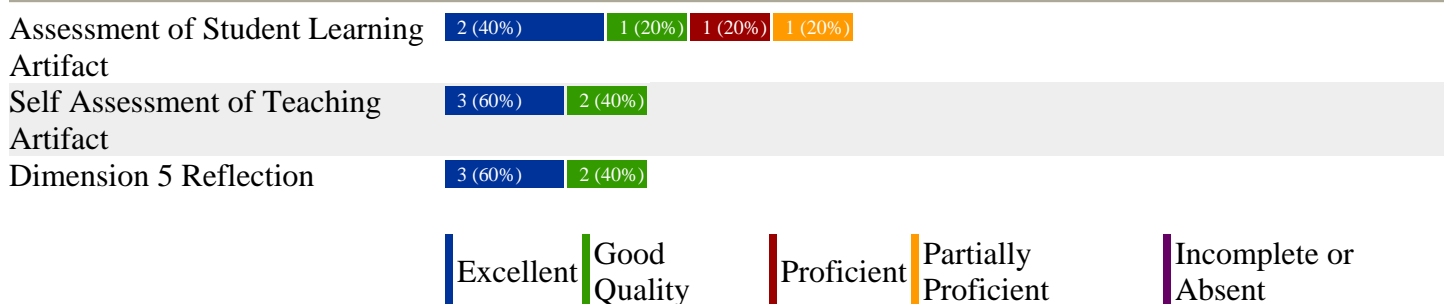
C) Student Learning - These data demonstrate the effects candidates have had on the students they teach. For a full description read the target level of 1d. on page 19 of the NCATE 2008 standards.

Candidate effect on student learning is summarized via the SCED 324 course portfolio and assessment and evaluation artifacts in the Chemistry Teaching portfolio. A sample of recent candidate performance for assessment and evaluation is provided.

Overall, candidates are performing at or above required levels for effects on student learning, as indicated by assessment and evaluation. Exit survey results indicate candidates feel they are underprepared by their professional education courses to conduct effective assessment and evaluate student learning in the classroom. Recent changes in EDCS 311 that focus more on assessment should help rectify this issue. Further improvements include modifying candidate requirements to include actual examples of K-12 student work in both the SCED 324 portfolio and the Chemistry Teaching portfolio.

**Rubric: Dimension 5: Assessment and Evaluation Rubric**

	Excellent (6 pts)	Good Quality (5 pts)	Proficient (4 pts)	Partially Proficient (3 pts)	Incomplete or Absent (0 pts)	Mean	Mode	Stdev
Assessment of Student Learning Artifact	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	4.80	6	1.17
Self Assessment of Teaching Artifact	<u>3</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.60	6	0.49
Dimension 5 Reflection	<u>3</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	5.60	6	0.49



**Chemistry Teaching****(CWU Assessment of Student Learning Report #3)**

## Program Interpretations and Conclusions:

All NSTA and nearly all WA COMP standards are represented and well dispersed across the Chemistry Teaching Portfolio. Content knowledge and learning environment are particularly emphasized for the WA COMP and NSTA standards; assessment and evaluation are also emphasized for NSTA standards.

Chemistry teacher candidates provide evidence that they have adequate understanding of the nine main content areas addressed in the Washington competencies for chemistry teachers. These are a) Analytical/Instrumental Chemistry, b) Organic Chemistry, c) Biochemistry, d) Inorganic Chemistry, e) Physical Chemistry, e) Application of Mathematics and Physics to Chemistry. Chemistry teacher candidates are required to submit a variety of types of content evidence, including exams, lab reports, field notebooks, and independent research projects. Through their reflections about these artifacts, the candidates relate their content evidence to the appropriate standards.

The evidence in this section provides evidence that the teacher candidates know how students learn and know how to make ideas accessible to students in a variety of ways. Evidence includes lesson plans, unit plans, and assessments from a variety of 6-12 and introductory college teaching experiences. Through their reflections about these artifacts, the candidates relate their pedagogical evidence to appropriate professional standards.

The evidence in this section provides evidence that the teacher candidates know how to assess students and how to use that assessment information to guide teaching decisions. Evidence in this section includes sample assessments that they have created and used in a teaching experience. Through their reflections about these artifacts, the candidates relate their assessment evidence to the appropriate standards.

One area of improvement is giving candidates the opportunity of analyze data from an assessment and use that data to make instructional decisions. Most of the teaching and assessment opportunities the candidates have are one time, meaning the candidates do not have the opportunity to use the assessment data to inform a future lesson with the same set of students.

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Please examine the new 2008 West B data for the teacher residency program. Use these data, the LiveText data, and the West E data found on the assessment system to predict candidate success in your program. Given these summaries, are there changes to your program or to the unit your program recommends the CTL consider?

