

**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
2010-2011**

Office of Postsecondary Education
U.S. Department of Education

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

Cover Sheet

Project Identification and Certification

A. Identification

1. Report Period: June 16, 2010 to May 15, 2011
Month/Day/Year 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? Yes No
- b. If yes, do you have an Indirect Cost Rate Agreement approved by the Federal Government? 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: We certify that the performance report information reported and submitted on 6/14/11 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.

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: In brief, ten high school science teachers from the Toledo Public Schools (TPS) district (high needs LEA) will complete a Master of Science (MS) degree in Biology (Ecology Track) from the Department of Environmental Sciences (DES) at The University of Toledo (UT), this year, aided by the Department of Curriculum & Instruction (CI). Two students finished in time for the 7 May 2011 graduation ceremony and the other 8 will graduate in August 2011, after submitting their final scholarly reports this summer. A second cohort of 10 teachers has been recruited and admitted to the program this spring, and will begin coursework this summer (details below). Our teachers completed 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. To these content courses was added 4 hours of a translational pedagogy course (CI) designed to facilitate the incorporation of their new knowledge into classroom activities. In this second year of study, each teacher worked under the direct supervision of a DES faculty advisor and committee in developing a scholarly report on a scientific topic. All members of this cohort attended and made presentations at professional conferences in the past year. These teachers also participated in a larger learning community of scientists, graduate students of science, high school science teachers and high school science students, by attending scientific seminars at UT and by conducting a cooperative research project with the participants of the NSF sponsored Graduate Fellows in K-12 education during joint classes at the UT Lake Erie Research Center in summer 2010.

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:** We successfully recruited our second cohort of 10 teachers for the next two years of the program who will begin classes this summer, July 25-August 5, 2011 (Years 3 and 4 of IMPACT).
2. **Admission:** In contrast to our experiences with the first cohort of teachers, there were no delays in admitting the second cohort of participants into the UT College of Natural Sciences and Mathematics this year. Delays with the first cohort were due to the launch of a new, on-line admission program administered by the UT College of Graduate Studies. However, the new paperless application processes and new admissions software programs are now working properly. Even so, our program manager worked closely with each applicant to ensure timely and complete submission of all application materials. Applicants were screened and participants selected by the Graduate Affairs Committee of the Department of Environmental Sciences, and an ad hoc committee consisting of faculty members teaching required courses in the IMPACT program of study (Dr. Gottgens, Mayer and Weintraub).

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

3. **Advising:** Teachers in the first cohort selected an independent advisor in spring 2010 who most closely shared their study interests from the pool of DES faculty. These advisors worked individually with students to guide them through the selection and completion of independent research projects as well as degree requirements. An ad hoc committee of DES faculty (Moorhead, Gottgens, Mayer and Weintraub) who all teach content area courses in this program will guide the second cohort through much of their first year of the program until each teacher selects an advisor.
4. **Conferences:** All teachers were scheduled to participate in both an education and a science conference annually, as part of the IMPACT program of study. This past year, all of the participants presented at the Northwest Ohio Science Education Conference in Rossford, Ohio (November 6). Two teachers attended the ASTE conference in Minneapolis, MN (January 19-23). Three teachers attended the NSTA conference in San Francisco, CA (March 9-13). One teacher attended the AERA Annual Meeting in New Orleans, LA (April 8-12), where a paper about the IMPACT program was also presented by co-PI, Czerniak. A number of the teachers also participated in multiple in-services provided by the district.
5. **Formal Courses:** As planned, participants had 2 weeks of intensive summer courses 14-25 June 2010. The first week was a field-intensive study, which integrated members of our IMPACT program with teachers and graduate fellows of an NSF sponsored Graduate Fellows in K-12 education program at UT (see item 6). The second week included only IMPACT teachers in detailed laboratory processing and analysis of field samples. In autumn 2010, students had a formal course in biostatistics and pedagogy in which they had a final project to complete, and in spring 2011, students had a formal course in soil ecology. An additional 3 hours of independent study was scheduled by each student and their advisors to support their independent research projects. No departures from the proposed plan of study occurred.
6. **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 teachers and graduate fellows of the NSF GK12 program at UT. Indeed, some of the teachers in these two programs share schools, many participate in joint activities through their schools, and one participated in both programs. This past summer, a joint summer course held 14-19 June 2010 specifically integrated both groups in a highly interactive field study. This class provided training in field and laboratory methods in aquatic ecology, while addressing a local scientific question regarding the effects of thermal effluent from a power plant on aquatic organisms in Lake Erie. A goal of this class was to provide insight to the philosophy and conduct of a scientific study. Teams mixing teachers from both programs rotated every half-day between collecting water temperature data, water chemistry data, invertebrate samples and laboratory processing. The week ended with a joint analysis, interpretation and discussion of results. Class evaluations indicated that the teachers appreciated the scientific objective of the class, as well as the methodological training. An unexpected scientific benefit was discovering a previously unknown relationship between the thermal plume and the distributions and abundances of native and invasive, freshwater clams. The results are being prepared for scientific publication.

