

The T.E.A.C.H. Early Childhood ^â Project
Pennsylvania
Executive Summary

***An Assessment of Program
Implementation, Outcomes, and Impact***

By

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The overarching goal of this study is to contribute to our knowledge about how to improve the quality of caregiving for children in Pennsylvania and the ways in which the T.E.A.C.H. Early Childhood[®] Project Pennsylvania can be improved in its effort to achieve this goal. We hope that these preliminary findings from this study will take us one step further in that direction.

Executive Summary

Introduction

Research has clearly shown that the foundation for learning is laid well before a child enters elementary school. Early experiences establish key cognitive, physical, and social-emotional skills, which help prepare children for success in school and in life. Therefore having a consistent, well-trained and well-compensated workforce is a cornerstone of high quality care and education.

To address the complex issues of inadequate education, poor compensation, and high turnover within the early care and education workforce, the Teacher Education And Compensation Helps (T.E.A.C.H.) Early Childhood® Project was created by the Child Care Services Association in North Carolina in 1990. The program is grounded in the principles of a funding partnership among a scholarship recipient, a sponsoring child care program, and the T.E.A.C.H. Early Childhood® Project. T.E.A.C.H. has a variety of scholarship offerings for caregivers with the overarching goals of increasing caregiver knowledge and skills, increasing their compensation, and reducing turnover.

The research reported herein provides an assessment of the implementation and of the outcomes and impact of T.E.A.C.H. Early Childhood® Project Pennsylvania, which is based on the North Carolina model. T.E.A.C.H. Pennsylvania offers scholarships on an annual basis to staff in licensed centers and group homes or to registered family child care providers who wish to pursue an Associates degree or the Child Development Associate (CDA) Credential in early childhood education.

T.E.A.C.H. Pennsylvania awarded the first scholarships in September 1998 using both private and business collaboration dollars. The Pennsylvania Department of Public Welfare (DPW) began funding scholarships in January 1999. This research, a longitudinal study with data gathered over 5 years, examines both the implementation and outcomes data for the scholarship applicants and recipients (scholars) that entered the program in the state fiscal years of 1998/1999 (Cohort I), 1999/2000 (Cohort II), and 2000/2001 (Cohort III).

Research Questions

In broad terms, this research addresses three primary questions that assess the direct outcomes of the scholarship program, as well as its indirect impact for child care:

1. Are the goals of T.E.A.C.H. Pennsylvania achieved (i.e., contracts completed; satisfactory grades achieved; coursework and degrees earned; compensation increased, and turnover decreased)?
2. Do scholarship recipients improve their knowledge, skills, and attitudes as it relates to early childhood education practice?
3. Do scholarship recipients improve the quality of child care within their classrooms?

Research Methods

To address these research questions, data from the three cohorts consists of the following:

- **Application data:** gathered when the caregiver makes application to T.E.A.C.H., these data provide information on the type of caregiver (center or home-based); age; ethnicity; source of knowledge about T.E.A.C.H.; degree preference (Associate degree or Child Development Associate Credential); scholarship award; reasons scholarship not awarded; family size; number of years in child care; number of years with current employer; age of children under care; job title; level of education; major in college; and number of years since last school attendance.
- **Scholars data:** gathered on an annual basis, these data are for a subset of applicants who are awarded a T.E.A.C.H. scholarship. Tracking the progress of these scholars in completing their educational program, these data include details about each annual T.E.A.C.H. contract, including courses/credits taken, courses/credits completed, grade point average, funding agency, status of the contract, turnover one year after completion of a contract, and wage at the beginning and end of a contract.
- **Subjects data:** gathered on an annual basis, these data are for a subset of scholars¹ who participated in the part of this study that examined the impact of the educational program. These data include measures of the quality of care as well as information about the caregivers' work environment, professional activities, and their knowledge and beliefs about early childhood education practices.

