Project FUTURE:
Opening Doors to Diverse West Texas Teachers

By Tara Stevens, Mary Frances Agnello, Janie Ramirez, Aretha Marbley, & Doug Hamman

Project FUTURE is one component of a multifaceted approach in the Northwest Texas region to target Hispanic and African-American youth, encouraging them to go through school with a desire to complete education programs leading to professional credentialing in teaching. Project FUTURE inspires students to believe that they can attend Texas Tech University and become teachers through the College of Education. In keeping with the mission and vision of the College of Education, Project FUTURE seeks to create educational, social, economic, and political opportunities by opening doors to all students in West Texas, with an extra effort to include the heretofore excluded.

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Background

The first iteration of Project FUTURE, established by Dr. Alex Crowder and called the Dean's Future Scholars program, sought to bring children from underrepresented backgrounds to Texas Tech to encourage them in attending the university to major in any area of study. Although a systematic evaluation of participant outcomes was not put into place, anecdotal evidence suggested that this initiative was

successful. For example, a first-year student at Texas Tech who participated in the program when it was first developed as well as its successor Project FUTURE, described the meaningfulness of the experience to her,

> I started this program in the 6th grade and enjoyed coming to the campus every year. Project FUTURE inspired me to become a teacher because I want to be able to be a positive role model and educate . . . all of the children! As a first-generation student going to college, FUTURE really helped me to overcome my fears about college.

To determine how this experience could be expanded to similar students, college administrators enlisted the assistance of faculty interested not only in diverse educators but also those who studied development and change in educational settings. Thus, an advisory board was created from which three important changes emerged. First, the College of Education secured outside funding through the Greater Texas Foundation allowing the creation of a fulltime position to organize, implement, and evaluate Project FUTURE. Second, faculty researchers identified Social Cognitive Career Theory as the theoretical framework for the program that would guide activity development and evaluation. Finally, College of Education faculty contributed to the development of relevant FUTURE activities. The purpose of this paper is to describe these important changes as well as the initial evaluation of the effectiveness of Project FUTURE.

In 2005, a full-time Project Director was hired and began working closely with the Office of the Dean of Development in the College of Education and across the university to develop programs for the recruitment of a diverse teaching population through partnerships with 41 area public school districts. The Project Director put a system of recruitment into place and upgraded the annual full day experiences on campus to deliver seven different university experiences for the FUTURE student/participants on the Texas Tech campus, one for each grade during seven years of their involvement.

The Project Director has the important task of addressing practical issues related to collaboration, organization, and induction, as well as networking with a large geographical region to bring more students into the program. For example, the first Project FUTURE induction ceremony (required for acceptance in the program) tapped 91 students into the program. Students' recognition at this function affirms the program's goals. However, meeting the needs of minority students is not always straightforward, as the Project Director learned when some of those accepted into the program were absent at the mandatory induction ceremony. A number of the applicant/inductees had transportation problems and other issues resulting from inclement weather on the day of the event. The acceptance policy therefore needed to be adapted to offer an alternative and flexible method to induct more candidates. One suggestion is to integrate a personal interview among the project director, parent, and student. The requirement of parent or guardian attendance upon entry into the program is meant to solidify the

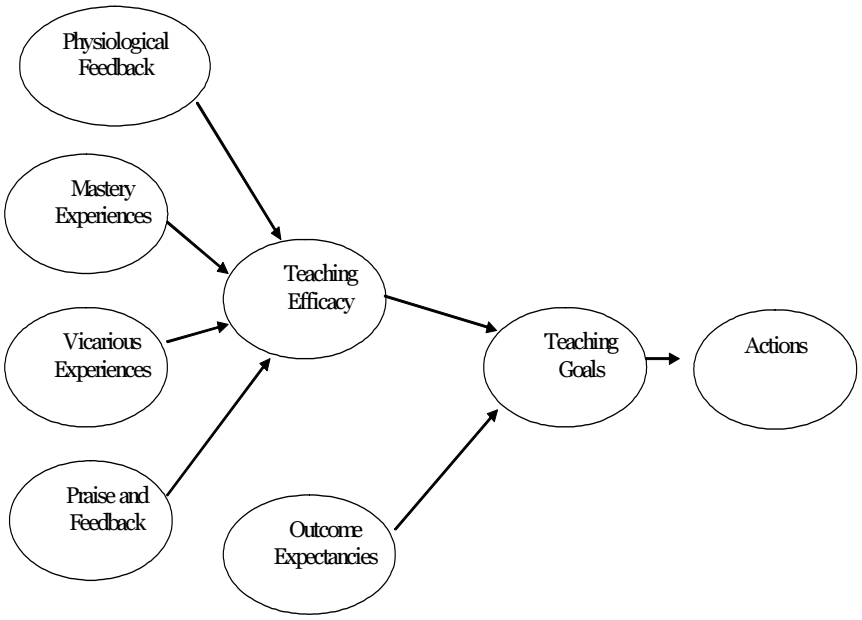
commitment of the adult and the child to Project FUTURE and the attendance and participation that such affiliation will require as time goes on.

