



Tarleton State University

CAMPUS REPORT

May 2005

I. INTRODUCTION

This document presents a progress report of Tarleton State University (TSU), with a focus on the cumulative impact of TxCETP and plans for sustaining accomplishments. The report is organized by TxCETP goals, which cover these areas:

1. Course reform
2. Recruitment of students to STEM teaching
3. Preservice teacher and novice teacher support
4. Systemic reform connections



Because of the inherent overlap between Goal 2: Recruitment, and Goal 3: Preservice teacher and novice teacher support, the reader may find individual campus differences in which goal the strategies and activities are placed to accomplish these goals..

The following data sources have been used to show evidence of the extent to which these goals have been achieved:

- NSF reporting system
- State Board of Educator Certifications
- Student and faculty course surveys
- Campus Team Leader reports/interviews
- Campus Strategic Plan
- NSF Scholar application narratives

To provide a context for interpreting the TxCETP progress data, the next section includes some background information on TSU - a brief campus description, faculty and K-12 teacher involvement in TxCETP, and student participation in the teacher education program.

II. BACKGROUND INFORMATION

1. CAMPUS DESCRIPTION

Tarleton State University is located in Stephenville, Texas, southwest of Dallas/Fort Worth. It is the largest non-land-grant agriculture university in the nation, producing more agricultural education teachers than any other school in the U.S. Tarleton offers 76 undergraduate and 14 graduate programs in five academic colleges: Liberal and Fine Arts, Business Administration, Agriculture and Human Sciences, Science and Technology, and Education. In addition, the College of Graduate Studies offers both teaching and research-based master's degrees.

Founded in 1899 as John Tarleton College, the institution became a member of the Texas A&M University System in 1917. Tarleton gained status as a university in 1973.

The mission of TSU is to provide an academically challenging educational experience through effective teaching, scholarship, research, and service. This experience enables students to pursue truth and acquire understanding, knowledge, and skills necessary for establishing successful careers and becoming responsible citizens and leaders.

Based on the most recent IPEDS data from school year 2003-04, the overall enrollment has increased 285 from Fall 1998 (N=6,333) to Fall 2003 (N=8,845). 84% of the Fall 2003 student body were undergraduates. The ethnic make up was approximately 83% White, 8% Black, 7% Hispanic, and the remaining Asian, Native American and non-resident alien. The university awarded 1,335 Baccalaureate degrees between July 1, 2003 and June 30, 2004, 408 in Business Management Marketing and Related Sciences, 162 in Agricultural Operations and Related Sciences, 134 in Multi/Interdisciplinary Studies, 92 in Parks, Leisure and Fitness, and 54 in Security and Protective Services.

Weatherford College in Weatherford, Texas is the largest two-year feeder institution, although Tarleton State University has seven community colleges that are considered feeder institutions.

2. PARTICIPATION IN TxCETP BY CALENDAR YEAR

The following tables show the number of faculty and K-12 educators involved in TxCETP implementation and benefiting from these reform efforts by TSU since the year 2000:

| Table 1a: Campus Participation by Calendar Year | | | | | | | | | | |
|--|-----------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|
| | Implementation | | | | | Beneficiaries | | | | |
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2000 | 2001 | 2002 | 2003 | 2004 |
| College of Education | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Engineering | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Science | 1 | 1 | 5 | 3 | 3 | 2 | 3 | 3 | 5 | 1 |
| Mathematics | 3 | 3 | 7 | 7 | 7 | 0 | 4 | 3 | 1 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 6 | 6 | 14 | 12 | 12 | 2 | 7 | 6 | 6 | 2 |

Source: NSF Data Reports

| Table 1b: Community College Participation | | | | | | | | | | |
|--|-----------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|
| | Implementation | | | | | Beneficiaries | | | | |
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2000 | 2001 | 2002 | 2003 | 2004 |
| College of Education | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Science | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 14 | 1 | 1 |
| Mathematics | 0 | 0 | 0 | 3 | 0 | 2 | 3 | 22 | 3 | 4 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Total | 0 | 0 | 0 | 3 | 0 | 4 | 5 | 36 | 10 | 5 |