The instrumentation for the subjects data includes:

- Early Childhood Environment Rating Scale –Revised Edition (ECERS-R) (Harms, Clifford & Cryer, 1998) or the Infant Toddler Environment Rating Scale (ITERS) and its Revised (ITERS-R) version (Harms, Cryer, & Clifford, 2001) instruments for observing the teacher in the classroom
- Arnett's Caregiver Interaction Scale (Arnett, 1989) for observing a teacher's interpersonal interactions with the children in the classroom.
- Self-administered questionnaire that includes the following (see Appendix A for a copy of this questionnaire):
 - ⇒ **Work Environment:** This includes questions developed by authors to assess current work environment and reasons to participate in the T.E.A.C.H. program.
 - ⇒ **Professional Activities Questionnaire** (Jorde-Bloom, 1989): This includes questions about the professional involvement of teachers and administrators.

¹ The subjects data is gathered from those T.E.A.C.H. scholars who agreed to participate in this part of the study. Subjects are a subset of all T.E.A.C.H. scholars who are in Cohort I, Cohort II, or Cohort III. Each scholar in these three cohorts was contacted to determine their willingness to participate in this part of the study. They were ensured confidentiality of the subject data gathered from them and each year they were observed and they completed the self-administered questionnaire, they were paid \$25.

The subject data was initially gathered before the scholar started his/her educational program and at completion of each scholarship contract (a one-year contract to complete a minimum of 9 credits).

- ⇒ **Job Satisfaction Questionnaire** (Jorde-Bloom, 1991): This consists of five subscales that measure a caregiver's evaluation of his/her job. These subscales are: co-worker relations, supervisor relations, nature of the work itself, working conditions, and pay and promotion opportunities.
- ⇒ **Teacher Beliefs Scale and Instructional Activities** (Charlesworth, et al., 1994): These two scales assess the importance of various items related to early childhood education and questions about the frequency of the teacher's classroom activities.
- ⇒ **Knowledge of Infant/Child Development** (MacPhee, 1992): This is a knowledge test in which there are right and wrong answers.

Findings

T.E.A.C.H. Applicants

Over the first three years of operation there were 1217 applicants to T.E.A.C.H., with the breakdown within cohorts and type of scholarship shown in Table 1.

Table 1: T.E.A.C.H. Pennsylvania applications by type of scholarship

Cohort	Type of Scholarship				Total
	Center-Associate Degree	Center-CDA Credential	Home-Associate Degree	Home-CDA Credential	
Cohort I (1998-1999)	306 (74.5%)	83 (20.2%)	22 (5.3%)	0	411 (100.0%)
Cohort II (1999-2000)	166 (83.8%)	20 (10.1%)	11 (5.6%)	1 (0.5%)	198 (100.0%)
Cohort III (2000-2001)	375 (61.7%)	70 (11.5%)	137 (22.5%)	26 (4.3%)	608 (100.0%)
Total	847 (69.6%)	173 (14.2%)	170 (14.0%)	27 (2.2%)	1217 (100.0%)

For the most part, the typical T.E.A.C.H. applicant is around 33.6 years old, African American, with 3.6 family members, 6.3 years in child care, 3.5 years with the current employer, in an assistant group supervisor position, with a high school education, and with approximately 11.1 years since last attending school.

T.E.A.C.H. Scholars

Out of the 1217 applicants to T.E.A.C.H., there were 1076 accepted into the program and initially offered a first contract, which represents an 88.3% acceptance rate. Of those accepted, approximately three-quarters (946 or 77.7%) sign contracts to participate in the program. In each succeeding year there are fewer scholars who sign subsequent contracts, as depicted in Table 5.