- West B data has been summarized as two groups: first, all data from September, 2005 through August, 2007; and second, from September, 2007 through August, 2008. As you can see writing pass rates continue to be lower than either math or reading pass rates.
- The CTL Advisory Council heard proposals from the Writing Assessment Committee for ameliorating these writing deficits. It is disheartening that 14% of candidates desiring to be admitted to the teacher education program cannot pass the writing portion of the exam even after 3 attempts. The Writing Assessment Committee recommends all students take the ACCUPLACER writing test prior to the WEST B and prior to admission. The ACCUPLACER provides diagnostic information that is reported to help candidates understand their writing deficiencies. The cost is \$15/candidate, but with the increased cost of tuition and other required test costs, the council has tabled the discussion until Fall 2009. Please feel free to comment about this.
- Our 2008 candidate pass rate has increased to almost 90% overall.

**Summary of West B Data****2005 – 2007**

	<b>West B Reading</b>	<b>West B Math</b>	<b>West B Writing</b>
<b>Passed first try</b>	<b>91%</b>	<b>89%</b>	<b>81%</b>
<b>Passed second try</b>	<b>4%</b>	<b>5%</b>	<b>8%</b>
<b>Passed third try</b>	<b>.5%</b>	<b>1%</b>	<b>2%</b>
<b>&gt; than 3 tries</b>	<b>.5%</b>	<b>1%</b>	<b>1%</b>
<b>Incomplete</b>	<b>3.6%</b>	<b>4%</b>	<b>8%</b>

**2007 – 2008**

	<b>West B Reading</b>	<b>West B Math</b>	<b>West B Writing</b>
<b>Passed first try</b>	<b>86%</b>	<b>87%</b>	<b>75%</b>
<b>Passed second try</b>	<b>5%</b>	<b>3%</b>	<b>7%</b>
<b>Passed third try</b>	<b>1%</b>	<b>1%</b>	<b>2%</b>
<b>&gt; than 3 tries</b>	<b>1%</b>	<b>.02%</b>	<b>2%</b>
<b>Incomplete</b>	<b>7%</b>	<b>9%</b>	<b>14%</b>

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## Program Interpretations and Conclusions:

WEST-B scores are not a significant predictor of candidate success in Science Education. However, the distribution of first time pass rates match what the faculty see for basic skills in our courses and on major course artifacts. Being able to write effectively is the area of most acute need. Science Education faculty address this issue in the Biology, Chemistry, Earth Science, and Physics Teaching programs by having numerous writing assignments, having high expectations of excellent writing and communication skill, and by explicitly evaluating writing mechanics on each assignment. For example, format, spelling, and grammar make up a small but significant part of each course and portfolio rubric. All Science Education programs stress both technical (such as lesson plans) and reflective writing (connecting evidence to progress toward meeting professional standards). Reflective writing is used to help students improve how, not just what, they learn (metacognitive awareness).

There is some concern over using the ACCUPLACER, as follows:

A) This is an additional cost to students.

B) We are not using the data from the WEST-B to its full extent so why add another test? From a student perspective, they simply wonder why they need to take two tests. If the WEST-B does not give CWU enough information to help students improve their writing or for us to predict who will be a successful writer in the TPP, that is a problem with the WEST-B. As a university, we could lobby the State to pressure the WEST-B company to provide more diagnostic information.

C) The ACCUPLACER doesn't address the real issue of students not being able to write well in our upper level courses. As a team, Science Education suggests a more coordinated effort to teach and promote writing across the education curriculum. What better way to model integration by all education faculty integrating writing across the education curriculum? After all, this is what we want our graduates to do.

