Teachers for a Competitive Tomorrow: Programs for Master's Degrees in Science, Technology, Engineering, Mathematics (STEM), or Critical Foreign Language (CFL) Education (TCT-M)

Annual Performance Report
2011-2012

Office of Postsecondary Education
U.S. Department of Education

Cover Sheet

Project Identification and Certification

A. Identification

1. Report Period: June 16, 2011 (Month/Day/Year) to May 15, 2012 (Month/Day/Year)

2. PR/Award Number: P381B080006

3. Name of Grantee: The University of Toledo

4. Address (City, State, Zip):
   2801 W. Bancroft, Toledo, OH 43606

5. Name of Project Director: Daryl Moorhead, PhD

   Phone Number: 419-530-2017 Fax Number: 419-530-4421

   E-mail Address: daryl.moorhead@utoledo.edu

B. Indirect Cost Information *(To be completed by your Business Office.)*

a. Are you claiming indirect costs under this grant? X_Yes ___No

b. If yes, do you have an Indirect Cost Rate Agreement approved by the Federal Government? _X_Yes ___No

c. If yes, provide the following information:

Period Covered by the Indirect Cost Rate Agreement: From: 07/ 01/2008 To: 06/30/2012

Approved rate: _____45.5%_____ percent

Approving Federal agency: ___DHHS ___Other *(Please specify*): _____

Type of Rate: ___ Provisional ___ Final ___ Other *(Please specify)* Predetermined

d. Are you using a restricted indirect cost rate that: 8% per USDOED program guidelines

Is included in your approved Indirect Cost Rate Agreement? _No__

Complies with 34 CFR 76.564(c)(2)? ___

C. Certification

Certification: We certify that the performance report information reported and submitted on 6/14/12 is readily verifiable. The information reported is accurate, reliable, and complete, with all known weaknesses fully disclosed, to the best of our knowledge and belief.

James P. Trempe, Ph.D. Vice President for Research	Charlene M. Czerniak, Co-PI for Daryl Moorhead, who is on sabbatical
Name of Certifying Official and Title (Print)	Name of Project Director (Print)
Signature of Certifying Official	Signature of Project Director
Date	Date

INSTRUCTIONS
TCT-M Annual Performance Report (APR)

The Department of Education uses this report to determine whether you have made substantial progress toward meeting the objectives of your project as outlined in your grant application or work plan in this reporting period. As required by the Government Performance and Results Act (GPRA) of 1993, the APR is also used to collect data addressing the performance of the TCT-M program on a national level. These critical questions reflect accountability of Federal funds to implement a program that promotes educational progress. Annual submission of the APR is thereby a requirement of your grant and will be used to determine continuation funding.

This APR consists of a cover sheet, the executive summary, and eight sections. The cover sheet must be completed and signed by the project director and certifying official, and the entire report must be submitted to the Department of Education on or before the due date. A separate announcement including submission instructions and due date is **updated and** sent to each grantee annually. Grantees are expected to complete all questions in the APR. Please write "Not Applicable", "N/A", or something similar if a question does not currently pertain to your project (such as a particular service/activity or outcome related employment retention that may not affect your project until the following school year).

However, the majority of items on the APR, such as project and program/statutory objectives and GPRA measures, and current year demographic and academic data on participants, should elicit an accurate qualitative and/or quantitative response. Similarly, the targets you established for each project, program/statutory, and GPRA measure (in the grant application or subsequent work plan) must also be reported.

Also, please define all terms specific to your TCT program, and spell out all abbreviations and acronyms the first time they are used. In addition, please proofread your APR for misspelled words and incomplete sentences before submitting it.

Please use the forms you filled out in the prior years as a starting point for yearly APR reporting. Since much of the information has not changed (in the manner in which it is reported) you can use the saved year one APR data, for instance, as a baseline and determine your progress on your TCT-M project from year to year.

The reporting period for your grant is from June 16, 2010 through May 15, 2011.

Please note: The critical foreign languages in the Teachers for a Competitive Tomorrow Program, and thereby for purposes of this APR, are: Arabic, Chinese, Japanese, Korean, Russian, Hindi, Urdu, Persian, and Turkish.

EXECUTIVE SUMMARY

Synopsis: As of May 2012, seven of the first cohort of ten high school science teachers from the Toledo Public Schools (TPS) district (high needs LEA) recruited to the IMPACT program in 2009, successfully completed the requirements for a Master of Science (MS) degree in Biology (Ecology Track) from the Department of Environmental Sciences (DES) at The University of Toledo (UT), aided by the Department of Curriculum & Instruction (CI). The other three students continue to make progress towards completing their degrees within the next academic year. The second cohort of ten teachers was recruited last spring, 2011. They have now completed approximately half the required coursework for their degrees, and have begun their independent, scholarly research projects, also required for graduation.

In brief, participants must complete 24 semester hours of graduate level, content courses (DES) in earth sciences and biology, corresponding to Ohio content standards of science for their students' performance on the Ohio Achievement Test. In addition, they take 4 hours of a translational pedagogy course (CI) to facilitate the incorporation of their new knowledge into classroom activities. In their second year of study, each teacher works under the direct supervision of a DES faculty advisor and committee to develop a scholarly report on a scientific topic. All participants are encouraged to attend and make presentations at professional conferences each year.

Program activities and components: outcomes, successes, and concerns.

