

Report of a Survey of Student Persistence Barriers

Tulsa Community College's Achieving the Dream Data Team

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### Abstract

This report presents the results of a survey of student-identified barriers to student persistence through the first semester at TCC. The survey was developed by TCC's Achieving the Dream (ATD) Data Team and was administered in April 2011. The survey questions were derived from information obtained through a comprehensive study of student persistence at TCC in Fall 2007 and Spring 2008, during which the Data Team conducted focus groups with students, faculty and staff. The Data Team's purpose for developing the Survey of Student Persistence Barriers was to deepen its understanding of the challenges to persistence that TCC students experience in their first semester at TCC. The findings highlight the importance of particular barriers in predicting student success and suggest areas for potential interventions.

### Report of a Survey of Student Persistence Barriers

When TCC first entered Achieving the Dream (ATD) as a Round 4 institution in 2007, TCC placed top priority on student persistence, based on its conviction that persistence is fundamental to other student learning outcomes. In the Spring 2008 semester, TCC's newly-formed Data Team conducted focus groups among students, faculty and staff to explore challenges or barriers to persistence experienced by students in their first semester at TCC. Students who participated in focus groups were degree-seeking students who had completed their first semester at TCC in Fall 2007 and had re-enrolled for Spring 2008. The Data Team conducted focus groups and analyzed results according to the methodology recommended by TCC's ATD Data Facilitator, Dr. Ken Gonzalez, Associate Professor at the University of San Diego. Focus group results were shared with TCC's ATD Core Team in April 2008. Student success interventions were launched at that time on the basis of TCC's focus group information about barriers to student persistence.

In preparation for subsequent interventions, TCC undertook additional focus group projects to explore challenges or barriers to student success. Student, faculty, and staff focus groups were conducted to explore challenges with completing Developmental Reading (2008-2009) and Developmental Mathematics (2009-2010).<sup>1</sup> Focus group results from these discipline-specific projects showed that, when asked about barriers to success in developmental reading and mathematics courses, students identified challenges to persistence more frequently than challenges pertaining to the study of these specific disciplines. These data support TCC's initial hypothesis in 2007 regarding the fundamental nature of student persistence for student success.

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<sup>1</sup> Achieving the Dream Focus groups were also conducted to identify barriers to success among African American Males (2009-2010) and students participating in online learning (2010-2011). Faculty focus groups were also conducted to identify needs for faculty support among those teaching TCC's student success course, ENGL 1003 Academic Strategies (2008-2009).

In Fall 2010, TCC's Data Team began a project to update the College's understanding of challenges or barriers to student persistence. Dr. Gonzalez, TCC's ATD Data Facilitator, encouraged this project, since an updated understanding of challenges to student success would ensure that current interventions continue to address student needs effectively. Since multiple focus group projects at TCC had identified challenges to persistence that were similar to challenges identified in initial 2008 focus groups, the Data Team chose to use survey methodology to follow up the 2008 student persistence focus group project. The Data Team used TCC's 2008 student persistence focus group results to develop survey questions. In the 2008 focus group project, students identified 196 barriers or challenges to their success. Barriers were classified by type and subtype. Appendix A summarizes the types and subtypes used to classify the challenges or barriers identified in these focus groups. As indicated in the table, each barrier type and subtype represents multiple challenges identified by focus group participants.

For the survey, the Data Team selected first-time freshmen as the target population, since the persistence barrier focus group project had used the same criteria in 2008 to select their target population. The Persistence Barriers Survey was administered online in Spring 2011 to all students who were first-time freshmen in the Fall of 2010 and were enrolled in the Spring semester. Invitations to take the survey were sent via e-mail to 2,886 students. As an incentive to complete the survey, participants were given a fifty-cent discount coupon to be used in any of TCC's Campus Stores and the opportunity to be placed in a drawing for one of several iTunes gift cards.

### **Method**

The Persistence Barriers Survey yields quantitative data that can be used to demonstrate how various barriers to persistence are correlated and how barriers predict actual student success.