Theoretical Framework

Project FUTURE activities were developed using an empirically supported theoretical framework, Social Cognitive Career Theory (SCCT). Lent, Brown, and Hackett (1994) developed SCCT, which is "anchored" in Bandura's (1986) Social Cognitive Theory (Lent, Hackett, & Brown, 1999, p. 297), and applies its constructs, including the bidirectional interactions between one's person (e.g., self-efficacy, self-esteem, ethnicity) and environmental variables (e.g., social supports and barriers), specifically to career development. Lent et al. (1994) focused on individuals as agents in their exploration of careers. The theory posits that those individuals who possess a strong belief in their ability to utilize their skills and knowledge to succeed in specific domains will be more likely to develop related career goals. For example, a student who believes he or she can effectively use his or her skills and knowledge to successfully teach others will be more likely to set a goal to become a teacher than another student who does not possess such beliefs.

As shown in Figure 1, Bandura (1986) identified four sources of self-efficacy: verbal persuasion, mastery experiences, physiological feedback, and vicarious

Figure 1,
Model Representing Social Cognitive Career Theory.



learning. An individual who has frequently been told that she is skilled at teaching others or helping peers with their schoolwork, has experienced success when teaching others (e.g., watched peers she has taught succeed on exams), has felt calm and comfortable when teaching or lecturing in front of her peers, and has been exposed to model teachers whom she believes she can be like will likely possess a high degree of teaching self-efficacy. Although Project FUTURE seeks to encourage teaching self-efficacy, the majority of students in Project FUTURE have been selected by their school counselors because they appear to already have a higher than average level of teaching self-efficacy. The project developers recognized that having high self-efficacy in teaching was not enough to encourage students from underrepresented groups to become teachers.

In addition to teaching self-efficacy, SCCT posits that individuals must also possess appropriate outcome expectations in order to set specific career goals. Outcome expectations refer to the consequences or outcomes that are related to one's efforts (Bandura, 1986). For example, a student might have a high degree of teaching self-efficacy, but may believe that he will not be able to support himself financially as a teacher, so his efforts will never result in an outcome that is practical. Project FUTURE seeks to identify the outcome expectations of students and to challenge those expectations that are not accurate or appropriate with the intent to encourage students to set goals to enter the field of education.

Goal setting, also an important variable in SCCT, is concerned with individuals' "self-determination to engage in a given activity or to effect a particular outcome, such as completing a difficult high school course, graduating, entering post-secondary training, or getting a particular job" (Lent, Hackett, & Brown, 1999, p. 300). Setting goals promotes one's ability to organize and guide his or her behavior. Goals also encourage self-regulation, allowing individuals to persist even when external reinforcements are absent (Albert & Luzzo, 1999).

Project FUTURE helps students to set career goals in the field of education by not only fostering students' teaching self-efficacy and appropriate outcome expectations, but also by recognizing and challenging environmental factors that interact with students' personal beliefs and identity. In other words, Project FUTURE developers realized that students from underrepresented groups who are interested in teaching often do not set goals to actually become teachers because of perceived barriers. Students may be confident in their ability to teach and may expect positive outcomes from teaching; however they may avoid setting goals to become a teacher because they see some barriers, such as admission to college, financing their education, and moving away from family, as insurmountable. Some students may correctly determine that the majority of teachers are White and not from ethnically and culturally different backgrounds. As a result, these students may incorrectly doubt their ability to find a teaching position, may begin to question their self-efficacy, and may develop inappropriate outcome expectations. These beliefs may become internalized, resulting in students adjusting their

goals and avoiding the teaching profession. Project FUTURE developers view the project as an environmental support designed to counter negative contextual influence and perceived barriers.

Project FUTURE Activities

The goal of Project FUTURE is to follow a cohort of sixth grade students interested in the teaching profession through high school graduation and into their first year of college at Texas Tech University. This goal is ambitious as students from underrepresented groups and low socioeconomic status, those who are specifically targeted for Project FUTURE, are more likely to relocate, have transportation issues, and have competing responsibilities (e.g., the need for employment during summers, caretaking of younger siblings) that limit the time that they have to devote to Project FUTURE activities than students from higher socioeconomic backgrounds. Currently, only one cohort has been inducted into Project FUTURE; however, the project continues to serve participants at every grade level from the sixth to the twelfth grade. These older students are a part of the initial Dean's Future Scholars program that was in place prior to the development and funding of Project FUTURE.