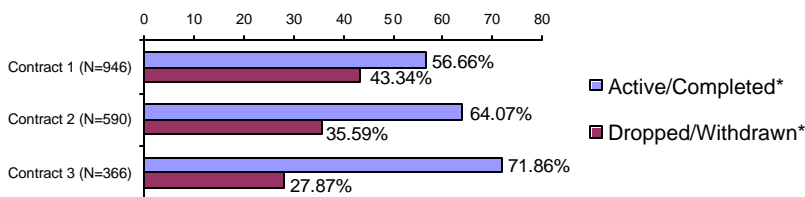
Table 5: Number of signed contracts

Cohort	Number of signed contracts*							
	Contract 1	Contract 2	Contract 3	Contract 4	Contract 5	Contract 6	Contract 7	Contract 8
Cohort I (1998-1999)	331(100%)	240(72.5%)	153(46.2%)	105(31.7%)	72(21.8%)	33(10.0%)	6(1.8%)	3(0.9%)
Cohort II (1999-2000)	129(100%)	79(61.2%)	48(37.2%)	34(26.4%)	21(16.3%)	7(5.4%)	0	0
Cohort III (2000-2001)	486(100%)	270(55.6%)	165(34.0%)	117(24.1%)	48(9.9%)	0	0	0
Total	946(100%)	590(62.4%)	366(38.7%)	256(27.1%)	141(14.9%)	40(4.2%)	6(0.6%)	3(0.3%)

*Percents are calculated using the number of scholars in the “Contract 1” column as the base number (N). It is important to note that scholars in Cohort II have not been in the program long enough to have more than 6 contracts and Cohort III scholars have not been in the program long enough to have more than 6 contracts.

At the time in which the last follow-up data were gathered, it is possible for all scholars in the first three cohorts included in this study to have up to 5 contracts. Noting that, we see that of the 946 scholars who signed first contracts, there are 14.9% (141) who are still participating in T.E.A.C.H. with a fifth contract. However, sometime during the first five contracts, 173 or 18.3% of the scholars have graduated. Taking this into consideration, approximately 33% of the scholars are still in T.E.A.C.H. or have already completed their program of study by the fifth contract cycle.

Figure 7: Status in T.E.A.C.H. during contract 1, 2, and 3**



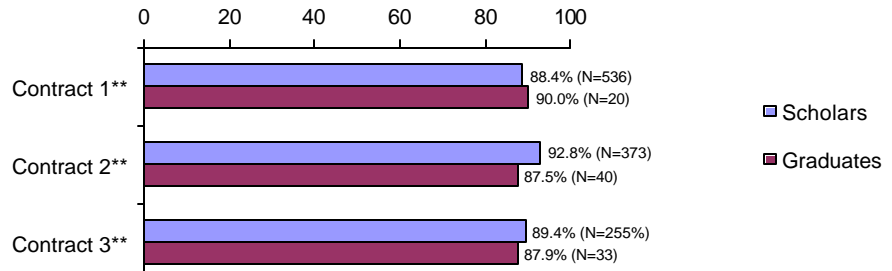
*The status variable as categorized in Figure 7 was collapsed into two categories, where Completed, Active/Extension Active, and Extension/Completed = Active/Completed and Withdrawn and Dropped = Dropped/Withdrawn.

** Contracts 4, 5, and 6 are not shown due to the high percent of scholars still in the Active, Active with extension, and Pending categories. Contract 7 and 8 are not shown due to the small N.

However, we see that the greatest number of scholars drop/withdraw during their the first contract. Figure 7 shows the status of scholars for the first three cohorts (beyond that there are still a sizable number of scholars in Cohorts II and III in active, active/extension, or pending status). These data reveal that once scholars complete a first contract, if they go on for a second and third contract, their rate of completion increases, going from 56.7% to 71.86%.

The turnover rate (and/or retention rate) for scholarship recipients is reported only for scholars who have completed contracts 1, 2, and 3 (beyond that, there are a number of scholars for whom the follow-up information is still missing). Figure 8 shows the retention rate for scholars completing their contracts, and within that group, compares the retention rate for those that have graduated. Scholars who remain in the T.E.A.C.H. scholarship program and continue to complete subsequent contracts are less likely to leave the field or their center during their commitment year. Furthermore, the retention rate of the graduates is similar to that for all scholars completing their commitment year, which is important to note.