Source: Campus Activities Reports

Table 2: K-12 Participation by Calendar Year

| | Implementation | | | | | Beneficiaries | | | | |
|----------------------|----------------|----------|----------|----------|----------|---------------|------------|------------|-----------|-----------|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2000 | 2001 | 2002 | 2003 | 2004 |
| Elementary Teachers | 0 | 0 | 0 | 1 | 2 | 18 | 0 | 50 | 22 | 24 |
| Mathematics Teachers | 2 | 0 | 0 | 0 | 0 | 8 | 0 | 53 | 1 | 0 |
| Science Teachers | 3 | 0 | 2 | 1 | 0 | 0 | 0 | 27 | 0 | 4 |
| Administrators | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 30 | 1 | 1 |
| Other/Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 0 | 0 | 0 |
| Total | 5 | 2 | 2 | 2 | 2 | 27 | 135 | 160 | 24 | 29 |

Source: NSF Data Reports

3. STUDENT PARTICIPATION IN TEACHER PREPARATION PROGRAM – ENROLLMENT, GRADUATION, AND CERTIFICATION

The next four tables provide the following information:

- Juniors and seniors enrolled in teacher preparation program by major and ethnicity
- Bachelor degrees from the teacher preparation program by major
- Post-Baccalaureate certification students from the teacher preparation program by major
- Initial ExCET/TEXES Test Takers by Area and Academic Year
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The key for the column headers is as follows: E = Elementary Education, M=Mathematics, S=Science.

Table 3: Juniors & Seniors Preparing to be Teachers by Ethnicity and Major

| Ethnicity | Fall 2000 | | | | Fall 2001 | | | | Fall 2002 | | | | Fall 2003 | | | | Fall 2004 | | | |
|------------------------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|
| | E | M | S | Total | E | M | S | Total | E | M | S | Total | E | M | S | Total | E | M | S | Total |
| African American/Black | 14 | 0 | 0 | 3% | 18 | 0 | 0 | 4% | 20 | 0 | 0 | 5% | 18 | 2 | 0 | 6% | 31 | 0 | 0 | 5% |
| Anglo/White | 344 | 13 | 11 | 91% | 328 | 17 | 17 | 89% | 352 | 17 | 11 | 88% | 261 | 20 | 12 | 86% | 451 | 35 | 9 | 88% |
| Hispanic | 18 | 0 | 0 | 4% | 18 | 0 | 0 | 4% | 26 | 0 | 0 | 6% | 23 | 1 | 0 | 7% | 29 | 2 | 1 | 6% |
| Native American | 1 | 0 | 0 | --- | 4 | 0 | 0 | 1% | 3 | 0 | 0 | .5% | 1 | 0 | 0 | --- | 4 | 1 | 0 | 1% |
| Asian | 6 | 0 | 0 | 2% | 6 | 0 | 0 | 2% | 1 | 0 | 0 | --- | 2 | 0 | 0 | 1% | 2 | 0 | 0 | 0% |
| Other/Not Reported | 0 | 0 | 0 | --- | 0 | 0 | 0 | --- | 1 | 0 | 0 | --- | 0 | 0 | 0 | --- | 0 | 0 | 0 | 0% |
| Total | 383 | 13 | 11 | 407 | 374 | 17 | 17 | 408 | 403 | 17 | 11 | 431 | 305 | 23 | 12 | 340 | 517 | 38 | 10 | 565 |