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

7. **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.
 - *PM A:* Recruit and enroll 10 participants per cohort. This objective was accomplished with the successful enrollment of the first cohort in May 2009. Our second cohort has been recruited and enrolled to begin July 2011.
 - *PM B:* Recruit and retain 30% of the participants from under-represented groups. Our first cohort of 10 IMPACT teachers included two from underrepresented populations or 20%. The pool from which to recruit minority science teachers is small—only 13 of 90 science teachers in TPS or approximately 14%. Recruiting rate for the project, while below our goal, is above the actual minority representation in the district.
 - *PM C:* Program participants will maintain adequate progress towards degree completion earning the degree in two years. Two IMPACT teachers graduated May 2011 and the remaining eight will graduate August 2011.
 - *PM D:* All participants will pass the Praxis II in biology within 6 months of earning the MS degree. (This objective cannot be addressed at this time.)
 - *PM E:* All participants will engage in professional development activities by attending two regional conferences per year while earning their degree. 80% will present at one of the conferences during the second year. All 10 IMPACT teachers attended two conferences during Year 2 and all presented at the Northwest Ohio Regional Science Education Conference.
 - Objective 2: Maintain a minimum 90% retention of project participants
 - *PM A:* A minimum of 90% of IMPACT participants will graduate with a MS degree in Biology within two years. Two teachers have graduated with the other 8 on track to graduate this summer (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.
 - *PM A:* Beginning 2011, provide post-graduate follow up activities (professional development) that focus upon teaching science in urban schools. A minimum of 75% of the participants will engage in these activities at least once per year. (This objective cannot be addressed at this time. Post graduate follow-up will begin Fall 2011.)
 - *PM B:* 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. An IMPACT web page has been established, with curriculum materials, links to key web sites on campus, and directions relevant to program (<http://impact.utoledo.edu/>). Communications among teachers, staff and faculty has been established. Faculty members teaching all courses make use of the website as a means of communicating with the

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

- participants about course requirements (reading assignments, homework assignments) and as a means of interacting with the participants outside of the classroom. The evaluator also uses the website as a way to contact and gather data from the participants.
- Objective 4: Improve student academic achievement in science in IMPACT classrooms by providing inquiry-based instruction.
 - *PM A*: All participants will deliver inquiry-based science instruction directly linked to Ohio Content Standards. Each participant was observed twice per year delivering a project-based lesson to their students. Observations were rated using the Horizon Inside the Classroom Observation protocol, a reliable and valid method for assessing the quality of inquiry based science instruction. Average rating of the 10 participants was 3—some evidence of inquiry-based instruction. Two of the 10 teachers received a 4—accomplished effective instruction that is purposeful for most students. In general, the lessons reflected careful planning with students engaged in meaningful work.
 - *PM B*: 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.
 - Student scores on the science portion of the Ohio Graduation Test (OGT) will be collected as appropriate. The test in science is given in grades 5, 8 and 10. The tenth grade test is the OGT grade level and may be retaken in grades 11 and 12 if necessary. Each summer, TPS will forward the test scores of students enrolled in our participants' classes and from those in the control group classrooms. Baseline data (OGT scores) was collected for 2010 and average score on the OGT science test was 397 (400 is minimum passing grade). This year's data will not be available until July 2011 and will be reported next year as will effect changes between control and treatment groups and the baseline data.
 - Objective 5: Increase the number of secondary school students enrolled in upper level science courses by 20% in the schools where participants teach.
 - *PM A*: 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. Baseline data has been collected (1750 students enrolled 2010-2011 and will be compared to 2011-12 enrollments).
 - *PM B*: Student increased interest in advanced science as evidenced by participation in local science fairs will increase by 25%. Last year 19% of student respondents reported participation. This year, of the 150 students surveyed in the IMPACT teacher classrooms, 16 indicated they participated in extracurricular science activities (14%)—down 5%.
 - 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.
 - *PM A*: 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. Students from participant classes