Figure 8: Retention rate of scholarship recipients vs. graduates for contracts 1,2, and 3*



* Beyond contract 3 there are too many scholars and graduates that are still in the “CY not completed” category, therefore, retention data are not reported.

** No significant difference

On the average, scholars take between 8.66 and 11.70 credits, while they complete between 4.61 and 10.01 credits. Their GPA across cohorts and contracts ranges between 2.96 and 3.4 for those scholars reporting their grades.

There are three different models used to reward scholars after they successfully complete a contract. The first is a raise-only; the second a bonus-only, and the third both a raise and bonus. For those center-based scholars in the raise-only model, on the average their wages increase from \$7.90/hour to \$8.52/hour. This represents a 7.85% increase which is higher than the minimum 4% increase required by T.E.A.C.H. For the center-based scholars that have a bonus at the completion of a contract, on the average they receive \$509 and their average wage is \$7.81/hour. The center-based scholars receiving both a raise and bonus show an increase in wages from \$8.18/hour to \$8.90/hour—a 8.8% increase—and an average \$555 bonus.

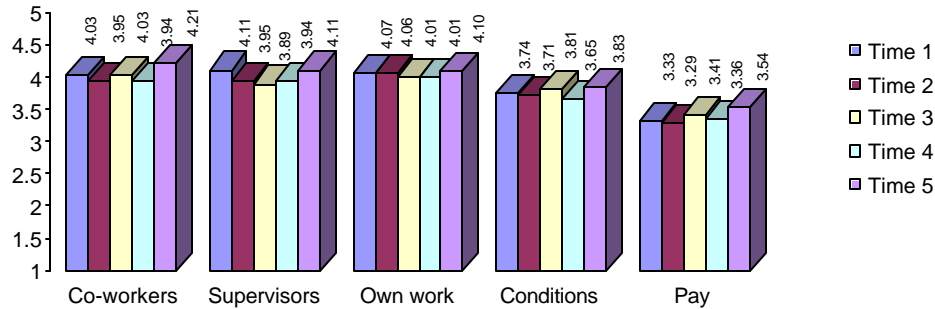
T.E.A.C.H. Subjects

Across all three cohorts, 203 subjects participated in this part of the research, although, as with the scholars followed for the five years of data collection, the number of subjects also diminished for each consecutive year, with only 13 remaining during the final data collection period. While some of this decrease in our subject pool is due to withdrawing/dropping from the T.E.A.C.H. program, other subjects moved into administrative positions, which meant that the classroom observation data could not be gathered.

The following highlights the findings from the outcome data gathered from the subjects over the five-year period:

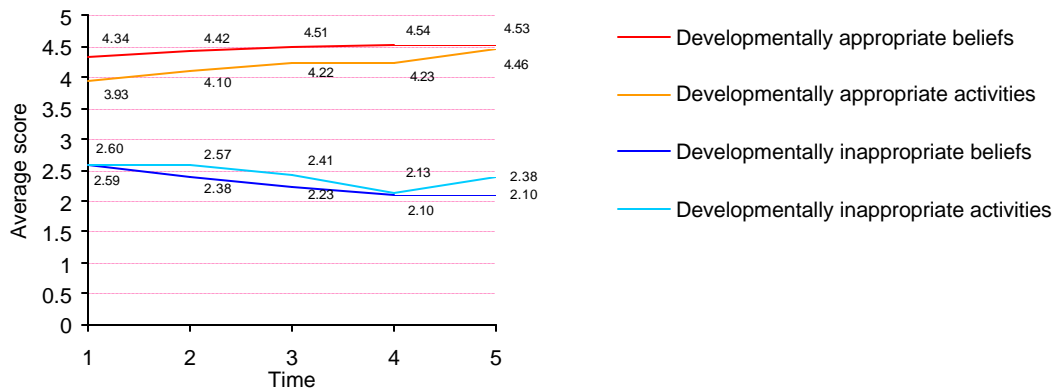
- **Professional Orientation/Activities:** On the average, the professional orientation/activities of the T.E.A.C.H. subjects hovered between 7 and 8 on a scale of 1 – 20, representing a lower level of involvement in professional activities. Furthermore, as caregivers continue with their education, the level of professional involvement declines slightly, with the greatest drop between time 1 and time 2.
- **Job Satisfaction:** A number of dimensions of job satisfaction are measured (see Figure 12) and generally, the subjects expressed a relatively high level of satisfaction with one’s own work and co-workers, while the lowest level of satisfaction is with pay and working conditions. There is only one area where there is a significant change over time—the satisfaction with one’s supervisor declines over time, which may seem counterintuitive. However, it may be that the expectation of caregivers increases as they embark on their educational journey, which increases the gap between what they expect and what they experience.