Source: NSF Data Reports

Table 4: Baccalaureate Degrees Awarded to Students Preparing to be Teachers by Major and Calendar Year

| Ethnicity | 2000 | | | | 2001 | | | | 2002 | | | | 2003 | | | | 2004 | | | |
|------------------------|-----------|----------|----------|------------|------------|-----------|-----------|------------|------------|----------|----------|------------|------------|----------|----------|------------|------------|-----------|----------|------------|
| | E | M | S | Total | E | M | S | Total | E | M | S | Total | E | M | S | Total | E | M | S | Total |
| African American/Black | 0 | 0 | 0 | --- | 2 | 0 | 0 | 1% | 2 | 0 | 0 | 1% | 5 | 0 | 0 | 4% | 3 | 1 | 0 | 3% |
| Native American | 1 | 0 | 0 | 1% | 0 | 0 | 0 | --- | 0 | 0 | 0 | --- | 0 | 0 | 0 | --- | 0 | 0 | 0 | 0% |
| Asian | 0 | 0 | 0 | --- | 0 | 0 | 0 | --- | 0 | 0 | 0 | --- | 1 | 1 | 0 | 2% | 0 | 0 | 0 | 0% |
| Anglo/White | 89 | 1 | 8 | 98% | 103 | 12 | 10 | 94% | 117 | 5 | 5 | 96% | 101 | 4 | 9 | 89% | 109 | 15 | 3 | 79% |
| Hispanic | 1 | 0 | 0 | 1% | 6 | 0 | 0 | 5% | 3 | 0 | 0 | 2% | 7 | 0 | 0 | 5% | 4 | 0 | 0 | 3% |
| Other/Not Reported | 0 | 0 | 0 | --- | 0 | 0 | 0 | --- | 0 | 0 | 0 | --- | 0 | 0 | 0 | --- | 25 | 0 | 0 | 16% |
| Total | 91 | 1 | 8 | 100 | 111 | 12 | 10 | 133 | 122 | 5 | 5 | 132 | 114 | 5 | 9 | 128 | 141 | 16 | 3 | 160 |

Source: NSF Data Reports

Table 5: Post-Baccalaureate Students Certified by Major and Calendar Year

| Major | 2000 | 2001 | 2002 | 2003 | 2004 |
|----------------------|-----------|-----------|------------|-----------|------------|
| Elementary Education | 35 | 35 | 123 | 68 | 88 |
| Mathematics | 2 | 2 | 10 | 8 | 9 |
| Science | 2 | 2 | 6 | 8 | 9 |
| Mathematics/Science | 0 | 0 | 0 | 2 | 9 |
| Total | 39 | 39 | 139 | 87 | 108 |

Source: Campus Activities Reports

Table 6: Number of Initial ExCET/TEXES Test Takers by Area and Academic Year

| Area | (9/99-8/00) | (9/00-8/01) | (9/01-8/02) | (9/02-8/03) | (9/03-8/04) |
|--|-------------|-------------|-------------|-------------|-------------|
| Early Childhood Education | 71 | 29 | 77 | 7 | - |
| Elementary Comprehensive | 125 | 127 | 129 | 74 | - |
| Professional Development (Elementary) | 131 | 150 | 193 | 22 | - |
| Generalist EC-4 | - | - | - | 213 | 207 |
| Generalist 4-8 | - | - | - | - | 14 |
| Pedagogy and Professional Responsibilities EC-4 | - | - | - | 158 | 160 |
| Pedagogy and Professional Responsibilities 4-8 | - | - | - | 75 | 52 |
| Pedagogy and Professional Responsibilities 8-12 | - | - | - | 124 | 115 |
| Pedagogy and Professional Responsibilities EC-12 | - | - | - | 53 | 80 |
| Mathematics (Secondary) | 7 | 11 | 20 | 5 | - |
| Mathematics 4-8 | - | - | - | 20 | 18 |
| Mathematics 8-12 | - | - | - | 13 | 16 |
| Mathematics/Science 4-8 | - | - | - | 4 | - |
| Science 4-8 | - | - | - | 19 | 3 |
| Science 8-12 | - | - | - | 4 | 3 |
| Biology (Secondary) | 8 | 11 | 6 | 4 | - |
| Chemistry (Secondary) | 1 | 1 | 3 | 2 | - |
| Composite Science (Secondary) | 6 | 2 | 2 | 3 | - |
| Earth Science (Secondary) | 1 | - | 2 | 1 | - |
| Life/Earth Science (Secondary) | 2 | 1 | 3 | - | - |
| Life Science 8-12 | - | - | - | 5 | 4 |
| Physical Science (Secondary) | - | - | - | - | - |
| Physical Science 8-12 | - | - | - | 2 | - |
| Physics (Secondary) | - | - | - | 1 | - |
| Psychology (Secondary) | 1 | - | - | - | - |