Our accomplishments over the past year closely follow the scheduled activities and timeline described in our proposal:

1. **Recruitment, Admission & Initial Advising**: We successfully recruited our second cohort of 10 teachers for the second two years of the program, who took their first classes last summer July 25-August 5, 2011. The IMPACT committee (Dr. Gottgens, Mayer and Weintraub; Moorhead was on sabbatical in France, and participated via email and phone) provided initial advising with course registration. One of these new participants withdrew following the summer course (see item 2) due to personal time constraints, and was replaced with an alternative candidate in time for autumn term.
2. **Content Classes**: Participants in the second cohort took their first two classes last summer July 25-August 5, 2011, which focused on Laboratory and Field Methods in Ecology, and Data Management and Interpretation. Both courses emphasized topics in aquatic ecology, consistent with a local government-supported, science enrichment activity for science students in junior and senior high schools (Student Watershed Watch Program). Classes in autumn and spring semesters focused on Foundations of Ecology and Conservation Biology, supporting content areas included in state educational standards. All participants made good progress towards their degree requirements.
3. **Advising**: Teachers in the first cohort selected an independent advisor from the pool of DES faculty to guide them through the selection and completion of an independent research project. However, the time required to select and advisor and form a

committee led to delays in completing their scholarly research. The IMPACT committee guided the second cohort through more of their first year of the program and the PI (Moorhead) remained as either primary or co-advisor for all students. This revised approach accelerated the progress of each student in the second cohort on his/her independent research projects and committee selection.

4. **Graduation Delays**: Most participants in the first cohort were delayed in meeting their degree requirements past their expected graduation date of May 2011. The primary reason for this delay was the time taken to select a primary advisor, an independent research topic and advisory committee (above). However, all but 3 of the first cohort finished by May 2012, and the latter are expected to finish in 2012.
5. **Conferences**: All teachers are encouraged to participate in both an education and a science conference annually, as part of the IMPACT program of study. This past year, two teachers attended the National Science Teachers Association meeting in Indianapolis (March 29-April 1), two attended the American Mosquito Control Conference in Austin, Texas (February 25-29), one attended the Oak Opening Research Forum in Toledo, Ohio (January 28), and one gave a scholarly presentation at the annual meeting of the International Association of Great Lakes Research in Cornwall, Ontario (May 13-17th).
6. **Pedagogy Course**: The first cohort of students received instruction in translational pedagogy in a series of one-hour courses held concurrent with other classes in content area. The rationale was to help translate content topics into teaching topics as participants gained content knowledge. However, this instructional format proved difficult to develop the pedagogical skills necessary to translate gained content knowledge. The second cohort will receive a condensed, focused pedagogy course during the second summer (2012) of study, after all participants have gained content knowledge from field methods, ecological and conservation courses. They will also receive in-class coaching on project-based science curriculum development from our new program manager, Ms. Lisa Kuhl, during the academic year.
7. **Program Manager**: We hired a new program manager this past year, Ms. Lisa Kuhl, after our previous one, Ms. Dawn Wallin, accepted a permanent job as a high school principal. Kuhl's undergraduate work is in environmental biology with a master's in education. She has 30 plus masters hours including problem-based science. Over the past 12 years she has worked in a variety of informal and formal teaching environments. Previous to this job, The University of Toledo hired Kuhl to do classroom observations for methods and student teachers. She was also an instructor of a student-teacher seminar class.
8. **Science Community**: An objective of our program is to encourage participants to engage in a larger science learning community in the Toledo area. One means to achieve this goal is to encourage IMPACT teachers to interact with the more traditional graduate students in the DES. This includes attending joint seminars, discussions, and study groups. Although participants are limited to late afternoon and evening events, this cohort has been particularly interested in attending the research seminars offered at the UT Lake Erie Center, which typically focus on local aquatic environmental issues. Four participants of the second cohort also have chosen research topics in collaboration with traditional DES graduate students. One project builds on the first cohort's data from the second summer of field studies (2010), and

has already generated a joint presentation at an international scientific meeting and preparation of a manuscript for submission to a scientific journal.

9. **Evaluation**: IMPACT has six program objectives and within each program objective there are performance measures (PM). The evaluation plan measures GPRA, program, and project objectives and outcomes. Herein we address those elements of the evaluation plan that have been performed at this stage of program development.
   - Objective 1: Increase the number of high quality science teachers in Toledo Public Schools (high-need LEA) by assisting 20 in-service science teachers in the attainment of a MS in Biology.

PMA	Progress
Recruit and enroll 10 participants per cohort.	Completed
Recruit and retain 30% of the participants from under-represented groups.	10% (below goal)
Program participants will maintain adequate progress towards degree completion earning the degree in two years.	7 have completed; 3 are in final stages of completing their degree; all 10 of cohort 2 are on track.
All participants will pass the Praxis II in biology within 6 months of earning the MS degree.	None have taken the Praxis yet.
All participants will engage in professional development activities by attending two regional conferences per year while earning their degree.	Six of the 10 active participants attended conferences (60%).

   - Objective 2: Maintain a minimum 90% retention of project participants

PMA	Progress
A minimum of 90% of IMPACT participants will graduate with a MS degree in Biology within two years.	7 have graduated with the other 3 expected to graduate in August (100%).

   - Objective 3: 100% of program participant completers will remain as science teachers in Toledo Public Schools or another high needs school for at least two years after degree completion.

PMA	Progress
Beginning 2011, provide post-graduate follow up activities (professional development) that focus upon teaching science in urban schools.	All participants have been encouraged to attend University of Toledo Lake Erie Center research seminars focusing on local aquatic environmental issues. No programming in urban schools offered.
Within the first year of the project, develop and maintain an IMPACT online community of learners for both participants and graduates with 75% participation rate.	The IMPACT web page continues to be used as a means to communicate with and between participants. All cohort 2 members use the site but cohort 1 use is limited.