Figure 12: Average score for job satisfaction* subscale



- **Teacher Beliefs and Instructional Activities:** The changes in teacher beliefs and instructional activities/practices over time are in the expected directions, in that developmentally appropriate beliefs and practices are increasing over time, while the inappropriate beliefs and practices are declining over time (see Figure 13).

Figure 13: Changes in beliefs and activities over time



- **Knowledge of Infant/Child Development:** The average overall scores across time range from 74.55% - 77.74%, which represents the percentage of correct answers on this instrument. The scores over time are not significantly different, indicating that T.E.A.C.H. subjects do not increase their knowledge of infant/child development as they progress with their education.

- **Environment Rating Scales:** The overall average Early Childhood Environment Rating Scale-Revised (ECERS-R) score steadily increases from 3.79 at time 1 to 4.62 at time 5. Similar improvements occur for subjects in infant/toddler classrooms with their scores on the Infant-Toddler Environment Rating Scale increasing over time, as shown in Table 24.

Table 24: Average Environment Rating Scale scores by type and time

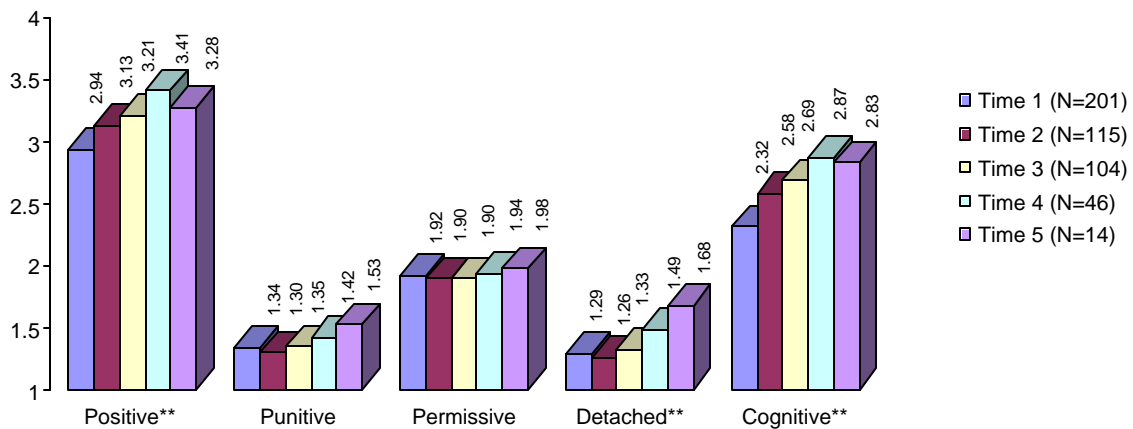
Scale	Time 1	Time 2	Time 3	Time 4	Time 5
ECERS-R	3.79 ¹	4.41 ¹	4.50 ¹	4.24 ¹	4.62 ¹
ITERS	3.70 ²	4.33 ²	5.30 ²	N/A	N/A
ITERS-R	N/A	N/A	3.77	4.15	4.39

* Quality scores range from 1-7 with 1=inadequate and 7=excellent.