Participants at each grade level are invited to campus for a formal day long conference during which they participate in developmentally appropriate activities that expose students to campus life as well as academic experiences. Participants are also invited to campus throughout the school year to attend sports events, theatrical presentations, and Back to School Fiesta University Day held every August. Contact with participants is also continued through the admissions office, which sends birthday cards as well as relevant announcements. Finally, participants are matched with a Texas Tech student mentor whom they get to know by spending time with at the day long conference.[1] A general description of Project FUTURE activities is provided in Table 1, which also categorizes each activity within the theoretical framework. A more detailed description of the day long conferences for each grade level is provided below.

At the all-day conference, sixth grade students explored math and science concepts through interactive activities. This past year they designed and built balloon car racers using straws, foam board, nine-inch balloons, and wooden wheels. They also conducted laboratory experiments involving DNA processing and fingerprinting analysis and learned the art of teaching math and science in a fun way. Students also took a campus tour and dined in the residence hall.

Seventh grade students attended a conference with the theme of a Teaching Simulation Classroom. Students explored teaching techniques by participating in an ESL (English as a Second Language) language literacy activity taught by Dean Sheryl Santos using newspapers and bilingual cards. They also participated in interactive activities to learn about different teaching styles using Asian musical instruments, maps, games, dolls, arts and crafts to help a classroom come alive with

Table 1.
Project FUTURE Annual Events.

Phase I	Grade	Specific Grade Level Annual Activity
Apply to Project FUTURE in 6th grade and Attend an Induction Ceremony in spring	6	Academic Conference— Start thinking about and planning to go to college Attended an all-day conference at the International Cultural Center
Phase II	7-9	
Academic preparation for college through honors or Pre-AP classes	7 8 9	Teaching Simulation— students learn about effective teaching The Game Plan— Navigating the road map of life Teaching as a Global Profession- "Calculating across Cultures and History"
Phase III	10-12	
Attend annual academic conferences in the fall that emphasize academic and financial planning for college	10 11 12	The College Experience— students attend different classes across the campus Students attend Education Summit at the Civic Center with speakers, college fair, and workshops Students attend University Day at the United Spirit Arena with attention to financial aid, admissions, and student services sessions and fill out paper work

activity. The students also dined in the residence hall and felt comfortable to convey that they hated classrooms where the teacher just talked.

Eighth grade students focused on "Road Maps: Have a Road Map for Your Life." Highlighted at this gathering was a three-minute film starring the basketball legend Coach Bobby Knight. Although Coach Knight, who comes from a family of teachers, had intended to speak to the group in person, he had an emergency

engagement that took him away. Instead he starred in and produced together with the Texas Tech College of Education a film that can be used year after year explaining the inspiration that he had to become a teacher following in the footsteps of many in his family. Another part of the day's activities included *Reality Check*, developed by South Plains College, a local junior college—an interactive game that helps put into perspective real life budget, career, and earning opportunities. Students saw firsthand financial issues caused by very low-wage work; then they looked at the possibilities of doors leading to career and earning opportunities, as well as where they might enter those doors.

The ninth grade students focused on Teaching as a Global Profession. The students learned the different methodologies in which mathematics can be taught, the different tools used to teach mathematics in various parts of the world, and the possibilities for teaching in many places in the world. Additionally, students learned of the many international study abroad opportunities that exist at Texas Tech. Foreign study was promoted to the high school students as a quick way to learn a language, to experience other peoples' culture and political systems, and to make history, architecture, and art come alive for them.

Tenth grade students attended college class sessions of various disciplines, after which Aretha Marbley, Associate Professor of Counseling in the College of Education, had her counseling students debrief the tenth graders. Some tenth graders expressed surprise that students didn't have to attend class but did, that the professors were not callous and disinterested, that the subjects were not necessarily extremely difficult, and best of all that many of the images that they had about college and college students were incorrect. Some of the students expressed the desire to have visited classes in subjects that really interested them. Project FUTURE organizers took this teachable moment to make the students aware that in the beginning of their college careers they are required to take many classes whether or not students find them interesting. The tenth graders' biggest concerns about going to a university were admission and financial requirements. Optimism was expressed by some of the recruits about the knowledge that college was an option, and that attending college was something that their parents expected from them.

The eleventh grade students attended the Ultimate Education Summit in November 2005 and 2006 at the Lubbock Memorial Civic Center. The program, made possible by Civic Lubbock, Inc., Raiders Rojos, among many other university-related and civic organizations featured presentations on an array of topics such as high school success formulas, test-taking, careers, technology, junior college, and financing higher education. The Ultimate Summit was well publicized in the local Hispanic and widely read local paper before and after the event. Hundreds of students from surrounding areas traveled on buses to attend the event; they went from one display or exhibit to the next with organized presentations made by various invited speakers from all areas of education and related community organizations.

Twelfth grade students applied to Texas Tech academic programs and dormitories and learned how to apply for financial aid. With the assistance of Admissions, Financial Aid, Housing, the College of Education, and other key players, these students were guided through the admissions process.