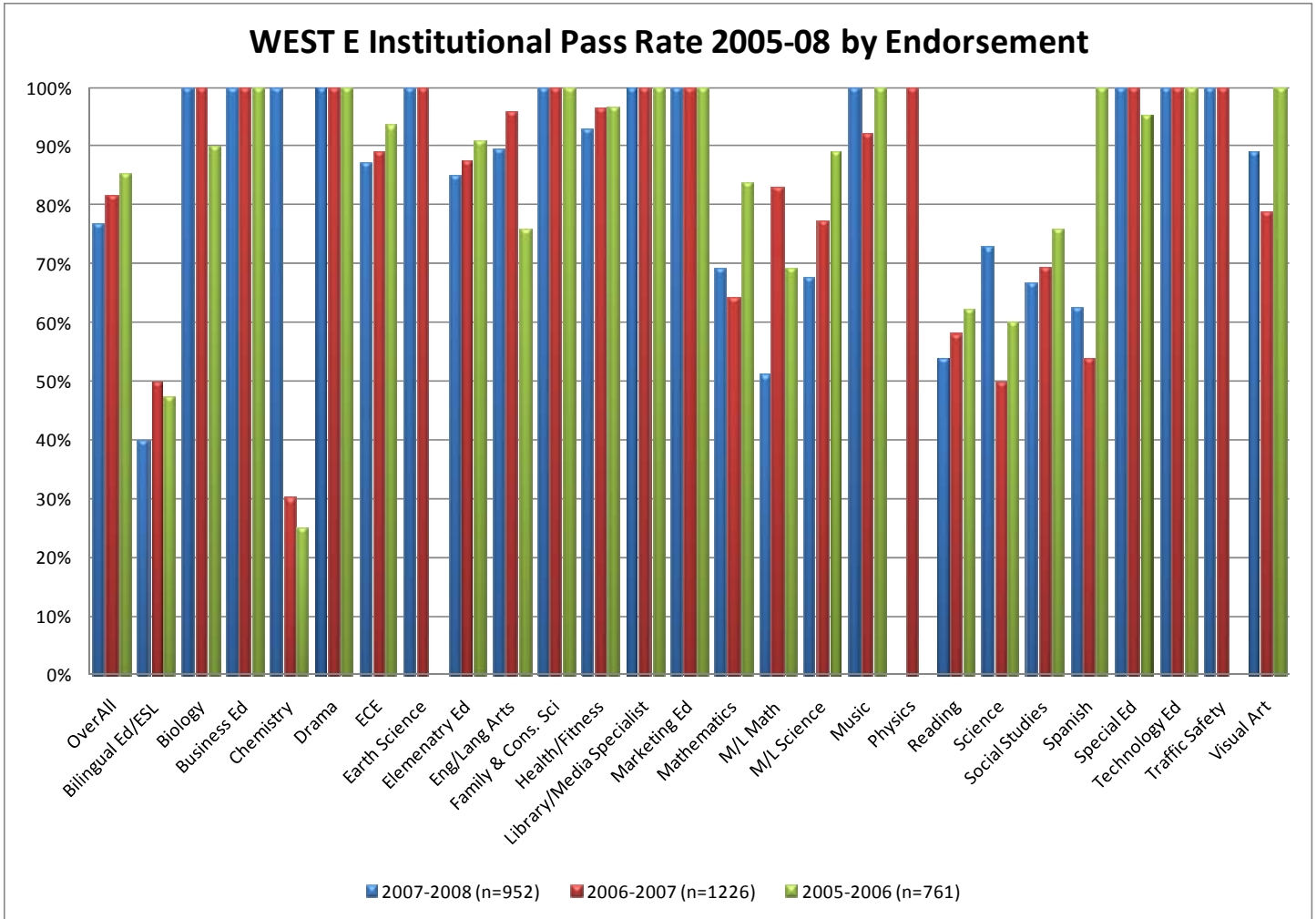
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All pass rates for 2008 have improved. The WEST E changed in 2009 and is now administered by the Evaluation Group by Pearson (formerly NES). It remains to be the State's requirement for certification and one of our program exit criteria, measuring content knowledge by endorsement area. Note: The 2009 test (data not included) is based upon a criterion scale using state standards, whereas the previous WEST-E administered by ETS was a modified Praxis II that used a normative scale. Please examine the 2008 data (found below) with your faculty for your program only, and reveal any conclusions your programs drew from the pass rates from 2006-2008). Because of the change in tests, this is the last year we will refer to these data.

- Percentage pass rates need to be couched in terms of the total number of test takers.
- The State and NCATE do not consider percent pass rates for those programs with less than ten test takers (e.g., there were only 6 test takers in chemistry during 2006-2007).
- Please utilize both the table and the graphic representation when analyzing the results.

**(This response can also be used to satisfy the CWU Assessment of Student Learning Report #1, 2, and 3)**

Program	Passed	Tested	2007-2008 (n=868)	Passed	Tested	2006-2007 (n=1144)	Passed	Tested	2005-2006 (n=727)
Over All	730	868	84%	998	1144	87%	650	727	89%
Bilingual Ed/ESL	31	67	46%	52	85	61%	17	33	52%
Biology	4	4	100%	6	6	100%	9	9	100%
Business Ed	7	7	100%	5	5	100%	4	4	100%
Chemistry	5	5	100%	3	6	50%	1	3	33%
Drama	1	1	100%	5	5	100%	3	3	100%
Early Childhood Ed	75	79	95%	129	140	92%	87	90	97%
Earth Science	2	2	100%	4	4	100%	0	0	-
Elementary Ed	326	348	94%	421	453	93%	265	282	94%
Eng/Lang Arts	17	18	94%	23	24	96%	22	26	85%
Family & Cons. Sci	4	4	100%	8	8	100%	7	7	100%
Health/Fitness	27	28	96%	56	57	98%	30	31	97%
Library/Media Specialist	11	11	100%	17	17	100%	11	11	100%
Marketing Ed	4	4	100%	2	2	100%	4	4	100%
Mathematics	27	34	79%	36	48	75%	31	33	94%
M/L Math	21	34	62%	39	45	87%	9	13	69%
M/L Science	21	30	70%	24	31	77%	8	9	89%
Music	10	10	100%	24	26	92%	21	21	100%
Physics	0	0	-	2	2	100%	0	0	-
Reading	43	71	61%	32	51	63%	41	61	67%
Science	8	11	73%	1	2	50%	3	5	60%
Social Studies	22	29	76%	41	51	80%	25	29	86%
Spanish	10	15	67%	7	13	54%	5	5	100%
Special Ed	35	35	100%	40	40	100%	39	40	98%
Technology Ed	1	1	100%	2	2	100%	3	3	100%
Traffic Safety	2	2	100%	4	4	100%	0	0	-
Visual Arts	16	17	94%	15	16	94%	5	5	100%