The development of a useful survey instrument also permits TCC to measure persistence barriers from year to year and to document trends. This section describes the research participants, survey development, and the procedure used to administer the survey.

### **Participants**

Two hundred ninety-four first-time freshmen (216 females and 78 males) completed the online Persistence Barriers Survey. Of the 294 students, 184 (62.6%) were White, 32 (10.9%) were Asian, 21 (7.1%) were Black or African American, 21 (7.1%), 21 (7.1%) were Hispanic/Latino, 21 (7.1%) were American Indian or Alaska Native, 12 (4.1%) were two or more races, and 3 (1.0%) were unknown race. In addition, 98 (33.3%) of the students were enrolled in the Tulsa Achieves program and 172 (58.5%) were not part of Tulsa Achieves (24 students did not answer the question about participation in Tulsa Achieves).

### **Survey and Procedure**

The Data Team developed preliminary survey questions and response scales designed to capture meaningful student feedback. Working as a group, the Data Team constructed a preliminary draft of the survey according to three criteria:

1) Survey items should

- pertain to the persistence barriers identified in the 2008 focus groups,
- be clearly expressed, and
- invite unstructured feedback.

2) Response scales should

- be appropriate to the survey question;
- offer clear, comprehensive and mutually exclusive choices; and

- use positive responses to indicate barriers in some questions and negative responses to indicate barriers in others.

3) The survey should

- give participants clear instructions,
- assure participants that their responses will be kept confidential,
- explain TCC's purpose in conducting the survey,
- explain the deadlines and incentives for participation, and
- thank respondents for their participation.

The Data Team solicited comments from TCC's ATD Research Team regarding the survey draft. After incorporating the Research Team's feedback, the survey was launched in pilot form to students enrolled in courses taught by Data Team members to obtain student feedback about the wording of survey questions. The pilot survey was administered to students who were not likely to be part of the target survey population. Ninety-two students completed the pilot survey. Respondents were invited to offer feedback on each survey question.

The Office of Planning and Institutional Research (P&IR) developed an inter-item correlation matrix for the survey pilot. Items associated with a single barrier subtype tended to exhibit correlations at the 95% confidence level. Such correlations are expected and they support the Data Team's classification of barriers into subtypes. Because respondents to the pilot survey were not members of the target survey population and because one purpose of the survey was to re-evaluate the barriers to persistence identified in TCC's 2008 student focus groups, the Data Team chose not to eliminate any correlated items.

The Data Team revised the pilot survey based on respondent feedback. The final version of the survey contained a total of 73 items required of all respondents, three additional items for

students in the Tulsa Achieves program (see Appendix B for complete survey and tables C1-C19 in Appendix C for descriptive statistics for each item), and comment boxes in which students were invited to include any additional remarks they wished to share about the survey questions. The items common to all respondents are the focus of this report. Survey items were written for most of the barrier subtypes identified in focus groups, with more items written for the barriers that were most frequently mentioned by students (see Appendix D for a concordance of barrier subtypes and their corresponding survey items).

The Data Team launched the final version of the survey online to the target population for a period of three weeks. Two hundred ninety-four out of 2,886 students completed the survey, for a 10.2% response rate. Non-responders received three invitations to participate. At the conclusion of the survey period, 20 respondents were randomly selected to receive iTunes gift cards and these were mailed to the students selected.

## **Results**

The statistical analysis for this project involved three steps: 1) reducing the survey responses to a smaller number of broad barrier types, 2) exploring demographic differences on the major variables of interest as well as the separate relationships among the broad barriers and two measures of student success, persistence from spring 2011-to-fall 2011 and overall Grade Point Average (GPA)<sup>2</sup>, and 3) using regression procedures to examine whether any of the broad barriers were significantly associated with the two measures of student success, while holding the other barriers constant. A list of all inferential tests conducted is presented in Appendix E.