- Objective 4: Improve student academic achievement in science in IMPACT classrooms by providing inquiry-based instruction.

PMA	Progress
All participants will deliver inquiry-based science instruction directly linked to Ohio Content Standards.	Only cohort 2 was observed during the past year. Overall scores ran the gamut on the Horizon Observation Protocol (1-5) with the median score falling at a solid "3" (beginning stages of effective instruction). As this was the baseline, it was not expected to gather particularly high scores and yet two teachers scored at level 4 (accomplished, effective instruction) and two at level 5 (exemplary instruction).
Scores on the science portion of the Ohio Achievement Test of Science (OAT) of students who are in participant classrooms will show a medium to large effect size increase over baseline and control group scores.	Baseline data collected in 2010 provided a mean score on the OAT Science of 397 (400 is minimum passing grade). In 2011 the mean score for students tracked through this project (those who had a science class with an IMPACT participant) showed a mean score of only 393—lower than the baseline. This goal has not yet been met.

- Objective 5: Increase the number of secondary school students enrolled in upper level science courses by 20% in the schools where participants teach.

PMA	Progress
Increase the number of students eligible for upper level science courses by increasing the student passing rate (grade of C or better) in science classes by 25% in schools where participants teach	Previous year passing rate was 45% (baseline). Passing rate during the 2011-12 academic year for students in schools where IMPACT teachers are employed was 56% or **an increase of 11%.**
Student increased interest in advanced science as evidenced by participation in local science fairs will increase by 25%.	This item was inadvertently removed from the posttest. It will be included in next year's survey.

- Objective 6: Increase the number of secondary school students who plan to pursue postsecondary education in a science-related field by 15% in the classes taught by IMPACT teachers.

PMA	Progress
Students in IMPACT classrooms will show a statistically significantly better understanding of scientific career opportunities on a project-based survey than students in the control group.	We used a different measure this year: A t-test comparison between treatment and control students showed that students in the treatment classes scored statistically significantly higher on the Value of

	Science scale on the Student Attitudes Towards Science survey. See the table below for mean scores.
The increase in the number of students in the IMPACT classrooms that plan to pursue postsecondary education in a science-related field will be greater than the number in the control classrooms.	This was measured using the Personal Interest scale in the Student Attitudes Towards Science survey. On this survey, treatment students scored statistically significantly higher than those in the control classrooms (see table below)

1. t-Test: Comparison on Value of Science scale

	control	*trmt scores*
Mean	16.60978836	17.47094444
Variance	9.042015912	9.369886813
Observations	189	180
Pooled Variance	9.201931147	
Hypothesized Mean Difference	0	
df	367	
t Stat	-2.72581487	
P(T<=t) one-tail	0.003360875	
t Critical one-tail	1.649016151	
P(T<=t) two-tail	0.006721751	
t Critical two-tail	1.966448946	

2. t-Test: Comparison on the Personal Interest Scale

	control	*Trmt*
Mean	17.13079	19.14577778
Variance	3.802196	5.286911682
Observations	189	180
Pooled Variance	4.526349	
Hypothesized Mean Difference	0	
df	367	
t Stat	-9.09393	
P(T<=t) one-tail	3.06E-18	
t Critical one-tail	1.649016	
P(T<=t) two-tail	6.12E-18	
t Critical two-tail	1.966449	

Section I: Active Partners

1. Specify the program(s) of study at the grantee institution's school, department or program that are included in the partnership (for example, biology, mathematics, engineering, technology, or Chinese).
Master of Environmental Science

2. Identify the school, department or program of education within the eligible recipient, or a two-year institution of higher education that has a teacher preparation offering or a dual enrollment program with the eligible recipient.

   Judith Herb College of Education

3. Identify the high-need local educational agencies (LEA(s)) that participate in this grant:
Toledo Public Schools

4. Identify the partner school(s) (or consortium(s) of schools) that participate in this grant. Specify the NCES School Name, School ID(s) or District ID(s). IDs may be found at http://nces.ed.gov/ccd/schoolsearch/.

NCES School Name	District ID
Anthony Wayne High School	3904820
Bowsher High School	3404490
Glass City Academy	3900127
Perrysburg Junior High	3904558
Maumee High School	3904436
Waite High School	3404490
Rogers High School	3404490
Start High School	3404490
Scott High School	3404490
Swanton High School	3904709
Woodward High School	3404490
Bedford Senior High School	2604470
Central Catholic High School	01061346
Waite High School	3404490
Rogers High School	3404490

Toledo Early College High school	390449
Phoenix Academy	390012

Note: Specify if each school is an elementary, middle, secondary, or high school, or other category.

5. Identify the schools determined by the partnership to be most in need. Specify the NCES School Name, School ID(s) or District ID(s). IDs may be found at http://nces.ed.gov/ccd/schoolsearch/. Specify the primary school(s) served and place an asterisk next to each school that meets the requirements for high-need school(s).

NCES School Name	School ID or District ID
Glass City Academy	3900127
Bowsher High School	3404490
Waite High School	3404490
Start High School	3404490
Scott High School	3404490
Phoenix Academy	3900126
Woodward High School	3404490
Rogers High School	3404490
Toledo Early College High School	3904490
Swanton High School	3904709

Note: Specify if each school is an elementary, middle, secondary, or high school, or other category.