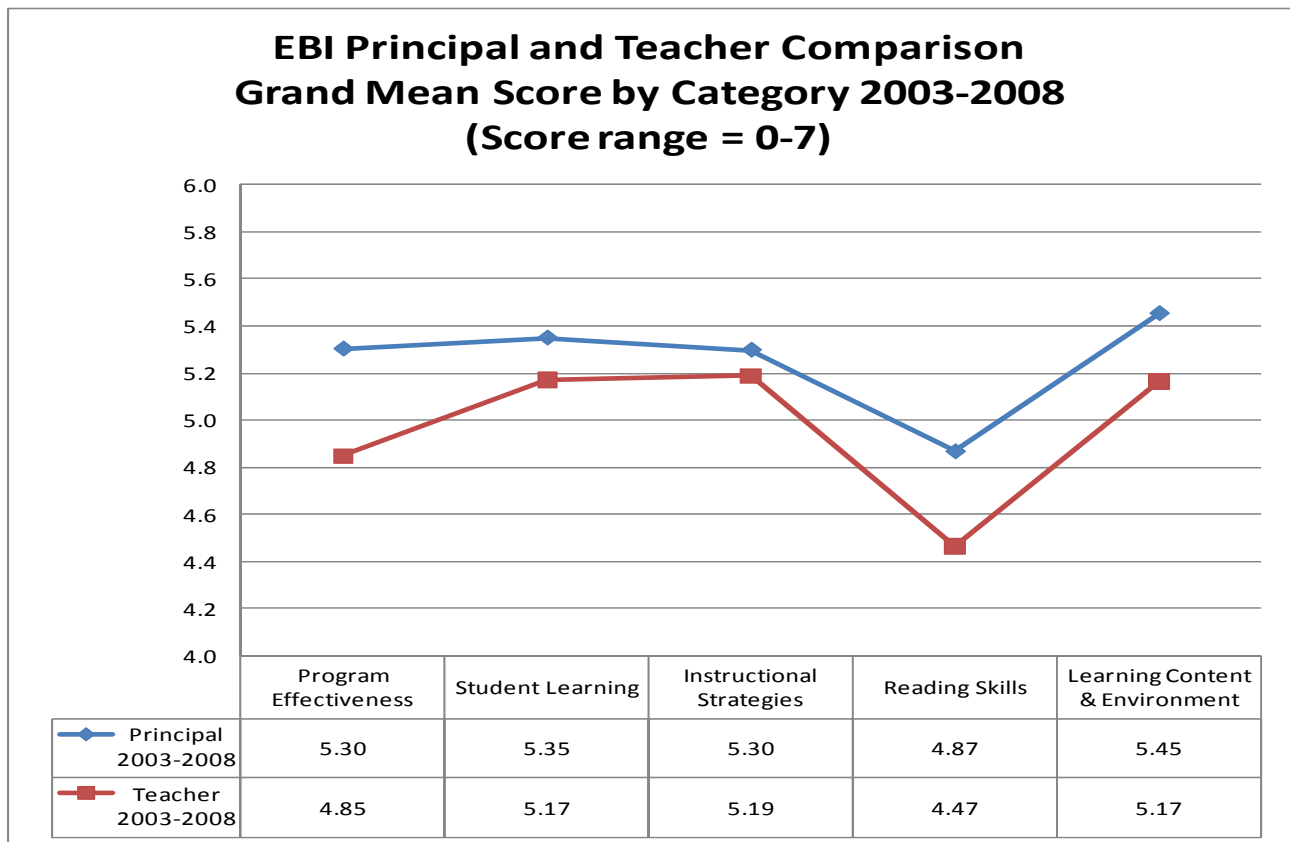
**Program Interpretations and Conclusions:**

With a current 100% pass rate, Chemistry teacher candidates are well prepared in their content area as measured by this assessment. Previous years are discussed thoroughly in previous CTL reports, discussing the seemingly low overall pass rate that is attributed mainly to two individuals struggling with taking this exam several times each.