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<sup>2</sup> Two students took only developmental education courses during their first year at TCC and their GPAs are 0.0 for that reason. Thus, those two students were excluded from any analyses including GPA. One other student reported the incorrect college-wide ID number when completing the survey and was removed from any analyses including GPA or persistence because those data could not be obtained for that student.

## Data Reduction

Guided by the Concordance (Appendix D) that shows which survey items reflect which barrier subtypes, Cronbach's alpha was calculated to measure internal consistency for items purported to measure the same subtype. Consistent with the survey pilot results, most of the items listed under the same subtype were highly correlated with each other. However, some items listed under the same subtype were not highly correlated and some items listed under different subtypes were highly correlated with each other. Results revealed 16 subscales reflecting different barrier subtypes for which composite scores were created by averaging the respective items for each subscale (see Appendix F for a list of subscales with corresponding items, means, standard deviations, and alpha values). Positively-phrased items were reverse-coded so that higher scores on each subtype reflected more problems with that barrier.

To explore whether any of the subscales measured the same broad barrier types, the subscale composite scores were subjected to a Principal Components Analysis (PCA), which examines the correlations among the included variables to determine whether they seem to be measuring the same underlying constructs. The PCA revealed the following five broad barriers (with the corresponding subscales in parentheses):

- Poor College Readiness (difficulty with adjusting to college, trouble with balancing school and life, lack of motivation, poor time management, and poor academic preparation),
- Negative Experiences with TCC Services (textbook issues, negative experiences with TCC offices, poor instructor quality, poor instructor communication and expectations, and advising issues),
- Lack of Social Support (lack of peer connections and lack of encouragement),
- Financial and Transportation Challenges (lack of money and transportation challenges), and



- Technological Difficulties (lack of knowledge regarding TCC technology and technological challenges).

Composite scores derived from PCA were used in all subsequent analyses.

Another broad barrier of interest was whether students had tested into at least one developmental education area (i.e., mathematics, reading, and/or writing). Thus, a Developmental Placement variable was created for students who tested into at least one developmental area.<sup>3</sup>

### **Preliminary Analyses**

Initial analyses involved examining the student success outcomes and the barriers as a function of gender and race. Additionally, preliminary analyses involved exploring any differences on the five broad barriers identified in the PCA as a function of Developmental Placement status. Finally, the individual relations between each broad barrier (including Developmental Placement) and each student success outcome as well as the association between the two outcomes were investigated separately before the major analyses involving multiple regression. A 95% confidence level was used for all analyses.

#### **Gender and race differences.**

There was a statistically significant gender difference on Lack of Social Support, such that male students ( $M = .21$ ,  $SD = .81$ ) reported less social support than did females ( $M = -.09$ ,  $SD = .76$ ). The gender differences on the other five broad barriers and the two student success outcomes were not statistically significant.

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<sup>3</sup> The student who entered the incorrect student ID number when completing the survey was also removed from analyses including Developmental Placement because that information could not be obtained for that student.

A statistically significant race difference emerged for Financial and Transportation Challenges, with Black or African American students reporting higher levels of Financial and Transportation Challenges ( $M = .69, SD = .74$ ) than White ( $M = -.11, SD = .73$ ) and Asian ( $M = -.03, SD = .78$ ) students. Furthermore, Black or African American students had lower GPAs ( $M = 2.51, SD = 1.01$ ) than White ( $M = 3.22, SD = .69$ ) and Asian ( $M = 3.31, SD = .72$ ) students. Although there were no other race differences for the major variables of interest, exploratory analyses regarding testing into multiple developmental education areas showed that Black or African American students (67%) had a significantly higher rate of testing into two or three developmental areas than students who were White (17%), Native American (24%), and two or more races (25%). Moreover, a significantly higher rate of Asian (41%) and Hispanic (48%) students tested into two or three developmental areas than did White students (17%).

#### **Developmental status differences.**

Students who tested into at least one developmental education area (i.e., 1, 2, or 3 areas) reported significantly higher levels of Financial and Transportation Challenges ( $M = .12, SD = .79$ ) than students who tested into zero developmental areas ( $M = -.25, SD = .74$ ). There were no significant Development Placement differences on the other four broad barriers.