6. Describe the methodology for determining which schools are "most in need".

We looked at free and reduced lunch percentages for the junior high schools associated with each high school (all over 45%) and the science scores on the Ohio Achievement Test (below 60% proficient in science at the 10th grade).

7. Identify any nonprofit organization(s) participating in this project. Specify the name, contact person, address, city and state of any active partner nonprofit organizations.

No nonprofit organizations participating.

8. Since the TCT proposal was submitted: (a) Have any partners been added to your grant? Yes____No_X_ If Yes, please describe.

(b) Have any partners discontinued their participation in your grant? Yes ____ No_X__ If Yes, please describe.

(c) Has the role of any existing partner changed significantly? Yes____ No_X__ If Yes, please describe.

Section II: Services and Activities

1. Describe activities to encourage the participation of (a) individuals who are members of groups that are underrepresented in the teaching of science, technology, engineering, mathematics, or critical foreign languages; (b) members of the Armed Forces who are transitioning to civilian life; and/or (c) teachers teaching in schools determined by the partnership to by most in need.

No recruiting occurred this year.

2. **Services provided to pre-service teachers**

****This program does not work with pre-service teachers.**

Place an "X" in This Column if Your TCT Program Provides This Type of Service	*Type of Service*	*Number of Pre-Service Teachers Who Received the Service in Current Reporting Period*	*Estimated Hours of Service Per Participant Receiving the Service in Current Reporting Period*
N/A	Student teaching		
N/A	Education in strategies to improve student literacy		
N/A	Clinical classroom experience		
N/A	Research experience		
N/A	Laboratory experience		
N/A	Internship experience		
N/A	Curricula development		
N/A	Other (please specify):		
N/A	Other (please specify):		

Place an "X" in This Column if Your Project Provides This Type of Service	*Type of Service*	*Number of Students Who Received the Service in Current Reporting Period*	*Average Annual Subsidy Per Participant Receiving the Service in Current Reporting Period*
N/A	Need-based tuition assistance		$

3. **Activities participated in by in-service teachers**

Type of Service	*Number Who Received the Service in Current Reporting Period*	*Estimated Hours of Service Per Participant Receiving*

			the Service in Current Reporting Period	
	First-Year Teachers	*Second-Year Teachers*	*First-Year Teachers*	*Second-Year Teachers*
Receiving "teacher mentoring"	10	8	90	20
Mentoring other teachers	10	8	90	20
Interdisciplinary collaboration	10	8	90	20
Curricula development	10	8	90	20
"Enhanced and ongoing" professional development	10	8	90	20
Assistance in evaluating data and assessments to improve student academic achievement	10	8	90	20
Other (please specify): Enhanced content mastery	10	8	90	20
Other (please specify):				

4. Describe the role of the LEA(s) in the partnership in developing and administering the program, and how feedback from the partner LEA(s), partner school(s), and participants will be used to improve the program.

Our partner LEA has been instrumental in assisting us through the provision of data required for reporting. The TPS Science Coordinator works with senior project personnel to ensure that supplies needed for project-based instruction are available and the Science Coordinator provides advice concerning logistics of implementing science inquiry activities and lessons in the classroom. This information guides the project based science portion of the TCT program where content is integrated with pedagogy.

5. (a) Describe the procedures used to assess, throughout the operating years of the program, the content knowledge **and** teaching skills of the program participants. How will the program ensure that teachers' skills and content knowledge are being enhanced?

Content knowledge is assessed through university course grades and the Praxis II for content (to be completed for cohort 1 next year). Inquiry-based teaching mastery is assessed by using the Horizon Observation Protocol that examines the extent to which science teachers make use of inquiry-based lessons and a learner centered teaching strategy. Teacher growth over time was measured Spring 2010, Fall 2010, and Spring

2011. Findings are shared with project senior personnel and adjustments or additional preparation is then made.

(b) Describe the methods to ensure applicants to the master's degree program for professionals in a science, technology, engineering, mathematics, or critical foreign language field demonstrate "advanced knowledge" in the "relevant subject."

All course content is delivered at a graduate level. Each course meets UT Department of Environmental Science and Graduate School requirements for the MS in Biology (non-thesis) as well as important components of the Ohio Department of Education requirements for earth science, life science, biology and environmental science certification.

6. Describe how your TCT-M program will prepare participants to assume leadership roles in their schools.

All school districts in which our participants teach recognize the value the IMPACT teachers bring to their classrooms through the integration of project based science and advanced biology content.

7. Describe the planned and current "ongoing activities and services" provided to program graduates.

An IMPACT web page has been established (http://impact.utoledo.edu), with curriculum materials, links to key web sites on campus, and directions relevant to our program. IMPACT teachers are encouraged to maintain contact with Environmental Science faculty and all will continue to be invited to the University of Toledo Lake Erie Center public talk series that focuses on relevant environmental and ecological issues within the Great Lakes region. Past talks have addressed topics such as restoring wetlands, songbird migrations through Lake Erie marshes, contaminated sediments, and Lake Erie walleye management.

8. What aspects of your program do you think are most successful (have the greatest impact)? Why?

Based upon focus group interviews, the teachers felt learning more environmental science positively affected their teaching methods and implementation. The teachers have more confidence in the material. They felt they have acquired a deeper knowledge that they can now teach to their students. The teachers see the new content as not only relevant but match it with Ohio Content Standards. It integrates with their district curriculum.