¹ Significant difference at the $p=0.000$
² Significant difference at the $p=0.000$

- **Arnett Caregiver Interaction Scale:** Over time there are significant increases in the extent to which caregivers engage in positive interaction and interact with children in ways to improve their cognitive skills, as shown in Figure 16.

Figure 16: Quality* of caregiver interaction with children over time



* Quality/interaction ranges from 1-4 with 1=not at all prevalent and 4=very much prevalent.

** Significant difference at the $p=0.000$

Conclusions

The T.E.A.C.H. Early Childhood® Project was created in 1990 by Child Care Services Association in North Carolina with the intent of addressing the complex issues of inadequate education, poor compensation, and high turnover within the early care and education workforce.

This model program directly deals with these issues by establishing a scholarship program, enabling caregivers to enroll in college-credit programs and earn higher wages when they successfully complete their coursework. With the requirement that T.E.A.C.H. scholars remain in their child care program for one-year following the completion of their annual T.E.A.C.H. contract, the T.E.A.C.H. scholarship program establishes a means to reduce turnover of caregivers.

Indirectly, the educational component of the T.E.A.C.H. scholarship program should have an impact on the knowledge and skill level of caregivers as a result of their educational achievements. In turn, caregivers with greater knowledge and skill should contribute to the overall the quality of child care. This study of the T.E.A.C.H. Early Childhood® Project Pennsylvania provides a longitudinal analysis of the data for the first three cohorts of applicants and scholars that participated in Pennsylvania's T.E.A.C.H. program. The scholars are followed over a 5-year period to examine the direct outcomes of the program (i.e., increased education, increased compensation, and reduced turnover). As well, a subset of scholars serve as set of subjects that are followed over the 5 years to examine the indirect impact of participating in T.E.A.C.H. (i.e., increase in knowledge and skill as well as improved quality of care in their classroom).

By following the progress of the T.E.A.C.H. scholars, this study sheds light on the extent to which involvement in T.E.A.C.H. achieves its goals and the education of T.E.A.C.H. scholars has an impact on the quality of care.

The direct outcomes of the T.E.A.C.H. scholarship program—educational achievement, increased compensation, and reduced turnover—are all positive in that those scholars who remain in the program earn an average of 9 college credits per contract, maintain a grade point average between 2.96 and 3.4, average an increase in their compensation between 7.85%- 8.8% or receive a bonus between \$300-\$500 after each completed contract, and have a turnover rate averaging around 10%.

Furthermore, over the course of 5 contract periods, 18% of the 946 scholars who participate in T.E.A.C.H graduate with their CDA or AA degree. Therefore, the investment in the scholars who remain in the program is worthwhile.

Another set of analyses examines the impact of participating in the educational programs (via a T.E.A.C.H. scholarship) and whether there are significant changes over time in professional orientation, job satisfaction, teacher beliefs and instructional activities, knowledge of infant/child development, the quality of care, and child/caregiver interaction.

Overall, we see mixed results from the analysis of these data. While there are a number of positive and significant changes among those scholars that are included in this part of the research, there are some areas where changes occur in the opposite direction from what is expected, and some areas where there is no significant change over time.

On a positive note, across time there are significant increases in developmentally appropriate beliefs and activities and a decline in developmentally inappropriate beliefs and activities.

Furthermore, there are significant improvements over time in the quality of care, as measured by the environment rating scales' overall scores. Specifically, we see that the subscale areas of Language and Reasoning, Interaction, and Parent and Staff show considerable improvement and are now within the "good" range on the environment rating scales (i.e., with a score = 5). Overall, the largest improvements occur after completing the first year of education and then taper off, which is an interesting finding that is difficult to explain.

Also, there are significant improvements in the extent to which caregivers engage positive interactions with children and interact in ways to improve children's cognitive skills as measured by the Arnett scale and the other questions added.