In addition to examining Developmental Placement, additional exploratory analyses were conducted to examine the effects of testing into multiple developmental education areas (i.e., two or three different areas). The students who tested into multiple developmental areas ( $N = 77$ ) were significantly higher than students who tested into zero or only one developmental area ( $N = 216$ ) on Poor College Readiness ( $M = .14, SD = .77$  for multiple developmental students and  $M = -.06, SD = .68$  for other students), Negative Experiences with TCC Services ( $M = .17, SD = .71$  for multiple developmental students and  $M = -.05, SD = .60$  for other students), and Financial

and Transportation Challenges ( $M = .29$ ,  $SD = .89$  for multiple developmental students and  $M = -.10$ ,  $SD = .73$  for other students). Interestingly, these results were the same when comparing students who tested into multiple developmental areas with only the students who tested into just one developmental area ( $N = 116$ ).

**Relations among broad barriers and outcomes (analyzed separately).**

Analyses regarding spring-to-fall persistence revealed that students who did not persist had significantly higher scores on Poor College Readiness ( $N = 47$ ;  $M = .20$ ,  $SD = .71$ ), Lack of Social Support ( $M = .26$ ,  $SD = .85$ ), and Financial and Transportation Challenges ( $M = .25$ ,  $SD = 1.01$ ) than did those who persisted ( $N = 246$ ;  $M = -.05$ ,  $SD = .70$  for Poor College Readiness,  $M = -.06$ ,  $SD = .76$  for Lack of Social Support, and  $M = -.06$ ,  $SD = .73$  for Financial and Transportation Challenges). However, Developmental Placement was not significantly related to persistence, regardless of whether students tested into only one or multiple developmental areas.

Additionally, separate correlations between the five barriers identified in the PCA and overall GPA revealed significant negative associations for Poor College Readiness, Negative Experiences with TCC Services, and Financial and Transportation Challenges. Thus, students with lower GPAs were likely to report difficulties with college readiness, TCC services, and financial and transportation issues. Furthermore, students testing into at least one developmental education area (i.e., 1, 2, or 3 developmental areas;  $M = 3.01$ ,  $SD = .83$ ) had significantly lower GPAs than those who did not test into developmental education ( $M = 3.33$ ,  $SD = .61$ ).

Consistent with the findings on the barriers, students who tested into multiple developmental areas ( $M = 2.71$ ,  $SD = .84$ ) had significantly lower GPAs than students who tested into zero or only one developmental area ( $M = 3.26$ ,  $SD = .69$ ). The GPAs of students testing into multiple

developmental areas were also significantly lower than those of the students who tested into only one developmental area ( $M = 3.21$ ,  $SD = .76$ ).

Initial analyses also revealed that the two student success outcomes, spring-to-fall persistence and GPA, were significantly associated. Specifically, students who persisted ( $M = 3.21$ ,  $SD = .68$ ) had significantly higher GPAs than those who did not ( $M = 2.67$ ,  $SD = 1.05$ ).

### **Regression Analyses**

Two separate multiple regression analyses were conducted to examine the unique relationships between each broad barrier and each student success outcome, while holding the other barriers constant. A multiple logistic regression was used for persistence because whether or not a student enrolled in the fall semester is a categorical variable, whereas a multiple linear regression was used for GPA because GPA is a continuous variable measured on a ratio scale.

#### **Logistic regression predicting spring-to-fall persistence.**

Lack of Social Support was the only barrier that was significantly associated with spring-to-fall persistence, when all of the barriers were included in the same statistical analysis. Specifically, students with low levels of social support were less likely to persist than those with more support. Although other barriers may be important for persistence, this finding suggests that their influence on persistence may overlap with each other (i.e., they may affect persistence for the same reason), whereas the effect of social support does not seem to be captured by the other barriers.