9. What barriers or problems have you encountered in planning, implementing, developing, and administering the TCT-M grant project? For example: Please note any concerns related to compliance with the TCT statute and Department of Education regulations with which you may require assistance.

The biggest problem is that teachers do not have a complete grasp of project based science (PBS). While elements of PBS are evident in observations, it is clear that the holistic approach to a long term, student-driven project that answers a driving question is not implemented. We have realized through IMPACT as well as other programs that utilize PBS (e.g., NSF Math Science Partnership—LEADERS) that mastery and implementation of PBS develops over time and cannot be realized after a course or a professional development session.

10. What warranted programmatic adjustments to your programs (e.g., type, frequency, duration, location, delivery modes) have you made or do you expect to make this year and/or next year?

None this year.

11. Describe the progress you have made during this reporting period in implementing your evaluation plan as described in your TCT funded application.

Evaluation plan continues to be implemented as designed.

12. Describe any significant changes in your project design since the approval of your grant application. Please respond to the following questions.
    - Do you anticipate making changes to your project design in the next reporting period? Yes ____ No___X_____
    - If Yes, please describe.

N/A

- How will these changes impact expected (quantifiable) outcomes and your ability to meet the project's longer-term goals?

N/A

13. Describe how your project's activities/services and beneficial outcomes are likely to be sustained over time - after the Federally funded performance period ends.

The MS Biology—Ecology Track program existed prior to the onset of this project. However, enrollment in this program has more than doubled as a result of the federally funded project. Slight modifications to the offering of courses were made to ensure that they were offered at a time convenient for teachers. The Environmental Science Department now offers additional masters level courses later in the day. As the coursework becomes more accessible for teachers, it is expected that more teachers will take these courses as part of their State licensure requirement of continuing education.

14. Describe any systemic changes that have occurred in your partner LEA(s) and schools(s) in this reporting period.

None

Section III: Participants

1. TCT Participant demographics

Category	*Number of Pre-Service Teacher Participants*	*Number of In-Service Teacher Participants*
1. Total participants	0	20
2. Hispanic origin	0	0
3. Not of Hispanic origin	0	20
4. American Indian or Alaska Native	0	0
5. Asian or Pacific Islander	0	0
6. Black	0	2
7. White	0	18
8. Unknown	0	0
9. Males	0	4
10. Females	0	16
11. Low-income participants (see Attachment I for Annual Low-Income Levels)	0	0
12. Participants with physical disabilities	0	0
13. Participants with learning disabilities	0	0
14. Previous members of the Armed Forces	0	1
15. Previous teachers in schools determined to be most in need	0	14
16. Previous professionals in science, technology, engineering, mathematics, or a critical foreign language	0	0

2. Academic majors of participants

Academic Majors of Participants	*Number of Participants Studying Each Major*
MS Biology—Ecology track	20

3. Program graduates

a) TCT Graduate summary – respond with respect to STEM or CFL fields

Academic Major of Graduates	*Number of Graduates*				
	Total in Major	*Employed as Teachers*	*Placed in Partner LEA(s) and Public School(s) (or Public School Consortium(s))*	*Placed in Schools Determined to Be Most in Need*	*Placed in Other High- Need Schools**
MS Biology—Ecology track	7	7	7	7	0

* The term "other high-need schools" refers to partner high-need schools that are not designated as "most in need", and high-need schools not located in a partner LEA.

b) Schools in which graduates were placed: Specify the Names and NCES School ID(s). IDs may be found at http://nces.ed.gov/ccd/schoolsearch/.

Scott High School 3404490
Start High School 3404490
Waite High School 3404490
Swanton High School 3904709
Toledo Early College High School 3904490
Phoenix Academy 3900126

Note: Specify if each school is an elementary, middle, secondary, or high school, or other category.

4. Employment retention of program graduates in a STEM of CFL field

Program Graduation Year	*Number of Graduates*					
	Total	*Currently Employed as Teachers*	*Currently Teaching in Partner LEA(s) and Public School(s) (or Public School Consortium(s))*	*Currently Teaching in Schools Determined to Be Most in Need*	*Currently Teaching in Other High-Need Schools**	*Currently Teaching at Least 3 Years in Schools Determined to Be Most in Need*
2008–09	0	0	0	0	0	0
2009–10	0	0	0	0	0	0

2010–11	2	2	2	2	0	2
2011–12	5	5	5	5	0	5
2012–13						
2013–14						
2014–15						

* The term "other high-need schools" refers to partner high-need schools that are not designated as "most in need", and high-need schools not located in a partner LEA.

Section IV: Project Objectives

These objectives are from the grantee's application and/or annual work plan and are tailored to the specific LEAs and schools served.

Project Objective	*Target: Projected Percentage or Projected Raw Number*	*Actual Progress: Actual Percentage or Raw Number*
1. Increase the number of high quality science teachers by adding 20 science teachers with a MS in Biology—10 in years 1 & 2; 10 in years 3 & 4	20	20
2. Maintain a minimum 90% retention of project participants	20	20
3. 100% of program participant completers will remain as science teachers in Toledo Public Schools or another high needs school for at least two years after degree completion.	20	7
4. Improve student academic achievement in science in IMPACT classrooms by providing inquiry-based instruction	Minimum 3 out of 5	This year we collected baseline for cohort 2. Two of the teachers scored below a "3".
5. Increase the number of secondary school students enrolled in upper level science courses by 20% in the schools where participants teach.	20%	Enrollment increased from 1750 in 2009 to 2976 in 2011-12 (over the course of 2 semesters). Because TPS changed the way it reported enrollment, an actual comparison of

		combined semester to overall year is in appropriate so no conclusions can be drawn.
6. Increase the number of secondary school students who plan to pursue postsecondary education in a science-related field by 15% in the classes taught by IMPACT teachers	15%	This item was inadvertently removed from the survey this year and will be reported next year. However, treatment class students scored statistically significantly higher on the Personal Interest in Science scale than the control classroom students.