Preliminary Analysis and Support for the Theoretical Framework

Participants

Project FUTURE participants completed a questionnaire, described below. During the spring semester of 2005, 171 participants completed it. Their average age was 13.75 (*SD* = 1.44). The majority described themselves as seventh (n = 68, 39.8%) and eighth graders (n = 71, 41.5%); two described themselves as ninth graders, 11 as tenth graders, 10 as eleventh graders, and eight as twelfth graders. When asked to describe their ethnicity, 26 participants (15.2%) endorsed "Black (African-American)," 106 students (62%) endorsed "Hispanic," 27 students (15.8%) endorsed "White—not Hispanic," one student endorsed "Native American," and 11 students either identified multiple categories or endorsed "Other (my group isn't listed)."

During the spring semester of 2006, 269 Project FUTURE participants completed the questionnaire. Their average age was 13.26 (*SD* = 1.55). The majority described themselves as seventh (n = 82, 30.4%) and eighth graders (n = 70, 25.9%); 50 students described themselves as sixth graders, 27 as ninth graders, 21 as tenth graders, 13 as twelfth graders, and one as an eleventh grader. When asked to describe their ethnicity, 45 participants (16.7%) endorsed "Black (African-American)," 157 students (58.1%) endorsed "Hispanic," 52 students (19.3%) endorsed "White—not Hispanic," five students endorsed "Native American," two endorsed "Asian-American," and three students endorsed "Other (my group isn't listed)."

Of the 269 spring 2006 participants, 70 were continuing from spring 2005 in Project FUTURE. Their average age was 13.07 (*SD* = .89) and all were either seventh graders (n = 47, 67.1%) or eighth graders (n = 22, 31.4%), with the exception of one eleventh grader. They were predominately comprised of students describing themselves as "Hispanic" (n = 48, 68.6%). Eight students (11.4%) endorsed "Black (African-American)," seven students (10%) endorsed "White—not Hispanic," and seven students either identified multiple categories or endorsed "Other (my group isn't listed)."

Procedures

Upon completion of the FUTURE activities, students were asked to complete a paper and pencil questionnaire that included instruments evaluating sources of teaching self-efficacy, teaching self-efficacy, outcome expectancies, goals, and actions. Those students who were not able to complete the paper version were

allowed to finish the questionnaire online. FUTURE volunteers were present to answer any questions concerning the items.

The sixth-grade cohort of Project FUTURE participants also attended the FUTURE/CISER (Center for Integrated Science Education Research) camp during the summer of 2006. Instead of simply reevaluating the students' sources of teaching efficacy, teaching self-efficacy, goals, and actions using quantitative means, the authors elected to be participant observers and collect qualitative information to provide a better understanding of students' thinking about teaching before and after their camp attendance. Additionally the students were given a pre- and post- camp open-ended questionnaire that yielded information relevant to discerning the students' goals and their commitment to the idea of being teachers.

Instruments

Sources of Teaching Self-Efficacy. To assess students' sources of teaching self-efficacy, an 11-item instrument was created by the authors to assess the four areas identified by Bandura (1986) that encourage the development of self-efficacy. Participants were asked to rate how well statements described them using a scale from 1, strongly disagree, to 5, strongly agree. For the spring 2005 and spring 2006 populations, internal reliability estimates using Cronbach's alpha were acceptable for the four items assessing Physiological Feedback (.85, .78), three items assessing Praise and Feedback (.75, .83), and three items assessing Mastery Experiences (.72, .75). Vicarious experiences were assessed with a single item, "I have had teachers that I would want to be like."

Teaching Self-Efficacy. Twelve items adapted from Tschannen-Moran and Hoy's (2001) Teacher's Self-Efficacy Scale were utilized to evaluate participants' self-efficacy in this specific domain. Participants were asked to describe how they felt about their capabilities to perform described teacher actions using a scale from 1, not at all confident, to 9, highly confident. For example, students were asked about their capabilities to "Control disruptive behavior in the class" and "Craft good questions for students." The internal reliability estimate using Cronbach's alpha was high at .94.

Outcome Expectancies. Eight items were created to evaluate students' outcome expectancies for becoming a teacher. Participants were asked to rate how well statements described their beliefs using a scale from 1, strongly disagree, to 5, strongly agree. Students responded to statements such as "Teaching is a good career" and "There are a lot of good reasons for someone to become a teacher." The internal reliability estimate of Cronbach's alpha was acceptable, reaching .73 for the spring 2005 group and .77 for the spring 2006 group.

Goals. Four items were created to assess participants' goals to become teachers. Participants were asked to rate how well statements described their beliefs using a scale from 1, strongly disagree, to 5, strongly agree. The statements included, "I want to become a teacher," "I want to help others learn," "I want to 'give back' to my

community by becoming a teacher," and "I want to help others by becoming a teacher." The internal consistency estimate using Cronbach's alpha was high at .87 for the spring 2005 group and .92 for the spring 2006 group.