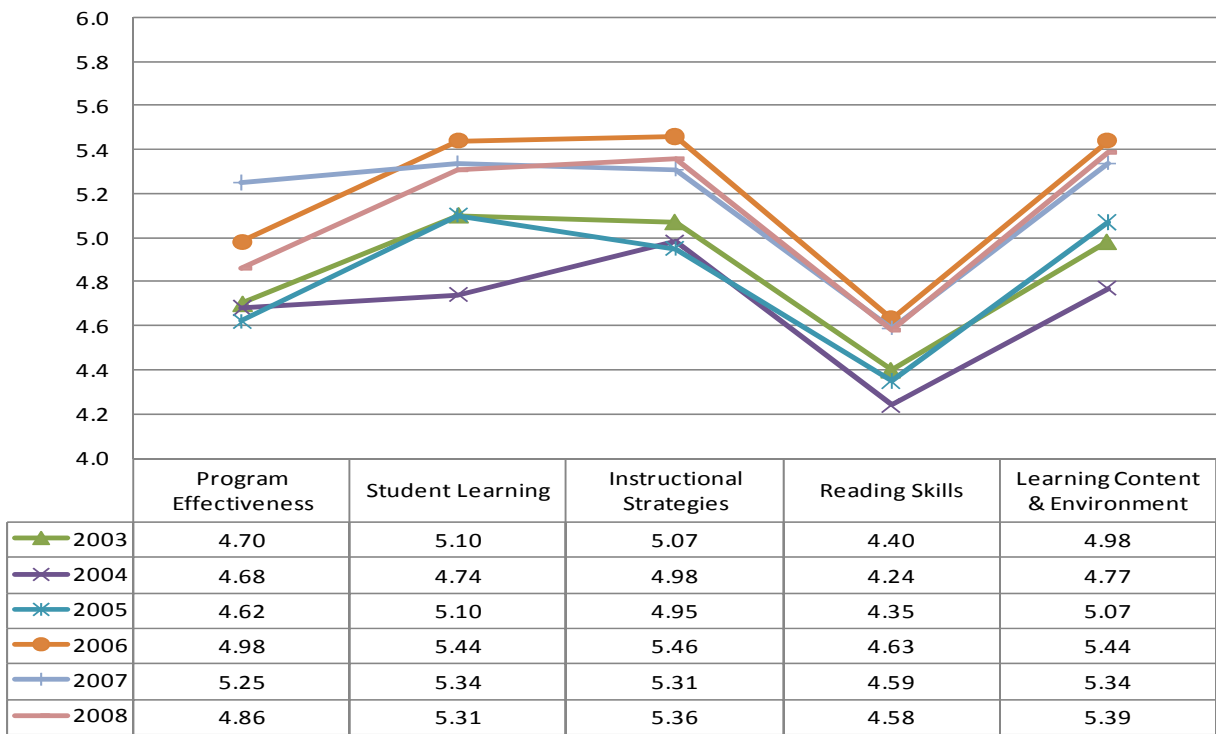
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Please find below the EBI teacher and principal data for all program completers. Discuss and report in the space provided what your program recommends the unit should accomplish to improve overall satisfaction, or what your program is doing to improve the trend. This is the last year the state used EBI. The Professional Standards Board and WACTE representatives have designed a new survey, which will be piloted in 2009/2010. Because CWU assisted in the design and will pilot the new state teacher survey, the assessment committee recommended discontinuing our own first and third year teacher survey. This is the last year we will reference EBI data.

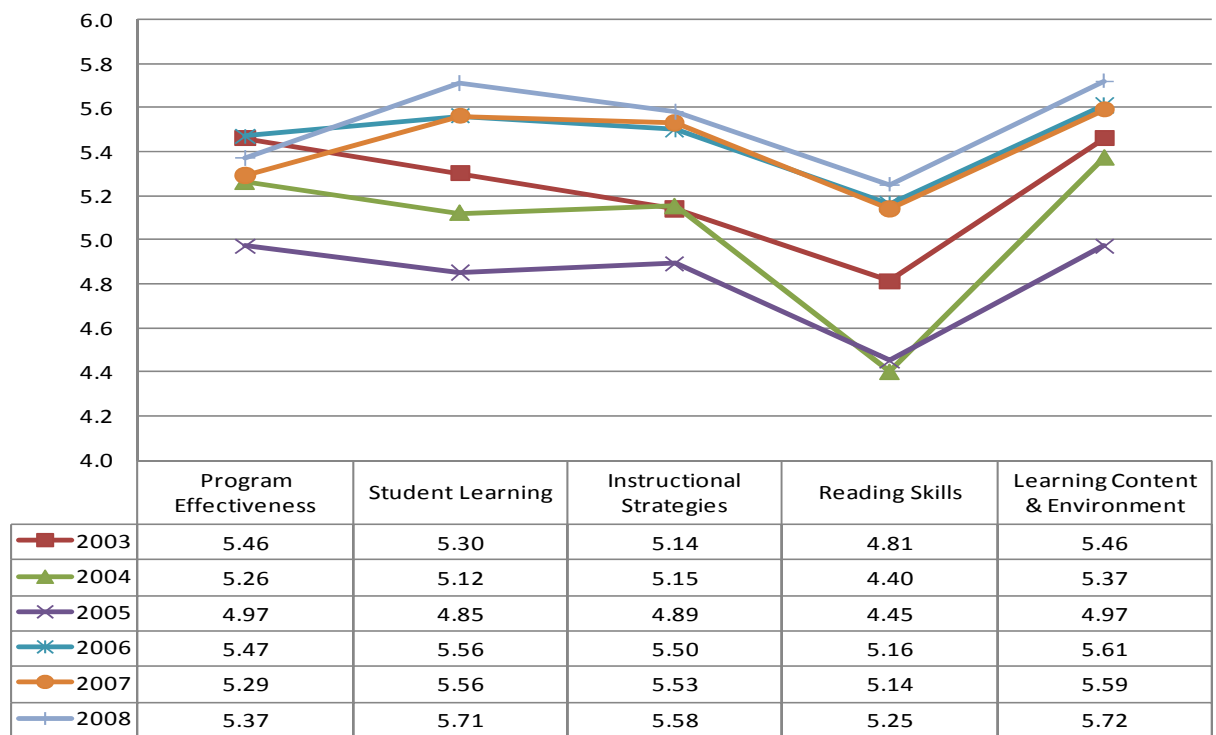
- This survey is administered through OSPI and is contracted through Educational Benchmarking Inc. These data are collected for all new teachers in public schools by surveying new teachers and their principals.
- Response rate average over the 5 years n=105
- The graph represents a five year average satisfaction trend by category
- Highest satisfaction ratings are in the areas of:
  - Student learning
  - Instructional strategies
  - Management, control and environment
- Lowest satisfaction ratings are in the areas of:
  - Reading skills
- 5 year Principal responses followed similar patterns as teachers n=41