Source: SBEC Reports

GOAL 1: COURSE REFORM

This section of the report describes the cumulative impact made to date in the area of Course Reform to systemically improve STEM teacher preparation. Specifically how TxCETP has impacted this campus in the TxCETP wide objectives:

- Expand course reform from Biology to Chemistry, Physics, Earth Sciences, and courses taken by elementary, math/science preservice teachers and potentially to all students enrolled in these courses.
- Integrate Texas Essential Knowledge and Skills (TEKS) and the state standards for teacher certification into mathematics and science courses.
- Introduce course reform to faculty through the use of various TxCETP-sponsored projects (e.g., Multi-Initiative Dissemination Chemistry Workshops, Inquiry for Professors, TxCETP Forum)

In addition, other impacts on this campus as a result of involvement in the TxCETP initiative are reported.

CUMULATIVE IMPACT OF TxCETP ON COURSE REFORM

Course reform at Tarleton has been greatly impacted by support from TxCETP. Fifteen courses have been reformed (Table 7) and have met most of the course reform indicators (73% or greater on vision indicators from 219 students, Table 8). Math has had the greatest number of courses reformed followed by Biology, Education, and Engineering (Table 7). Although courses are not listed as reformed, a number of faculty from the physical sciences have participated in TxCETP supported workshops for Inquiry and subject areas such as Chemistry. TxCETP course reform has dramatically changed the way some of our math, biology, and education courses are taught to preservice teachers. One of the way courses were reformed was through the use of course components, modifying courses so that they use inquiry, and collaborations between education and science faculty to stress relevance and pedagogy. These course reforms were largely supported by level two funding from TxCETP. For example, one of the course components used in full course reform in Biol 4703 (secondary science teachers capstone course) has been published in the *American Biology Teacher* and has been used successfully to better explain a biochemical concept that is difficult for preservice science teachers. The capstone course in mathematics (Math 3043) has been modified so that it is completely inquiry based and engineering students in Engr 1113 design fundamental physics experiments and present them to pre-service elementary teachers while they are students in Edu 3963. Without training and support from TxCETP, course reform at Tarleton would have been slow or non-existent and would not have been collaborative and systemic in nature.

Table 7: Reformed Courses and Student Enrollment by Calendar Year

| Course # | Course Title | Enrollment | | | | |
|--------------|--|------------|------------|------------|------------|--------------|
| | | 2000 | 2001 | 2002 | 2003 | 2004 |
| BIOL 2103 | Essential Elements of Biology | - | - | 220 | 119 | 100 |
| BIOL 3034 | Heredity | - | - | 79 | 100 | 124 |
| BIOL 4703 | Systematic Analysis of Biological Principles | - | 8 | 11 | 7 | 10 |
| EDU 3963 | Curriculum & Methods for E C-Grade Four II | - | - | 70 | 68 | 85 |
| EDU 4303 | Prof Development III – Middle School & Secondary | - | 89 | 41 | 31 | 73 |
| EDU 5223 | Teaching Math and Science in Elem. School | - | 61 | - | 13 | 12 |
| ENGR 1113 | Foundations of Engineering I | - | - | 31 | 36 | 51 |
| ENGR 1123 | Foundations of Engineering II | - | - | - | 20 | 27 |
| MATH 1073 | College Algebra | - | - | - | 206 | 378 |
| MATH 3033 | Concepts of Elementary Mathematics I | 199 | 183 | 190 | 134 | 191 |
| MATH 3053 | Concepts of Elementary Mathematics II | 99 | 85 | 175 | 133 | 139 |
| MATH 4043 | Survey of Math. Ideas | 16 | 22 | 14 | 15 | 18 |
| MATH 4053 | Elementary Concepts III | - | 17 | 21 | 16 | 14 |
| MATH 3023 | College Geometry | - | 16 | 47 | 24 | 30 |
| MATH 5073 | Topics/Secondary Math. | - | 5 | - | 5 | - |
| Total | | 314 | 486 | 899 | 927 | 1,252 |