Actions. Four items were developed to assess participants' actions and intentions concerning a teaching career. Participants were asked to rate how well statements, such as "I'll study hard so I can become a teacher" and "I'll take the classes I need to become a teacher," described them using a scale from 1, strongly disagree, to 5, strongly agree. A Cronbach's alpha coefficient of .60 indicated that the internal consistency of this scale was adequate for the spring 2005 group. The internal consistency estimate of Cronbach's alpha for the spring 2006 group was high, reaching .86.

Pre- and Post-Test Open-Ended Questionnaire. Students were provided with a single open-ended question asking the reason for their participation in the FUTURE/CISER camp. Students wrote their answer and provided responses at the start of the camp and then again at the end, one week later.

Statistical Analyses

Subsequent to the calculation of descriptive statistics and initial within group comparisons, a structural equation model was evaluated utilizing LISREL 8.52 (du Toit & du Toit, 2001; Joreskog & Sorbom, 1993) to test the adequacy of the hypothesized model (see Figure 1), which included the causal relations among five manifest and three latent variables. This analysis allowed the evaluation of the measurement included in the model as well as the evaluation of the structure or posted relationships. The assessment of fit through the evaluation of chi square was not utilized in the current study due to the extensive amount of criticism this method has received (Bentler, 1990; Tabachnick & Fidell, 2007).

Alternative goodness of fit indices were selected based on the recommendations of Hu and Bentler (1999). A two-index presentation strategy that involves evaluating both the maximum likelihood (ML) based standardized root mean squared residual (SRMR) and the ML based comparative fit index (CFI) was employed in the present study. This combinational rule of CFI < .95 and SRMR > .09 was utilized as Hu and Bentler (1999) suggested that when N d$\leq$250, as it is in our study, and a Type I error is being avoided, the CFI and SRMR combination is likely more appropriate. Model modifications were based on residual fit statistics generated from the first model's fit to the spring 2005 sample. The revised model was cross validated using the spring 2006 sample to address issues of generalizability.

Results

Descriptive Statistics and Initial Within Subject Comparisons

Means and standard deviations for all variables are presented in Table 2. Correlational analyses presented in Table 3 indicated that the variables were related

Table 2.
Means, Standard Deviations, and Within Subject Differences.

Variable	Mean	Standard Deviation	*t*-value	*p*-value
Physiological Feedback				
Spring 2005 (n = 171)	13.01	4.42		
Spring 2006 (n = 269)	13.02	4.00		
Spring 2005 (n = 70)	12.07	4.32		
Spring 2006 (n = 70)	13.16	3.94	-2.27	.027
Mastery Experiences				
Spring 2005 (n = 171)	11.06	2.43		
Spring 2006 (n = 269)	11.21	2.43		
Spring 2005 (n = 70)	10.97	2.50		
Spring 2006 (n = 70)	10.81	2.40	.53	.601
Vicarious Experiences				
Spring 2005 (n = 171)	3.74	1.23		
Spring 2006 (n = 269)	3.96	1.18		
Spring 2005 (n = 70)	3.82	1.28		
Spring 2006 (n = 70)	3.79	1.09	.20	.845
Praise and Feedback				
Spring 2005 (n = 171)	9.86	2.85		
Spring 2006 (n = 269)	10.24	3.02		
Spring 2005 (n = 70)	10.18	3.07		
Spring 2006 (n = 70)	9.99	3.15	.475	.636
Teaching Self-Efficacy				
Spring 2005 (n = 171)	75.94	22.39		
Spring 2006 (n = 269)	81.65	20.59		
Spring 2005 (n = 70)	73.58	24.88		
Spring 2006 (n = 70)	76.77	20.33	-.88	.382
Outcome Expectations				
Spring 2005 (n = 171)	30.74	4.38		
Spring 2006 (n = 269)	31.67	4.82		
Spring 2005 (n = 70)	30.39	4.73		
Spring 2006 (n = 70)	30.90	4.48	-.82	.416
Teaching Goals				
Spring 2005 (n = 171)	11.92	3.82		
Spring 2006 (n = 269)	13.95	4.15		
Spring 2005 (n = 70)	12.79	3.39		
Spring 2006 (n = 70)	13.61	3.39	-2.14	.036
Actions				
Spring 2005 (n = 171)	13.37	3.96		
Spring 2006 (n = 269)	14.72	3.96		
Spring 2005 (n = 70)	13.61	4.07		
Spring 2006 (n = 70)	13.33	3.31	.53	.599

as specified by theory and in the predicted directions. Paired samples *t*-tests were employed to evaluate within subject change from spring 2005 to spring 2006 using

Table 3.
Correlation Matrix.
(The Spring 2005 Sample Is Above the Diagonal and Spring 2006 Is Below.)