**EBI Teacher Trend Data 2003-2008**  
**Mean Score by Category (Score range = 0-7)**



**EBI Principal Trend Data 2003-2008**  
**Mean Score by Category (Score range = 0-7)**



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## Program Interpretations and Conclusions:

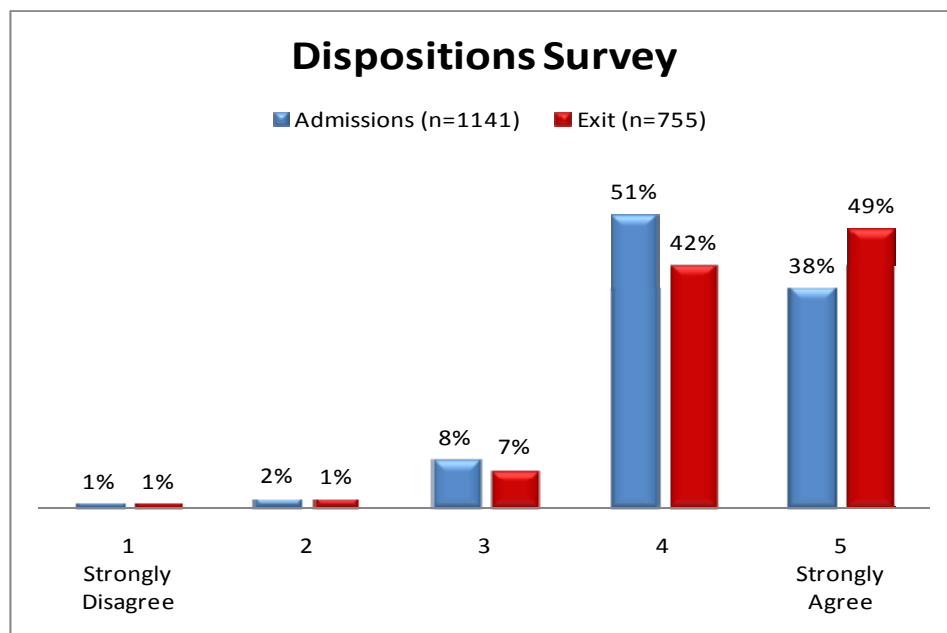
The generally positive trend in teacher program satisfaction rating is something the Science Education Department will do everything possible to maintain. The implementation of our formative and summative assessment system is a key mechanism we use to pinpoint student satisfaction and dissatisfaction within the program. Data acquired over time from several of these portfolio elements, 1) a performance-based, standards-aligned electronic portfolio, 2) entry and exit surveys, 3) WEST-E and Major Field Test content examinations, and 4) a performance spreadsheet will offer the Science Education Department faculty an opportunity to make adjustments.

Data from the Science Teaching Portfolios entry and exit assessments have been analyzed and used to address this unit's overall program effectiveness. These entry and exit assessments not only promote students' metacognitive awareness of the learning process and critical thinking, but offers our Science Education Department team important data that has been aggregated and analyzed to propose rationale programmatic changes. For example, aggregated exit surveys over the previous academic years, from biology, chemistry, earth science, and physics teaching majors, suggested that EDCS 424: Reading in the Content Area was least valued by students. While this is not a reading content course, it is interesting that the course our candidates are the least satisfied with is in the area that our graduates and their principals rate the lowest. As a result of feedback from both sources, the Science Education Department has raised the question of how this course may either be improved or incorporated into existing science education courses. Currently, this specific discussion is ongoing while the Professional Education Program is being reexamined, but the topic has been raised due mainly to data that were acquired through Science Education Department's entry and exit survey system.

## Chemistry Teaching

Please find below a comparative analysis of candidate dispositions from beginning candidates to finishing candidates. Please comment on the changes you observe in your candidates over time and describe how and why you think this occurs. What does your program specifically do to engage candidates in developing professional teacher dispositions?