Source: NSF Data Reports

Table 8: Student and Faculty Course Survey Results by TxCETP Vision Indicators

| Vision Indicators | Percent of All Item Responses that were Always/Usually | | | | | |
|-------------------------------|--|----------------------|--------------------|---------------------|--------------------|----------------------|
| | Fall 2003 | | Spring 2004 | | Fall 2004 | |
| | Student (n=190) | Instructor (n=10) | Student (n=153) | Instructor (n=8) | Student (n=219) | Instructor (n=11) |
| Course Design | 80% | 81% | 89% | 94% | 82% | 86% |
| Prior Knowledge | 86% | 75% | 91% | 95% | 87% | 78% |
| Instructional Strategies | 86% | 69% | 92% | 100% | 83% | 80% |
| Assessments | 88% | 88% | 91% | 100% | 89% | 85% |
| Problem Solving | 84% | 69% | 91% | 81% | 82% | 50% |
| Multiple Representations | 88% | 79% | 89% | 92% | 87% | 70% |
| Learning Environment | 82% | 75% | 91% | 92% | 86% | 85% |
| Books, Materials & Technology | 77% | 88% | 76% | 38% | 73% | 73% |

Source: Fall, 2003 Course Surveys; Spring, 2004 Course Surveys; Fall, 2004 Course Surveys

GOAL 2: RECRUITMENT OF PRESERVICE TEACHERS

This section of the report describes the cumulative impact made to date in the area of Recruitment of more undergraduate students to STEM teaching. Specifically how this campus has been impacted by the TxCETP wide objectives:

- Use introductory courses and summer experiences to target freshmen and sophomore mathematics and science undergraduates for preservice teacher recruitment and retention.
- Use alternative certification and post-baccalaureate pathways for junior and senior mathematics and science majors who become interested in teaching careers.
- Recruit high school students from local districts, from the Texas and South Texas Rural Systemic Initiatives (TRSI and STRSI) districts, and from Regents' Initiative (TX A&M System Schools only) partner school districts to teaching careers.
- Recruit community college students with declared interest in STEM teaching careers, and facilitate their transfer to TxCETP campuses.

CUMULATIVE IMPACT OF TXCETP ON RECRUITMENT

TxCETP support has had a tremendous impact on recruitment of pre-service teachers at Tarleton. We have developed successful NSTA and NCTM chapters that has been active with local schools, Science Olympiad, Science and Math UIL contests, and at regional meetings. These experiences have proven invaluable to pre-service science and mathematics students at Tarleton. Mathematics faculty have recently developed an exploration course that targets freshman and sophomore students and exposes them to teaching as a career. Biology has developed a similar program with the degree success seminars offered by the Department of General Studies. Coordination of scholarships and programs that support teaching have been developed with many community colleges. An example of this is our Community College Teaching Scholars Program with Weatherford College. In this program, students that receive Teaching Scholars scholarships at Weatherford College often transition into TxCETP supported scholarships at Tarleton. In addition community colleges have been directly involved in TxCETP sponsored activities. For example, a community college day, involving 120 faculty from the surrounding community colleges, K-12 secondary schools and university faculty was held in 2002 to

brainstorm ideas about improving the preparation of mathematics/science teachers. A mathematics/science conference was also held in October 2002 for area schools, students doing student teaching and senior students preparing to student teach. Participants chose from sessions addressing elementary, middle school and secondary mathematics and science topics. Teacher Leaders from the two Rural Systemic Initiative projects were presenters as well as informal science representatives. The Tarleton Model for Accelerated Teacher education has continued to produce a number of math and science teachers that receive alternative certification by taking TxCETP-touched courses. Support from TxCETP, has greatly enhanced recruitment of preservice teachers at Tarleton.