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

(150) were compared with a matched control group (151 students) on the revised Student Science Attitude Survey which measured interest in science and science courses. The revised survey used a 2 point scale—agree or disagree—with a resulting reliability index of 0.88 for items (using Rasch modeling). Total possible points on the scale is 40 with an expected mean of 20. Responses showed no differences between treatment and control students as indicated in the table below.

Student Attitude Survey Results

		N	Mean	Std. Deviation	Std. Error Mean
total	T	150	23.4779	7.49203	.61172
	C	151	23.7162	8.18918	.66643
T = -0.26 p = 0.79					

- *PM B*: 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. Baseline data was collected last year where 44% of students in the treatment classes indicated an interest in pursuing a science-related post-secondary education. This year, 65 of 148 students who responded to this item indicated an interest in pursuing a science-related career showing no change (44%). However, the treatment group dropped 1% from last year with 60 of the 151 respondents indicating an interest in a science-related career (40% as opposed to 41% last year).

Section I: Active Partners

- 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 _____

- 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

- Identify the high-need local educational agencies (LEA(s)) that participate in this grant:

Toledo Public Schools _____

- 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	School ID or District ID
Start High School	3404490
Scott High School	3404490
Libbey High School	3404490
Woodward High School	3404490
Waite High School	3404490
Rogers High School	3404490

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

- 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
Start High School	3404490
Scott High School	3404490

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

Libbey High School	3404490
Woodward High School	3404490
Waite High School	3404490
Rogers High School	3404490

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.

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

(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 be most in need.

To encourage minority candidates from our partnering school district to apply for the 2011-2013 IMPACT cohort, recruiting materials were emailed directly to the teachers. Follow up informational meetings were held in each building giving the teachers the opportunity to receive more information and ask questions about the program. Teachers were sent a brochure and a "Frequently Asked Questions" sheet about the program. Informational meetings were also conducted at schools and for those schools that did not request informational meetings, follow up calls were conducted with the principal and science department chair to encourage participation in the program.

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

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

<i>Place an "X" in This Column if Your TCT Program Provides This Type of Service</i>	<i>Type of Service</i>	<i>Number of Pre-Service Teachers Who Received the Service in Current Reporting Period</i>	<i>Estimated Hours of Service Per Participant Receiving the Service in Current Reporting Period</i>

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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): <input type="text"/>		
N/A	Other (please specify): <input type="text"/>		

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

3. Activities participated in by in-service teachers

<i>Type of Service</i>	<i>Number Who Received the Service in Current Reporting Period</i>		<i>Estimated Hours of Service Per Participant Receiving the Service in Current Reporting Period</i>	
	<i>First-Year Teachers</i>	<i>Second-Year Teachers</i>	<i>First-Year Teachers</i>	<i>Second-Year Teachers</i>
Receiving "teacher mentoring"	0	10	0	90
Mentoring other teachers	0	10	0	90
Interdisciplinary collaboration	0	10	0	90
Curricula development	0	10	0	90
"Enhanced and ongoing" professional development	0	10	0	90

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

Assistance in evaluating data and assessments to improve student academic achievement	0	10	0	90
Other (please specify): <div style="border: 1px solid black; padding: 2px; width: fit-content;">Enhanced content mastery</div>	0	10	0	90
Other (please specify): <div style="border: 1px solid black; height: 20px; width: 100%;"></div>				

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 with recruitment and retention of our first cohort. During the current reporting period, TPS has expedited scheduling substitute teachers so that all IMPACT participants could attend a regional science conference (see executive summary for details). 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 Fall 2011). 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.