Variable	1	2	3	4	5	6	7	8
1. Physiological Feedback	--	.30**	.08	.13**	.21**	.16*	.14	.13
2. Mastery Experiences	.34**	--	.31**	.35**	.30**	.39**	.35**	.36**
3. Vicarious Experiences	.15*	.31**	--	.28**	.37**	.30**	.31**	.28**
4. Praise and Feedback	.22**	.53**	.31**	--	.39**	.34**	.30**	.19*
5. Teaching Self-Efficacy	.20**	.43**	.44**	.36**	--	.41**	.39**	.40**
6. Outcome Expectations	.24**	.44**	.49**	.40**	.60**	--	.34**	.34**
7. Teaching Goals	.21**	.34**	.43**	.30**	.51**	.59**	--	.74**
8. Actions	.23**	.39**	.45**	.33**	.60**	.59**	.88**	--

* p<.05.
** p<.01.

the sample of participants who attended both conference years. Results revealed a statistically significant difference between participants' goals and physiological feedback between spring 2005 and spring 2006. Participants reported significantly higher goals of becoming teachers, $t = -2.14(69)$, $p < .05$, and significantly higher levels of physiological feedback, $t = -2.27(69)$, $p < .05$, indicating greater comfort in teaching others. All *t* scores are presented in Table 2.

Model Fit to Sample 1

The LISREL 8.52 program using the SIMPLIS programming language was utilized to evaluate the model's fit to the first sample collected in spring 2005. Maximum likelihood estimation was utilized, and parameter estimation matrices were positive definite, with no parameter estimates outside their permissible range. Evidence was not found to support adequate model to data fit (*CFI* = .90; *SRMR* = .11). The chi square estimate of 592.44 was statistically significant ($p < .001$). These results indicated either problems with the measurement model or possibly the relationships posited. Because the majority of the measures utilized for the present study were developed or modified specifically for Project FUTURE, modifications were focused on measurement issues. The largest positive and negative standardized residuals were reviewed to determine which items were associated with the greatest error, and these items, four items from the outcome expectancies measure and one item from the actions measure, were removed.

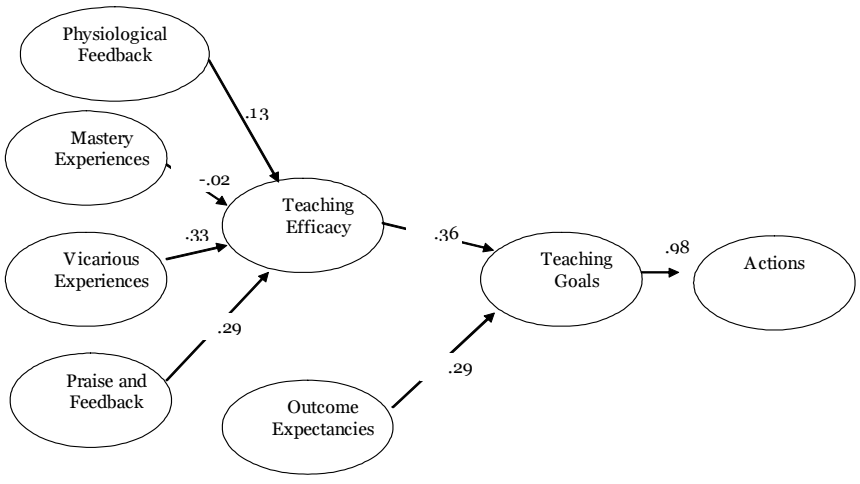
The modified model provided a good fit to the spring 2005 data (*CFI* = .95;

SRMR = .08). The chi square estimate of 228.93 continued to be statistically significant ($p < .001$) but was significantly lower, indicating an improvement in the model. The parameter estimates of this model are presented in Figure 2 and were all significant at the $p < .01$ level, with the exception of two sources of teaching self-efficacy; Physiological Feedback and Mastery Experiences. Sources of teaching self-efficacy accounted for 27% of the variance in teaching self-efficacy, and teaching self-efficacy and outcome expectations accounted for 26% of the variance in students' teaching goals. Students' teaching goals accounted for 96% of the variance in students' reported actions to become teachers.

Model Fit to Sample 2

The modified model was cross validated to the second sample collected in spring 2006 to provide evidence of generalizability. Again, the LISREL 8.52 program using the SIMPLIS programming language was utilized to evaluate the model's fit to the second sample collected in spring 2006. Maximum likelihood estimation was utilized, and parameter estimation matrices were positive definite, with no parameter estimates outside their permissible range. Evidence was found to support good model to data fit (*CFI* = .95; *SRMR* = .08). The chi square estimate of 456.13 was statistically significant ($p < .001$). The parameter estimates of this model are presented in Figure 3 and were all significant at the $p < .01$ level, with the exception of two sources of teaching self-efficacy; Physiological Feedback and Mastery Experiences. Sources of teaching self-efficacy accounted for 27% of the variance in teaching self-efficacy and teaching self-efficacy and outcome expectations accounted for 39% of the variance in students' teaching goals. Students'

Figure 2.
Parameter Estimates for the Spring 2005 Sample.