GOAL 3: SUPPORT FOR PRESERVICE AND NOVICE TEACHERS

This section of the report describes the cumulative impact made to date in the area of Support for Preservice and Novice Teachers to increase retention and quality. Specifically how TxCETP has impacted this campus in the TxCETP wide objectives:

- Disseminate reformed courses for preservice mathematics and science students. Include emphasis to tie to Informal Science partners (e.g., Fort Worth Museum, Texas Parks and Wildlife, Texas State Aquarium)
- Use student chapters of NCTM, NSTA, scholarships (TxCETP and Noyce Scholars), and travel awards to conferences to support preservice mathematics and science teachers.
- Assist with placement, induction and sustained professional development to novice mathematics and science teachers.

CUMULATIVE IMPACT OF TXCETP ON SUPPORT FOR PRESERVICE AND NOVICE TEACHERS

Support of preservice and novice teachers at Tarleton has greatly been enhanced in the following categories: student support, novice teacher support, academic program development, and faculty support.

Student support:

- Tarleton has been active in recruiting and supporting NSF/NOYCE scholars and TxCETP scholars (Table 9). These scholars have been involved in a number of activities that strengthen their commitment to teaching.
- Students were sponsored by TxCETP level two funding to attend the Conference for the Advancement of Mathematics Teaching (CAMT) and CAST (Conference for the Advancement of Science Teaching). Hundreds of preservice teachers have received training and materials for inquiry-based environmental education through Project WILD, a collaborative project with Texas Parks and Wildlife.

Novice teacher support:

- Dr. Ron Bradbury, a professor in the College of Education is designing a mentoring program for our novice teachers that will be similar to Strategies of Success Program used at TAMU-CC. Individual faculty have worked with K-12 teachers on specific subject matter efforts. For instance, faculty team taught with a Pre-Algebra teacher to investigate the use of a function based approach to Algebra and a Biology Professor provided activities and supplies for an after school enrichment program at local elementary school.

Academic Program Development:

- Teacher preparation programs in mathematics and science are aligned with the state standards for certification. Courses taken by prospective teachers have been correlated to the Texas Essential Knowledge and Skills (TEKS) and the Texas Examination of Educator Standards (TEXES) frameworks.

Faculty Support:

- TxCETP funds have made it possible for the Tarleton campus faculty to participate in a wide range of professional development opportunities. A number of examples are listed below:

Biological Sciences, Allan Nelson, Assistant Professor

-journal article: Nelson, A. D. and J. R. Goetze. 2004. Modeling protein folding and applying it to a relevant activity. *The American Biology Teacher*. 66: 287-289.

-several presentations to novice and preservice teachers, for example:

- 1) Impacts of new certification requirements on life science certification at Tarleton State University.
- 2) Science Review for Elementary Comprehensive TEXES (Texas Examination Educator Standards) Examination.
- 3) many Project Wild workshops.

Biological Sciences, Russell Pfau, Assistant Professor

-sponsored NSTA chapter and presentations by students at regional meetings

-developed inquiry-based meiosis course component and field-tested it with NSRTA members at a local school

Curriculum and Instruction, Kathy Smith, Assistant Professor

-workshops on math and science problem solving

-presented a paper at CAMT and several other meetings

-attended Frontiers of Education symposium in Boulder, Colorado

Hydrology and Engineering, Daniel Marble, Assistant Professor

-conducted a summer workshop on inquiry in physics for public school teachers at the Fort Worth Museum of Natural History

-conducted a summer workshop on inquiry in physics for college faculty at the Fort Worth Museum of Natural History