- (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."

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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.

TPS, our LEA partner, recognizes the value the IMPACT teachers will bring to their classrooms. TPS encourages our participants to share lessons and teaching strategies through professional development workshops. In addition, all IMPACT participants attended up to two science education-related conferences per year. During the summer 2010, one member of the cohort took a leadership role in developing and refining project based science lessons. During Year 2, all of the participants presented at the Northwest Ohio Science Education Conference.

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. Based upon previously funded projects, we also maintain an online community of support using existing and familiar technology, such as NING (www.NING.com), which allows for secure social networking.

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. It is the philosophical underpinnings of science that seem to

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

be most unfamiliar to science teachers, so this past year the summer program directly addressed a scientific question of interest to the region: impacts of thermal effluent from a power plant on lake invertebrate communities. This local interest was also translated into the inquiry based relevant curriculum units that the teachers taught to their students.

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.

Problems and barriers noted in earlier reports have been resolved. Due to the current economic situation, our partner school district, TPS, laid off many teachers. As a result, the pool from which to recruit Cohort 2 has diminished. In order to fill our cohort we looked beyond our partner district while still targeting high needs schools.

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?

Originally all 10 teachers were expected to graduate May 2011. Because teachers work full time and attend two courses per semester, we have extended the graduation date for 8 of the teachers to August 2011 so they may complete their Masters Project.

Based on the external evaluator's findings when interviewing the teachers, we will be offering the Project Based Science (PBS) Inquiry course in the summer for the second cohort of teachers. In the original design, the PBS course was to be offered as a 3 credit hour course spread over two years whereby the teachers attended class 1 hour a week during the academic year for two years. The teachers found this to be quite difficult for two reasons: 1) they teach all day and take one science course each semester during the academic year. While 1 additional hour a week might seem small, it was difficult to add more to the teachers' already very heavy workload, 2) meeting once a week had the opposite impact that we wanted. Instead of providing continuity, the 1 hour format was too disjointed and too short to have meaningful impact. Thus, the entire PBS course will be offered in the second summer for the second cohort of teachers.

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

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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.

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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

None

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

Section III: Participants

1. TCT Participant demographics

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

2. Academic majors of participants

<i>Academic Majors of Participants</i>	<i>Number of Participants Studying Each Major</i>
MS Biology—Ecology track	10

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

3. Program graduates

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

<i>Academic Major of Graduates</i>	<i>Number of Graduates</i>				
	<i>Total in Major</i>	<i>Employed as Teachers</i>	<i>Placed in Partner LEA(s) and Public School(s) (or Public School Consortium(s))</i>	<i>Placed in Schools Determined to Be Most in Need</i>	<i>Placed in Other High-Need Schools*</i>
MS Biology— Ecology track	2	2	2	2	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/>.

<u>Scott High School</u>	3404490	
<u>Start High School</u>	3404490	
_____	_____	_____
_____	_____	_____

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 or CFL field

<i>Program Graduation Year</i>	<i>Number of Graduates</i>					
	<i>Total</i>	<i>Currently Employed as Teachers</i>	<i>Currently Teaching in Partner LEA(s) and Public School(s) (or Public School Consortium(s))</i>	<i>Currently Teaching in Schools Determined to Be Most in Need</i>	<i>Currently Teaching in Other High-Need Schools*</i>	<i>Currently Teaching at Least 3 Years in Schools Determined to Be Most in Need</i>
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						
2012–13						

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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.

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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.