An important policy question is to what extent the application approval process is robust, yielding a set of scholars that are most likely to offer a positive return on the state's investment in them. While the stated goal of T.E.A.C.H. is to have scholars complete one contract (not to complete credentials or degrees), given the recognized importance of college credit credentials, it is important to assess the extent to which scholars continue and complete their credentials/degrees. Data that address this question are the rates in which scholars complete their first contract and continue to sign additional contracts, working toward the completion of their CDA or Associate's degree.

These data show that there is a substantial withdrawal/dropout rate with the T.E.A.C.H. scholars. The practical implication of this data analysis raises a number of questions. First, what is an acceptable withdrawal and dropout rate? And, if a 43.3% withdrawal and dropout rate is not acceptable, then how can the T.E.A.C.H. scholarship program better select those applicants who are likely to remain in the program and achieve their educational goals? Finally, are there aspects of the T.E.A.C.H. scholarship program that can be changed to enhance the likelihood that scholars will remain in the program?

The first question about what is an acceptable withdrawal and dropout rate cannot be answered through this research, since it requires a policy decision that needs to be made through some benchmarking process to determine what is a realistic and achievable goal with regard to such rates.

The other questions about ways to select scholars or establish program criteria to enhance the likelihood that scholars will remain in the program can be addressed only partially through these data. We do see that scholars consistently complete fewer credits than they initially sign-up for. This is probably a good indication that the T.E.A.C.H. scholarship requirement of completing 9-15 credits/ per contract is difficult for many of the scholars—which accounts for the sizable number of scholars that request extensions on their contracts in order to complete their obligations.

Working full time as well as trying to complete a minimum of 9 college credits per year appears to be difficult for a large percentage of the T.E.A.C.H. scholars. Although T.E.A.C.H. follow-up "satisfaction" surveys indicate that a majority of scholars feel that completing 9-15 credits is "about right," the response to these surveys is most likely to be from those who completed a contract and the responses do not capture the opinions of scholars who drop out or withdraw.

Given this, attention to the contract requirements may be in order (e.g., reducing the course credit requirements to a minimum of 6 credits per year rather than 9 credits). The realities of full-time work and having to complete college coursework are proving to be difficult for a large number of scholars (particularly for this population of low-wage workers, many of whom have no college experience and require remedial work to be prepared for the coursework requirements).

However, to fully address the question about which scholars are more likely to remain in the program, a more in-depth study of the T.E.A.C.H. scholars will have to be done. Specifically, it is important to investigate the “leavers” to determine the reasons why they leave and to assess the factors that significantly differentiate between those scholars that are likely to remain in the program vs. those that are not.

Overall, what do these data on T.E.A.C.H. Pennsylvania tell us? First and foremost, there are many positive outcomes for the scholars who participate in this program with respect to educational achievement, increased compensation, reduced turnover, improvements in knowledge and skill, and improvements in the quality of care.

The downside of T.E.A.C.H. is that it is difficult to keep caregivers in the program. As well, some of the results that show no positive change in areas of knowledge, skill, and practice have implications for the educational institutions that are providing the coursework for the T.E.A.C.H. scholars. If the evidence points to areas of knowledge and skill where the scholars are not improving, the educational programs should examine their curriculum materials, to ensure that the content in these areas is adequately addressed. As well, the context of the educational experience (i.e., whether the experience fosters a transfer of knowledge into practice), may be an area where improvements can be made by the educational programs.

Undoubtedly, the T.E.A.C.H. Early Childhood® Project has national recognition and is seen as an important component in the early childhood care professional development and quality improvement initiatives of many states. Currently, there are 23 states that offer the T.E.A.C.H. scholarship program to their early care and education practitioners. But to date, there has not been research to document the outcomes and impact of T.E.A.C.H. This study provides an analysis of longitudinal data gathered from the administrative records of applicants and scholars accepted into the program, as well as observational and questionnaire data gathered from a subset of T.E.A.C.H. scholars. This analysis provides insight into whether the promise of T.E.A.C.H. is being achieved and points to those areas where quality improvements in the program can be made.