Hydrology and Engineering, Denise Martinez, Assistant Professor

-attended Frontiers of Education symposium in Boulder, Colorado

-several summer physics and engineering camps

Mathematics, Beth Riggs, Assistant Professor

-numerous presentations on mathematics education to novice and preservice teachers

For example:

- 1) The Effect of a Function-Based Approach to Teaching Pre-Algebra in a 9th-grade Introduction to Algebra Classroom
- 2) Envelope Tetrahedrons
- 3) Applications to the TAKS
- 4) Preparation Advice for First-Year Teachers

Without support from TxCETP, students would not have been able to be recruited using scholarship monies, academic programs would not have been correlated to teacher standards, and faculty would not have been able to publish works, provide support for travel to workshops, or been able to present at professional meetings.

| Majors | 2002 | | | | 2003 | | | | 2004 | | | |
|---------------------|-----------|----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|
| | L1 | L2 | Noyce | Total | L1 | L2 | Noyce | Total | L1 | L2 | Noyce | Total |
| Elementary | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Mathematics | 7 | 3 | 0 | 10 | 4 | 12 | 3 | 19 | 6 | 16 | 2 | 24 |
| Science | 1 | 2 | 0 | 3 | 0 | 5 | 0 | 5 | 2 | 1 | 1 | 4 |
| Mathematics/Science | 3 | 0 | 0 | 3 | 1 | 2 | 0 | 3 | 0 | 1 | 0 | 1 |
| Total | 11 | 5 | 0 | 16 | 5 | 19 | 3 | 27 | 9 | 18 | 3 | 30 |

Source: TxCETP Scholarship Database

GOAL 4: MAKING SYSTEMIC REFORM CONNECTIONS

This section of the report describes the cumulative impact made to date in the area of Strengthening Systemic Reform Connections to maximize alignment and impact. Specifically how this campus has been impacted by the TxCETP wide objectives:

- Collaborate with STRIS/TRSI by involving mathematics and science specialists, and Teacher Partners in mentoring, lesson modeling, observations, workshops, etc. with TxCETP preservice and novice teachers.
- Collaborate with Texas Education Agency (TEA), State Board for Educator Certification (SBEC), and others to construct the new Texas Examinations of Educator Standards (TExES) to reflect standards-based instruction.
- Collaborate with Regents' Initiative (A&M Systems Schools) to coordinate activities with mathematics and science Academy members, campus recruiters, and data collection resources.

CUMULATIVE IMPACT OF TXCETP ON MAKING SYSTEMIC REFORM CONNECTIONS

TxCETP has allowed Tarleton to be involved in a number of systemic reform connections. Faculty at Tarleton have been involved with the Southwest Development Laboratory in Austin, TX in promoting reform in Math, Science, and Technology. Beth Riggs and Pam Littleton presented sessions at the Texas Rural Systemic Initiative (TRSI) summer Leadership Institute. The TRSI, South Texas RSI and other collaborators were also involved in the math/science conference sponsored on campus in 2002. In addition, Pam Littleton served on two advisory committees with the State Systemic Initiative. TxCETP sponsored faculty have collaborated with the State Board for Educator Certification and Regent's Initiative. Tarleton faculty have been active in statewide efforts to bring higher standards to teacher preparation in mathematics and science. Faculty have served on the following statewide committees:

- 8-12 standards for Master Mathematics Teacher
- Item review for 8-12 Mathematics TExES Test
- Standards setting for 8-12 Mathematics TExES Test

Item Analysis for 4-8 Master Mathematics Teacher test
Item Analysis for EC-4 Master Mathematics Teacher test
Standards setting for Life Science 8-12
Standards setting for Science 8-12
Item review and analysis for Life Science 8-12

Support from TxCETP has allowed Tarleton faculty to participate in systemic reform.