- This inventory is administered by the CTL at admissions (N=1141), and again at the end of student teaching (N= 755). Some of the 1141 candidates have not yet student taught, which is why the n's are different.
- Change is in the preferred direction from agree to strongly agree
- Just as in previous years, somewhere between entry and before exit, the teacher program candidates are developing stronger professional beliefs and attitudes that reflect the underlying values and commitments of the unit's conceptual framework.
- Most notable changes occur in questions 3, 11, 16, 22, and 34
- Question 3 (*Ideas and interests of students should not impact curriculum planning*) responses significantly changed from entry to exit. 25% more candidates strongly disagreed with this statement during the exit poll.
- Question 11 (*Integrating subjects across content disciplines is confusing for student*) responses significantly changed from entry to exit. 30% more candidates strongly disagreed with this statement during the exit poll.
- Question 16 (*To improve K-12 student learning, I should utilize the cultural experiences of families within the community*) responses significantly changed from entry to exit. 19% more candidates strongly agreed with this statement during the exit poll.
- Question 22 (*Effective classroom management strategies are fair, equitable, and developmentally appropriate*) responses significantly changed from entry to exit. 20% more candidates strongly agreed with this statement during the exit poll.
- Question 34 (*Making connections for students using their prior experiences will enhance student achievement*) responses significantly changed from entry to exit. 24% more candidates strongly agreed with this statement during the exit poll.



**Chemistry Teaching**

## Program Interpretations and Conclusions:

The Chemistry Teaching program promotes teacher dispositions by having clear professional expectations that are communicated to candidates and validated by work with in-service K-12 teachers. Professionalism is introduced at entry to program and reinforced repeatedly through classroom volunteer and teaching practica experiences in local K-12 schools, Science Education faculty panel interviews of candidates at the end of the secondary science methods course, advising, and entry and exit surveys. Advising and repeated field observations of candidates indicate that candidates develop a sincere appreciation for science teaching, an awareness of the responsibilities of a professional educator, and a willingness to meet the needs of all students. Candidate dispositions may change as a result of having clearly stated expectations, modeling of professionalism by Science Education faculty and K-12 teachers, and through increased awareness of the performance and financial benefits of high professionalism. The Chemistry Teaching portfolio also requires candidates to provide evidence of professionalism (dimension 7) by becoming members of the National Science Teachers Association (CWU has an official NSTA chapter) and by developing a professional growth plan in SCED 487. Professionalism improves as candidates become immersed in regional and national conversations in NSTA journals and attend professional meetings.

**Chemistry Teaching**

## Final Student Teaching Evaluation Report on LiveText

- The data report is too large to be placed in this document. Please access the data by going to this link on our assessment system web site  
[http://www.cwu.edu/~ectl/ncate\\_wastate/ncate/graphicsummaries-fste\\_post507.html](http://www.cwu.edu/~ectl/ncate_wastate/ncate/graphicsummaries-fste_post507.html)
- The report reveals the final assessment of elements found in state standards IV and V
- Candidates (n=749) are generally performing at a high level, although there are some candidates as depicted by the colors green and red who are not performing to standard.
- Examination of those elements indicates some agreement with results provided from the EBI data.
- Please examine these data carefully and discuss with your program faculty some ways the initial teacher residency program can begin to address the few but common deficits occurring in candidate knowledge and skills relative to the NCATE standard elements.

## Program Interpretations and Conclusions:

These data show that most candidates are performing adequately during student teaching. The fewest scores of “5” are in the areas of Student Performance Assessment: Reading and School, Home and Community.

As stated in an earlier section, the course EDSC 424, Reading in the Content Fields, is rated the least relevant by science teaching program graduates. In addition, reading skills is ranked lowest in the EBI data. This indicates that EDSC 424 is not doing an effective job in preparing our graduates. Science education faculty welcome the opportunity to work with reading faculty to integrate reading skills and the teaching of reading in the content area into our content teaching methods courses.

The Science Education Department has created a new course, SCED 354, Science, Society and the Teaching Community, to address the state competencies in this area. This course would also address the school, home and community deficiency that is shown on the FSTE. Unfortunately, we are unable to add SCED 354 to the Chemistry Teaching program or any of the other secondary science teaching programs because of credit limits imposed by the faculty senate and because of excessive credits in the current professional education sequence. Fortunately, there are initiatives in the faculty senate to address the credit limits and there is a committee, with a representative from Science Education, charged with revising the professional education sequence.

**Chemistry Teaching**

Please examine these data and report any discussions your program has regarding the reported results.

- This survey is conducted by Career Services and reported to OSPI. The report, however, has been reanalyzed and the summary reflects the new analysis, which covers 2003-2008.
- In 2004-05, the data show 81% of our graduates were hired to teach, but take into consideration that only 46% of the total graduates responded. In 2007-08, the data show 52% were hired to teach, and the response rate was 93%.
- Please look at your particular program's data when reporting conclusions for this portion of the report.