<i>Project Objective</i>	<i>Target: Projected Percentage or Projected Raw Number</i>	<i>Actual Progress: Actual Percentage or Raw Number</i>
1. Increase the number of high quality science teachers in Toledo Public Schools (high-need LEA) by adding 20 science teachers with a MS in Biology—10 in years 1 & 2; 10 in years 3 & 4	20	10
2. Maintain a minimum 90% retention of project participants	20	10
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	2
4. Improve student academic achievement in science in IMPACT classrooms by providing inquiry-based instruction	Minimum 3 out of 5	All scored 3 or above, average score 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 1750 (baseline from 2009 will be provided by partner district this summer).

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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%	12%
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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)]

<i>Program Objective Increase the Following:</i>	<i>Target Raw Number (Approved with Application)</i>	<i>Actual Raw Number</i>
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	42
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

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

<i>Program Objective Increase the Following:</i>	<i>Target Numerator</i>	<i>Target Denominator</i>	<i>Target Percentage (Approved with Application)</i>	<i>Actual Numerator</i>	<i>Actual Denominator</i>	<i>Actual Percentage</i>
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%	42	94	45%
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 language teachers	n/a	n/a	n/a	n/a	n/a	n/a

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

<i>Program Objective Increase the Following:</i>	<i>Target (Approved with Application)</i>	<i>Actual Number</i>
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 <u>not</u> 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

<i>Program Objective Increase the Following:</i>	<i>Target Numerator</i>	<i>Target Denominator</i>	<i>Target Percentage (Approved with Application)</i>	<i>Actual Numerator</i>	<i>Actual Denominator</i>	<i>Actual Percentage</i>
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 <u>not</u> 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

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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
<i>Program Objective Increase the Following:</i>				<i>Target Number (Approved with Application)</i>		<i>Actual Raw Number</i>
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		0
22. Were previously science, technology, engineering, mathematics, or critical foreign language professionals				62		62

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

<i>Program Objective Increase the Following:</i>	<i>Target Numerator</i>	<i>Target Denominator</i>	<i>Target Percentage (Approved with Application)</i>	<i>Actual Numerator</i>	<i>Actual Denominator</i>	<i>Actual Percentage</i>
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%	0	13	0%
24. Were previously science, technology, engineering, mathematics, or critical foreign language professionals	13	13	100%	13	13	100%

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

<i>Program Objective Increase the Following:</i>	<i>Target Numerator</i>	<i>Target Denominator</i>	<i>Target Percentage (Approved with Application)</i>	<i>Actual Numerator</i>	<i>Actual Denominator</i>	<i>Actual Percentage</i>
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%	43%	N/A	43%
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

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

<i>Program Objective Increase the Following:</i>	<i>Target Number (Approved with Application)</i>	<i>Actual Raw Number</i>
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	1750 (comparison data will be provided June 2011)
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

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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

<i>GPRA Measure</i>	<i>Target Numerator</i>	<i>Target Denominator</i>	<i>Target Percentage</i>	<i>Actual Numerator</i>	<i>Actual Denominator</i>	<i>Actual Percentage</i>
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.	10	10	100%	2	10	20%
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.	2	2	100%	2	2	100%

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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.

*Teachers for a Competitive Tomorrow Master's (TCT-M) Program
Annual Performance Report*

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.

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3. Budget Summary and Federal Expenditures

<i>Budget Category</i>	<i>Current Budget (A)</i>	<i>Actual Federal Expenditures (B)</i>	<i>Obligations & Projected Federal Expenditures (C)</i>	<i>Estimated Balance (A-B-C)</i>
1. Salaries and Wages	135,380	42,197.70	50,798.83	42,383.47
2. Employee Benefits	60,632	16,481.51	15,849.24	28,301.25
3. Travel	42,410	12,690.49	1,000.00	28,719.51
4. Materials & Supplies	23,730	399.51	1,300.00	22,030.49
5. Contractual	22,532	8000.00	0.00	14,532.00
6. Other	54,506	565.70	2300.00	51640.30
7. Total Direct Costs (Add lines 1-6)	339,190	80,334.91	71,248.07	187,607.02
8. Indirect Costs	27,162	6,426.83	5699.85	15,035.32
9. Equipment	0.00	0.00	0.00	0.00
10. Training Stipends/Tuition Assistance	47,105	12,854.70	14,000.00	20,250.30
11. Total Costs (Add lines 7-10)	413,457	99,616.44	90,947.92	222,892.64

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.