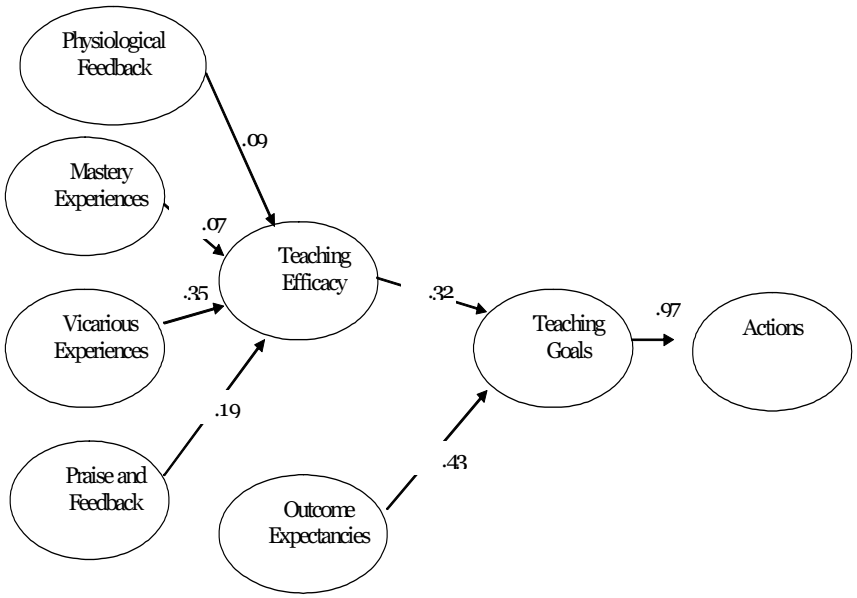


teaching goals accounted for 95% of the variance in students' reported actions to become teachers.

Qualitative Description

Participants' pre- and post-test open-ended responses were evaluated for possible changes experienced through their involvement with the FUTURE/CISER camp. The stated reasons for attending the camp ranged from interest in math and/or science, to a fun activity to contributing to their becoming a teacher. Two campers said that their parents wanted them to attend. Some pre- and post- responses revealed noticeable changes in the way the campers viewed the week. One camper declared that she wanted "to learn more to help me in the future" early in the week and later revealed, "because I want to be a teacher and this camp will help me a lot." A similar transformation was present in the following quotes: "I wanted to join this camp because I thought it be interesting because it has two of my favorite subjects and I like to join and try new things," to "I thought it might be fun and I always wanted to be a teacher." Several of the students indicated that they attended the camp because they wanted to "learn science," "to help me in science and math," and it "is an opportunity for me to become a teacher." One camper's pre-questionnaire revealed that she thought that the camp would provide "fun (in doing) lots of new stuff" and at the end of the week she wrote "because it will help reach my goal that I have and that is teaching." Another camper

Table 3.
Parameter Estimates for the Spring 2006 Sample.



expressed a desire "to become a teacher" on the pre-camp questionnaire and on the post-survey said, "to become a teacher at Texas Tech University." Expressing an interest in going to the camp "because it would be fun and because I want to become a teacher" evolved for another camper to "so I could become a great teacher." The same statement, "It will help me be a better teacher for my students," appeared on both of one female camper's surveys. Such comments as these indicate not only that the students are thinking that they can become teachers, but also the importance of their becoming good teachers.

Discussion

The purpose of this article was to describe Project FUTURE, providing information about the underlying theoretical framework and preliminary evaluative information. The evaluative information covers two important issues. First, the results of within subject differences allow the evaluation of change in the participants on specific variables between one FUTURE experience and another. In other words, this information provides feedback concerning participants' efficacy, outcome expectations, goals, and actions in relationship to becoming a teacher and lends insight into Project FUTURE's role in the development of these variables. Unfortunately, without random assignment and the use of comparison groups, one cannot be certain that any observed changes can actually be attributed to the project. Even so, the second important piece of evaluative information, the testing of a theoretical model describing the framework for Project FUTURE, provides support that the FUTURE activities are related to the development of goals and actions to become educators. The credibility of this theoretical model is strengthened by the empirical support found in the current career development literature (e.g., Lent et al., 1994; Lent et al., 1999).