Section V: Program/Statutory Objectives

Note: Please address these questions with respect to your partner schools.

TCT Program for master's degrees [America COMPETES Act, Sec. 6114(c)(10) + Sec. 6114(d)]

Program Objective *Increase the Following:*	*Target Raw Number (Approved with Application)*	*Actual Raw Number*
The number of teachers in each subject area who have a master's degree, are teaching in schools determined to be most in need, and who taught in such schools prior to program participation		
1. Science teachers	60	49
2. Technology teachers	n/a	n/a
3. Engineering teachers	n/a	n/a
4. Mathematics teachers	n/a	n/a
5. Critical foreign language teachers	n/a	n/a

Program Objective Increase the Following:	*Target Numerator*	*Target Denominator*	*Target Percentage (Approved with Application)*	*Actual Numerator*	*Actual Denominator*	*Actual Percentage*
The percentage of teachers in each subject area who have a master's degree, are teaching in schools determined to be most in need, and who taught in such schools prior to program participation						
6. Science teachers	60	94	64%	49	94	52%
7. Technology teachers	n/a	n/a	n/a	n/a	n/a	n/a
8. Engineering teachers	n/a	n/a	n/a	n/a	n/a	n/a
9. Mathematics teachers	n/a	n/a	n/a	n/a	n/a	n/a
10. Critical foreign	n/a	n/a	n/a	n/a	n/a	n/a

language teachers						

Program Objective *Increase the Following:*	*Target (Approved with Application)*	*Actual Number*
The number of teachers in each subject area who have a master's degree, are teaching in schools determined to be most in need, and who did not teach in such schools prior to program participation		
11. Science teachers	0	0
12. Technology teachers	n/a	n/a
13. Engineering teachers	n/a	n/a
14. Mathematics teachers	n/a	n/a
15. Critical foreign language teachers	n/a	n/a

Program Objective *Increase the Following:*	*Target Numerator*	*Target Denominator*	*Target Percentage (Approved with Application)*	*Actual Numerator*	*Actual Denominator*	*Actual Percentage*
The percentage of teachers in each subject area who have a master's degree, are teaching in schools determined to be most in need, and who did not teach in						

such schools prior to program participation						
16. Science teachers	0	0	n/a	0	0	n/a
17. Technology teachers	n/a	n/a	n/a	n/a	n/a	n/a
18. Engineering teachers	n/a	n/a	n/a	n/a	n/a	n/a
19. Mathematics teachers	n/a	n/a	n/a	n/a	n/a	n/a
20. Critical foreign language teachers	n/a	n/a	n/a	n/a	n/a	n/a

Program Objective *Increase the Following:*	*Target Number (Approved with Application)*	*Actual Raw Number*
The number of science, technology, engineering, mathematics, or critical foreign language teachers who are in the partner public school(s), and who		
21. Have a master's degree and are "members of a group underrepresented in teaching in the STEM or CFL fields" Specify the underrepresented groups included: African American Hispanic Multi-racial	6	2
22. Were previously science, technology, engineering, mathematics, or critical foreign language professionals	62	62

Program Objective Increase the Following:	*Target Numerator*	*Target Denominator*	*Target Percentage (Approved with Application)*	*Actual Numerator*	*Actual Denominator*	*Actual Percentage*
The percentage of science, technology, engineering, mathematics, or critical foreign language teachers who are in the partner school(s), and who						
23. Have a master's degree and are "members of a group underrepresented group in teaching in the STEM or CFL fields"	6	13	46%	2	13	15%
24. Were previously science, technology, engineering, mathematics, or critical foreign language professionals	13	13	100%	13	13	100%

Program Objective Increase the Following:	*Target Numerator*	*Target Denominator*	*Target Percentage (Approved with Application)*	*Actual Numerator*	*Actual Denominator*	*Actual Percentage*
25. The percentage of elementary school students scoring proficient or above on mathematics assessments	N/A	N/A	N/A	N/A	N/A	N/A
26. The percentage of elementary school students scoring proficient or above on science assessments	N/A	N/A	N/A	N/A	N/A	N/A
27. The percentage of elementary school students scoring proficient or above on technology/engineering assessments, where applicable	N/A	N/A	N/A	N/A	N/A	N/A
28. The percentage of secondary school students scoring proficient or above on mathematics assessments	N/A	N/A	N/A	N/A	N/A	N/A
29. The percentage of secondary school students scoring proficient or above on science assessments	75%	N/A	75%	34%	N/A	34%
30. The percentage of secondary school students scoring proficient or above on technology/engineering assessments, where applicable	N/A	N/A	N/A	N/A	N/A	N/A

Program Objective *Increase the Following:*	*Target Number (Approved with Application)*	*Actual Raw Number*
31. The number of secondary school students enrolled in upper-level mathematics courses (e.g., number of middle school students enrolled in Algebra I)	N/A	N/A
32. The number of secondary school students enrolled in upper-level science courses	20% above current enrollment	Not calculated this year due to change in TPS reporting procedures
33. The number of secondary school students enrolled in upper-level technology and engineering courses (where available)	N/A	N/A
34. The number of elementary school students enrolled in critical foreign language courses	N/A	N/A
35. The number of elementary school students continuing in critical foreign language courses	N/A	N/A
36. The number of secondary school students enrolled in critical foreign language courses	N/A	N/A
37. The number of secondary school students continuing in critical foreign language courses	N/A	N/A