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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

<i>Planned and Actual In-Kind and Financial Matching Contributions Category</i>	<i>Current Budgeted Match (a)</i>	<i>Actual Matching Contributions (b)</i>	<i>Obligations and Projected Matching Contributions (c)</i>	<i>Estimated Balance (a-b-c)</i>
1. Salaries and Wages	83,107.00	84,488.83	29,196.68	(30,578.51)
2. Employee Benefits	27,426.00	26,529.49	8,846.59	(7,950.08)
3. Travel				
4. Materials & Supplies				
5. Contractual				
6. Other	20,500.00	56,559.95	9,522.00	(45,581.95)
7. Total Direct Costs (Add lines 1-6)	131,033.00	167,578.27	47,565.47	(84,110.54)
8. Indirect Costs				
9. Equipment				
10. Training Stipends/Tuition Assistance				
11. Total Matching Contributions (Add lines 7-10)	131,033.00	167,578.27	47,565.27	(84,110.54)

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.

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

Fringes and salary for faculty and staff represented the bulk of the matching contribution. The Graduate School paid the remaining 1 credit hour of tuition support for Cohort 1 in spring 2010; Grad School will support Cohort 2 with 10 credit hours of tuition over the next six semesters. Faculty provided tutoring and guidance of IMPACT students as they explored through their projects. Faculty spent about 3 hours per week with each of the IMPACT students or 7.5% of their time during the 2010-11 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 were met for Y3 and exceeded required budget match.

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.) 10% (from 25%) due to sabbatical in France; Charlene Czerniak (Professor & Co-PI) 20%; Johan Gottgens (Professor & Co-PI) 30% (from 20%) to assume PI duties while Moorhead was on Sabbatical; 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 & AdminCoordinator) 50%; Gale Mentzer (Evaluator) 36%;

Matching Funds: Faculty in Environmental Sciences provided 7.5% in-kind salary contribution per student for tutoring and guidance of the IMPACT students at approx. 3 hrs/wk. William Von Sigler, Michael Weintraub, Daryl Dwyer, Anne Krause; Johan Gottgens, (2 students) Stacey Philpott (2 students); and Christine Mayer (2 students)

*Teachers for a Competitive Tomorrow Program Master's (TCT-M) Program
Annual Performance Report*

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.*)

Moorhead effort changed from 25% to 10% due to approved sabbatical from July 2010 through June 2011; Gottgens assumed some of the PI responsibilities and his effort changed from 20% to 30% for the period Moorhead was on sabbatical.

*Teachers for a Competitive Tomorrow Master's (TCT-M) Program
Annual Performance Report*

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						
2. Employee Benefits	19,945.20	31,040.64	31,899.73	29,246.92						
3. Travel	7,463.58	0.00	11,745.64	0.00						
4. Materials & Supplies	6,617.39	0.00	2,887.32	0.00						
5. Contractual	0.00	0.00	1,467.74	0.00						
6. Other	316.31	23,454.00	3,048.50	25,015.77						
7. Total Direct Costs: (Add lines 1 –6)	71,369.05	154,568.86	115,938.04	148,428.55						
8. Total Indirect Costs	6,141.04	0.00	9,250.47	0.00						
9. Equipment	0.00	0.00	0.00	3,575.00						
10. Training Stipends/Tuition Assistance	45,789.64	0.00	35,535.20	0.00						
11. TOTAL COSTS (Add lines 7-10)	123,299.73	154,568.86	160,723.71	152,003.55						

*Teachers for a Competitive Tomorrow Master's (TCT-M) Program
Annual Performance Report*

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.