List of Washington Endorsements issued by Washington Colleges/Universities	2007-2008			2006-2007			2005-2006			2004-2005		
	Program	Responding	%	Program	Responding	%	Program	Responding	%	Program	Responding	%
	Completers	Placed	Placed	Completers	Placed	Placed	Completers	Placed	Placed	Completers	Placed	Placed
	490	254	52%	497	303	61%	464	209	45%	497	404	81%
Response Rate	458	254	55%	456	303	66%	350	209	60%	232	139	60%
	93%			92%			75%			47%		
Abbrev. WAC 180-82A Long Name												
BIL Bilingual Education	8	2	25%	5	4	80%	3	2	67%	12	2	17%
DA Designated Arts: Dance	0	0	-	0	0	-	0	0	-	4	0	0%
DAC Designated Arts: Music: Choral	8	2	25%	9	4	44%	2	2	100%	15	2	13%
DAG Designated Arts: Music: General	9	8	89%	16	13	81%	14	14	100%	19	2	11%
DAI Designated Arts: Music: Instrumental	12	4	33%	4	1	25%	1	1	100%	15	3	20%
DAT Designated Arts: Theatre Arts	0	0	-	3	1	33%	4	2	50%	0	0	-
DAV Designated Arts: Visual Arts	16	6	38%	13	7	54%	4	3	75%	18	4	22%
BIO Designated Science: Biology	0	0	-	5	5	100%	9	6	67%	11	1	9%
CH Designated Science: Chemistry	3	2	67%	0	0	-	1	0	0%	6	0	0%
ES Designated Science: Earth Science	1	0	0%	2	1	50%	0	0	-	1	1	100%
PH Designated Science: Physics	0	0	-	0	0	-	0	0	-	1	0	0%
AE Designated CTE: Agriculture Education	0	0	-	0	0	-	0	0	-	0	0	-
BE Designated CTE: Business Education	3	1	33%	4	4	100%	5	1	20%	16	7	44%
FE Designated CTE: Family And Consumer Sciences Education	4	2	50%	5	4	80%	6	5	83%	9	2	22%
ME Designated CTE: Marketing Education	3	1	33%	0	0	-	1	0	0%	5	0	0%
TE Designated CTE: Technology Education	2	2	100%	2	1	50%	3	2	67%	4	1	25%
LC Designated World Languages: Chinese	1	0	0%	0	0	-	0	0	-	0	0	-
LF Designated World Languages: French	0	0	-	0	0	-	0	0	-	3	0	0%
LG Designated World Languages: German	0	0	-	0	0	-	0	0	-	4	0	0%
LI Designated World Languages: Italian	0	0	-	0	0	-	0	0	-	0	0	-
LJ Designated World Languages: Japanese	0	0	-	0	0	-	0	0	-	1	0	0%
LL Designated World Languages: Latin	0	0	-	0	0	-	0	0	-	0	0	-
LN Designated World Languages: Norwegian	0	0	-	0	0	-	0	0	-	0	0	-
LS Designated World Languages: Puget Sound Salish	0	0	-	0	0	-	0	0	-	0	0	-
LR Designated World Languages: Russian	0	0	-	0	0	-	0	0	-	0	0	-
LSP Designated World Languages: Spanish	7	3	43%	4	2	50%	4	3	75%	15	2	13%
LSW Designated World Languages: Swedish	0	0	-	0	0	-	0	0	-	0	0	-
ECE Early Childhood Education	67	23	34%	76	34	45%	68	39	57%	126	29	23%
ECS Early Childhood Special Education	0	0	-	0	0	-	0	0	-	0	0	-
EL Elementary Education	305	136	45%	262	152	58%	224	172	77%	272	61	22%
EN English Language Arts	10	5	50%	13	6	46%	8	5	63%	23	6	26%
ESL English as a Second Language	46	14	30%	15	3	20%	13	9	69%	37	4	11%
HF Health/Fitness	29	13	45%	39	19	49%	20	15	75%	34	7	21%
HI History	20	4	20%	23	9	39%	16	13	81%	34	3	9%
LI Library Media	0	0	-	0	0	-	0	0	-	0	0	-
MA Mathematics	24	21	88%	26	16	62%	17	16	94%	35	11	31%
MHU Middle Level: Humanities	0	0	-	0	0	-	0	0	-	0	0	-
MMS Middle Level: Math/Science	9	5	56%	13	9	69%	2	2	100%	0	0	-
RE Reading	40	2	5%	17	7	41%	25	13	52%	3	1	33%
SC Science	0	0	-	2	1	50%	9	10	111%	39	2	5%
SO Social Studies	24	11	46%	20	7	35%	6	4	67%	5	2	40%
SP Special Education	21	12	57%	33	24	73%	16	14	88%	32	1	3%
TS Traffic Safety	0	0	-	0	0	-	0	0	-	26	11	42%
# of Endorsements for Completers	672	279		611	334		481	353		825	165	

**Program Interpretations and Conclusions:**

These data are inconclusive for all science areas. Our anecdotal data shows that students who actively seek teaching positions and are flexible about relocating do get jobs.