Section VI: Government Performance and Results Act (GPRA) Measures

GPRA Measure	*Target Numerator*	*Target Denominator*	*Target Percentage*	*Actual Numerator*	*Actual Denominator*	*Actual Percentage*
1. Of the program participants who earned a master's degree in this reporting period, the percentage who achieved certification or licensure in a science, technology, engineering, mathematics, or critical foreign language area (includes previously licensed teachers who receive a master's degree).	N/A	N/A	N/A	N/A	N/A	N/A
2. Of the program participants in this reporting period, the percentage who became or remain a teacher of record in a science, technology, engineering, mathematics, or critical foreign language area in a school determined to be a high-need school.	20	20	100%	20	20	100%
3. Of the program participants who completed the TCT program, the percentage who remain teaching in the science, technology, engineering, mathematics, or critical foreign language area in a school determined to be a high-need school for two or more years.	7	7	100%	7	7	100%

VII: Additional Programmatic and Evaluation-Related Information

Please provide any additional information about your project that you think would be helpful to the Department of Education in evaluating your performance or understanding the contents of your annual report.

Nothing to report at this time.

Section VIII: Budget and Expenditures

A. Actual and projected expenditures of U.S. Department of Education funds during current report period:

1. Did U.S. Department of Education TCT grant funds supplant other Federal or state funds? _____ ___No__

2. If Yes, please explain.

3. Budget Summary and Federal Expenditures

Budget Category	*Current Budget (A)*	*Actual* Federal *Expenditures (B)*	*Obligations & Projected* Federal *Expenditures (C)*	*Estimated Balance (A-B-C)*
1. Salaries and Wages	361,744	228,403.21	167,087.47	(33,746.68)
2. Employee Benefits	112,864	75,433.27	53,877.73	(16,447.00)
3. Travel	82,160	41,193.35	21,000.00	19,966.65
4. Materials & Supplies	43,132	12,415.05	2,000.00	28,714.95
5. Contractual	32,000	8,000.00	16,000.00	8,000.00
6. Other	84,600	17,309.69	4,500.00	62,790.31
7. Total Direct Costs (Add lines 1-6)	716,500	382,754.57	264,465.20	69,278.23
8. Indirect Costs	56,760	30,620.42	21,157.22	4982.36
9. Equipment	0.00	0.00	0.00	0.00
10. Training Stipends/Tuition Assistance	164,000	163,283.69	74,977.58	(74,261.27)
11.Total Costs (Add lines 7-10)	937,260	576,660.68	360,600	0.00

4. If the project has an estimated remaining balance greater than 50 percent of the current budget, please explain the reason and the timeline for the spending the carryover funds.

Funding was received in the middle of an academic year, but teachers could not be enrolled in classes until the start of the following year. This will continue to delay the expenditure of funds in this project until the last cohort graduates.

B. Actual and projected non-Federal matching contributions during report period:

1. Matching requirement (approved with application) for current project year:
59.03% percent of Federal award for current project year

2. Planned and Actual Matching Contributions Summary

Planned and Actual In-Kind and Financial Matching Contributions Category	*Current Budgeted Match (a)*	*Actual Matching Contributions (b)*	*Obligations and Projected Matching Contributions (c)*	*Estimated Balance (a-b-c)*
1. Salaries and Wages	327,733.00	387,439.17	0.00	(59,706.17)
2. Employee Benefits	102,253.00	120,952.07	0.00	(18,699.07)
3. Travel	10,000.00	0.00	0.00	10,000.00
4. Materials & Supplies	0.00	0.00	0.00	0.00
5. Contractual	0.00	0.00	0.00	0.00
6. Other	14,400.00	71,012.74	0.00	(56,612.74)
7. Total Direct Costs (Add lines 1-6)	454,386.00	579,403.98	0.00	(125,017.98)
8. Indirect Costs	0.00	0.00	0.00	0.00
9. Equipment	0.00	3,575.00	0.00	3575.00
10. Training Stipends/Tuition Assistance	82,000.00	78,890.60	20,814.00	(17,704.60)
11. Total Matching Contributions (Add lines 7-10)	536,386.00	661,869.58	20,814.00	(146,297.58)

3. Planned and Actual Matching Contributions Narrative: Specify the sources of matching funds and for in-kind donations. Explain the process for valuing each in-kind resource.

Fringes and salary for faculty and staff represented the bulk of the matching in-kind contribution. The Graduate School began paying for tuition for Cohort 2. They paid for two credit hours each in Summer 11, Fall 1 and Spring 11 for a total support of six credit hours. Graduate School will provide support for four additional credits over the next year. Faculty provided tutoring and guidance of IMPACT students as they explored through their projects. Faculty spent an average of about 2 hours per week with each of the IMPACT students during the 2011-12 school year for an in-kind contribution.

4. Please explain if you encountered a matching contributions shortfall during this reporting period. That is, the percentage of the Federal award matched (by cash and/or in-kind contributions) this reporting period was a lower percentage than that in the approved grant proposal. Please explain how you plan to meet your matching requirements and describe the steps taken to prevent any future shortfalls in matching contributions.