IV. STRATEGIES TO INSTITUTIONALIZE ACCOMPLISHMENTS

This section of the report describes plans for sustaining TxCETP accomplishments on this campus for each of the four goals: Course Reform, Recruitment of Students to STEM Teaching, Preservice Teacher and Novice Teacher Support and Systemic Reform Connections. In addition, plans to sustain other accomplishments on this campus as a result of involvement in the TxCETP initiative are reported.

PLANS FOR SUSTAINING COURSE REFORM

At Tarleton, much of what has been accomplished with TxCETP will be institutionalized. Course reform, recruitment, and systemic reform have largely been institutionalized. Course reform at Tarleton has been greatly impacted by support from TxCETP. Fifteen courses have been reformed (Table 7) and have met most of the course reform indicators (73% or greater on vision indicators from 219 students, Table 8). This success has greatly influenced our teacher preparation courses and has already become institutionalized as a part of our curriculum. In regard to recruitment, Tarleton has developed successful NSTA and NCTM chapters that has been active with local schools, Science Olympiad, Science and Math UIL contests, and at regional meetings. Coordination of scholarships and programs that support teaching have been developed with many community colleges. Because of TxCETP student organizations and community college connections have become a part of Tarleton. Support from TxCETP has allowed Tarleton faculty to participate in systemic reform and this reform has become part of the curriculum and field experiences for pre-service teachers at Tarleton. Because TxCETP provided opportunities for Tarleton faculty to be a part of committees that developed standards and assessment, our curriculum was reformed and became institutionalized so that we could better prepare teachers.

Support for preservice and novice teachers has not been institutionalized. The university has no plans to support students with scholarships like the NSF/NOYCE scholars and TxCETP scholars. Tarleton is currently developing a mentoring program that will support novice teachers but at this point its goals and scope are unclear. Tarleton faculty will need to find support for preservice and novice teachers once TxCETP support is gone.

PLANS FOR SUSTAINING RECRUITMENT OF STUDENTS INTO STEM TEACHING

The College of Science and Technology plans to continue supporting the NSTA and NCTM chapters at Tarleton State University. This will allow students to be involved in Science Olympiad, Science and Mathematics UIL contests, and to attend local and regional meetings. Exploration and Success in Degree courses will continue to be supported to target freshman and sophomore students. The Community College Scholars Teaching Program and connections to Tarleton scholarships for teachers will continue, but will likely be more limited as funds from TxCETP are lost. Also, there will be less collaboration between Tarleton and community colleges without TxCETP funds. The College of Science and Technology and faculty involved with TxCETP plan to continue to seek external funding

in support of teaching scholarships and community college collaborations.

PLANS FOR SUSTAINING PRESERVICE AND NOVICE TEACHER SUPPORT

Support of preservice and novice teachers at Tarleton will continue. There will be fewer scholarships without those provided by TxCETP. Colleges and departments will continue to provide some funds for students and faculty to attend the Conference for the Advancement of Mathematics Teaching (CAMT) and CAST (Conference for the Advancement of Science Teaching). Project WILD, a collaborative environmental education project with Texas Parks and Wildlife, will continue to be offered to preservice and novice teachers.

The College of Education will provide a mentoring program for our novice teachers that will be similar to Strategies of Success Program used at TAMU-CC. Teacher preparation programs in mathematics and science will continue to be aligned with the state standards for certification. Courses taken by prospective teachers will be correlated to the Texas Essential Knowledge and Skills (TEKS) and the Texas Examination of Educator Standards (TExES) frameworks. Tarleton faculty, through support at the departmental and college levels will continue to participate in professional development opportunities that will benefit future teachers.

PLANS FOR SUSTAINING SYSTEMIC REFORM CONNECTIONS

Tarleton faculty will be supported by their departments and colleges to continue participation in systemic reform efforts.

PLANS FOR SUSTAINING OTHER TxCETP-RELATED ACCOMPLISHMENTS

The primary “other” TxCETP-related accomplishment that will persist is the collegiality among members of the consortium and across departments at Tarleton. We have gotten to know each other and who to call when we need help or have ideas that we think will improve STEM education.