Support for the Presence of Change

Within subject differences indicated that the participants reported having stronger goals to become teachers at the end of the second conference than they had at the time of the first conference. Because the majority of these students were seventh and eighth graders, they had been participating in the future scholars program, which was not specifically focused on the end goal of participants becoming teachers, and had only one experience with Project FUTURE. Thus, finding significantly higher goals to become teachers after only one experience at a time when these students' interests are likely competing with the increasing social demands of adolescence is positive.

The participants also reported that they were more comfortable with teaching at the end of the second conference than at the time of the first. Again, this is a positive finding that suggests the participants are moving in the intended direction. However, no significant change was observed in their teaching efficacy beliefs,

which is related to increases in the positive physiological feedback described above. This result may be due to the selection process of Project FUTURE participants. Although a more focused selection process was developed for the spring 2006 participants to ensure the inclusion of students interested in becoming teachers, the Dean's Future Scholars program participants were selected by their school counselors for their ability to succeed in college as well as their membership in an underrepresented group. Therefore, all of the participants might already possess a high degree of teaching efficacy, making it difficult to encourage additional change in such a short time period.

Support for the Theoretical Framework

The structural equation modeling results suggest that the constructs of Social Cognitive Career Theory (SCCT) are related in the expected manner. The more that students receive praise and feedback and have teachers that they emulate, the higher their teaching self-efficacy is. Physiological feedback and mastery experiences did not appear predictive of teaching self-efficacy. This may be a result of measurement error or could possibly be due to students' lack of teaching experience. Although it is likely that students' informal work with peers that might involve tutoring and guiding will be praised and it is likely that students will have teachers to model, it is unlikely that students will have a lot of opportunity to actually teach others in a formal manner. As a result, students at this age probably have had little experience with mastery and physiological feedback relative to teaching, which means that a relationship between these variables and teaching self-efficacy would not be present for this group. These sources may become more important to their self-efficacy when students actually have the opportunity to formally teach others.

As expected, teaching self-efficacy predicted the students' goals to become teachers. This relationship supports that by influencing students' beliefs about their abilities, we will be able to also influence the goals that students set. In addition to helping students develop beliefs about their teaching abilities, understanding students' outcome expectations also appears important. That is, students who believed that the outcomes related to teaching were positive also set more goals to become teachers. Thus, ensuring that participants also understand the positive outcomes for teaching is important, especially in a time when the teaching profession is sometimes discounted or associated with poor pay and work conditions.

Finally, the tested model supported that the goals students set about becoming teachers will likely influence their actions. Because the data were not longitudinal in nature, it was not possible for us to evaluate what actions these students will take. Even so, the actions or intentions assessed in the present study were positive related to the students' teaching goals. Those who reported setting a goal to become a teacher also reported that they would take the necessary courses and do what it takes to become a teacher.

Implications and FUTURE Directions

The empirical support that we have documented of the SCCT model for our FUTURE participants suggests that we are developing a program that has the potential to be a positive and valuable influence on students from underrepresented backgrounds. By targeting students' teaching self-efficacy and outcome expectations, we will likely be able to influence their goals to become teachers as well as their actions, and evidence is present to suggest their teaching goals are increasing. However, we are also aware that this must be done while addressing the barriers that participants perceive will prevent them from reaching their goals. Therefore, we are bringing students to campus, educating them about the admission process and financial aid, and exposing them to educators from similar backgrounds who have come before them.

To create a successful program, the theoretical underpinnings assist in the development of activities; however practical organization and faculty involvement are also imperative in order to sustain such a program. A high degree of commitment must be made across all levels from the participants themselves to the academic community. We have accomplished this through the efforts of the college dean, project director, interested College of Education faculty, and contributions from faculty and offices across the campus. Although commitment is necessary, it will not be sufficient to maintain such a program. Funding and institutional organization must be in place to ensure that the program will continue for future generations.

Certainly, challenges exist with the continuation of Project FUTURE. First, the evaluation of outcomes must continue over time and perhaps include comparisons to similar groups of students who are not able to participate in the project. Second, contact with the participants needs to occur between conferences for all of the students. Finally, additional funding needs to be secured to provide a continuous, comprehensive program that is able to challenge participants' negative expectations about attending college and the teaching profession. Although these future challenges are large, we believe that the College of Education at Texas Tech University has moved beyond an ephemeral vision of a diverse teacher workforce to create a realistic, practical program founded on an empirically supported theoretical framework of career development. Project FUTURE is still emerging and a clear direction has been established for its growth. Even so, other developing programs can benefit from Project FUTURE's unique blending of theory and practice.

Note

[1] Currently, a system is not in place to encourage these relationships outside of the face-to-face opportunities, so their effectiveness has not been evaluated due to an inability to track and monitor exchanges. The Project FUTURE director is presently working to put in place a formal method using an online chat room developed and maintained by the admissions office that will allow participants to continue their mentoring relationships throughout the year while recording these interactions for evaluation of their effectiveness.

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