In-kind contributions for Y4 from 10-1-2011 through 5-15-2012 were in the amount of $134,424.44. This, in addition to Y1-Y3 contribution total of $527,445.14, provides a total in-kind contribution of $682,683.58, or $146,297.58 over the required match of $536,386.

C. Personnel funded by TCT grant and matching sources during current report period

1. For the current reporting period, please list the names and titles of all individuals paid by TCT Federal or matching funds, and indicate the percentage of time each individual spends working on the TCT-M grant. (If the percentage of time is not available, you may indicate the number of hours that individual was paid with TCT funds instead.)

Salaries & Fringes Effort & Release: Daryl. Moorhead (Professor & P.I.) 35% (from 10%); Charlene Czerniak (Professor & Co-PI) 20%; Johan Gottgens (Professor & Co-PI) 20%; Michael Weintraub (Assistant Professor) 20%; Dawn Wallin (Project Coordinator) budgeted at 50% and 35% paid by grant and remainder in-kind by UT;
Jan Kusowski (Finance & Admin Coordinator) 50%; Gale Mentzer (Evaluator) 36%;

Matching Funds: Faculty in Environmental Sciences provided in-kind salary contributions by assisting with tutoring and guidance of the IMPACT students at approx. 2 hrs/wk. William Von Sigler, Michael Weintraub, Daryl Dwyer, Anne Krause; Johan Gottgens, (2 students) Stacey Philpott (2 students); and Christine Mayer (2 students)

2. Describe any changes to key personnel of this grant that have come about over the reporting period, including changes in titles, changes in percentage of time that a person is devoting to the project, hiring of a key staff person, departure of a key staff person, or addition or elimination of a position. Discuss any significant changes to key personnel proposed or anticipated for the coming year. (*Do not request replacement of key*

*personnel or the addition/elimination of position(s) here. That type of request is a change that requires an **administrative action** (completed by your TCT program officer) and must be addressed separately from this report. Your response should be a summary of approved and completed changes that have take place **during** this reporting period.*)

Daryl Moorhead returned from sabbatical in June 2011 and increased in-kind effort from 10% to 35% due to his additional responsibilities as faculty advisor for all Cohort 2 students; Johan Gottgens returned to 20% in-kind effort in June when Moorhead returned from sabbatical. Dawn Wallin terminated her employment with the University of Toledo at the end of October 2011. Lisa Kuhl was hired in April 2012.

D. Actual expenditures of U.S. Department of Education funds and non-Federal matching contributions

In the following table, please provide information about your actual Federal and matching contributions for ***all previous, completed budget periods.*** For example, for grants that began in Fiscal Year 2008, the Year 1 budget period would be October 2008 through September 2009; and Year 2 would be October 2009 through September 2010. ***If you are in the first year of your grant, you do not need to fill out this table***

	Actual Federal Expenditures Year 1	Actual Matching Contributions Year 1	Actual Federal Expenditures Year 2	Actual Matching Contributions Year 2	Actual Federal Expenditures Year 3	Actual Matching Contributions Year 3	Actual Federal Expenditures Year 4	Actual Matching Contributions Year 4	Actual Federal Expenditures Year 5	Actual Matching Contributions Year 5
1. Salaries and Wages	37,026.57	100,074.22	64,889.11	94,165.86	93,826.91	106,735.97				
2. Employee Benefits	19,945.20	31,040.64	31,899.73	29,246.92	40,788.39	33,515.09				
3. Travel	7,463.58	0.00	11,745.64	0.00	13,894.61	0.00				
4. Materials & Supplies	6,617.39	0.00	2,887.32	0.00	2,148.95	0.00				
5.Contractual	0.00	0.00	1,467.74	0.00	9,200.62	0.00				
6. Other	316.31	2,450.00	3,048.50	1,693.77	4,244.79	56,197.87				
7. Total Direct Costs: (Add lines 1 –6)	71,369.05	133,564.86	115,938.04	125,106.55	164,104.27	196,448.93				
8. Total Indirect Costs	6,141.04	0.00	9,250.47	0.00	13,439.00	0.00				
9. Equipment	0.00	0.00	0.00	3,575.00	0.00	0.00				
10. Training Stipends/Tuition Assistance	45,789.64	21,004.00	35,535.20	23,322.00	40,444.50	24,423.80				
11. TOTAL COSTS (Add lines 7-10)	123,299.73	154,568.86	160,723.71	152,003.55	217,987.77	220,872.73				

ATTACHMENT I

(Effective January 20, 2011 until further notice)

Size of Family Unit	48 Contiguous States, D.C., and Outlying Jurisdictions	Alaska	Hawaii
1	$16,335	$20,400	$18,810
2	$22,065	$27,570	$25,395
3	$27,795	$34,740	$31,980
4	$33,525	$41,910	$38,565
5	$39,255	$49,080	$45,150
6	$44,985	$56,250	$51,735
7	$50,715	$63,420	$58,320
8	$56,445	$70,590	$64,905

For family units with more than eight members, add the following amount for each additional family member: $5,730 for the 48 contiguous states, the District of Columbia and outlying jurisdictions; $7,170 for Alaska; and $6,585 for Hawaii.

The term "low-income individual" means an individual whose family's taxable income for the preceding year did not exceed 150 percent of the poverty level amount.

The figures shown under family income represent amounts equal to 150 percent of the family income levels established by the Census Bureau for determining poverty status. The poverty guidelines were published by the U.S. Department of Health and Human Services in the Federal Register, Vol. 76, No. 13, January 20, 2011, pp. 3637-3638.