#### **Linear regression predicting GPA.**

When including all of the barriers into the same statistical analysis, the only significant relationships with GPA were for Poor College Readiness, Financial and Transportation Challenges, and Developmental Placement. In particular, higher scores on Poor College

Readiness and Financial and Transportation Challenges were associated with lower GPAs. Additionally, testing into at least one developmental education area was related to lower GPAs. It is important to note that the linear relationship between Developmental Placement and GPA was significant whether Developmental Placement included students who tested into at least one (i.e., 1, 2, or 3) developmental area or only students who tested into two or more developmental areas.

### **Discussion**

The results from the present study suggest that first-year students' responses to the Persistence Barriers Survey in 2011 are consistent with students' comments during focus groups regarding barriers to persistence in 2008. Moreover, findings highlight the important associations between these barriers and students' grades and their ability to persist from semester to semester. Of particular interest were the results from the regression analyses indicating that only certain barriers have unique relationships with the student success measures, when including the major barriers in the same analysis.

Regarding the individual relationships between the barriers and student success (identified by examining each barrier's relationship with success separately), the findings for spring-to-fall persistence showed that students who did not persist had significantly higher scores than those who did persist on Poor College Readiness, Lack of Social Support, and Financial and Transportation Challenges. These findings reveal that two of the three significant predictors of not persisting are non-academic in nature. Although the College is somewhat limited in the extent to which it can address these barriers, these findings may prove fruitful to staff members in student services as they work with students to promote persistence.

The findings for GPA indicated that four of the six major barriers (i.e., Poor College Readiness, Negative Experiences with TCC Services, Financial and Transportation Challenges, and Developmental Placement) were significantly linked with lower overall GPAs. More research is needed on each barrier to fully understand the roles of these barriers in contributing to poor grades. Nonetheless, these results suggest that students who are failing to succeed in their courses may be dealing with many barriers to their success, only some of which may be directly related to academics. The identification of these barriers provides invaluable information for faculty, advisors, and counselors who work with students to promote their success.

The results from the multiple regression analyses revealed which barriers are uniquely related to student success, when all the major barriers are included in the same analysis. The analysis for spring-to-fall persistence revealed only one significant relationship between a barrier and the measure of success. Specifically, students who did not persist reported significantly less social support than did those who persisted to the fall semester. This finding suggests that social support may be a particularly beneficial avenue to explore with regard to promoting persistence. Although the College is limited in how much it can influence social support in the home and outside of the College in general, three of the four items included in the Lack of Social Support composite score reflect support and encouragement from peers (with two of them specifically referencing friends and classmates at TCC). Given this emphasis on peers at TCC, there may a lot that faculty, staff, and administrators at TCC can do to increase levels of social support for students while they are at school. For instance, creating learning communities similar to those used in the RISE program may be one way to increase support and accountability among groups of students who are taking the same courses. TCC's Student Activities programs such as intramural sports and Lunch 'N Learn workshops might provide other avenues for social

support. Student Organizations such as Student Government, foreign language clubs, and honor societies lend support to students with common personal and academic interests. Courses that provide service-learning opportunities engage students with others in need and connect them with their community. Although not examined in the present study, another potentially fruitful area to study would be faculty support for student success. The support items on this survey pertained to family and peer support, yet faculty support likely contributes to students' confidence, dedication, and ultimate success in their coursework.

In contrast, the analysis for GPA indicated that three of the four significant predictors of GPA (i.e., Poor College Readiness, Financial and Transportation Challenges, and Developmental Placement) maintained unique relationships with GPA, when all the barriers were included together. These findings suggest that working with students on these different challenges may result in unique effects on their GPA, providing multiple avenues for interventions to promote student success in their coursework.

It is important to note that some barriers may be significantly related to student success when examined separately but not when included with all other barriers. For those barriers, this does not diminish their importance but rather it suggests that their influence on student success may be shared with other barriers. For instance, Poor College Readiness and Financial and Transportation Challenges were both significantly related to persistence when examined by themselves, yet neither was significant in the logistic regression analysis for persistence. One interpretation of these findings is that much of the variance these two barriers share with persistence is common to both barriers. Thus, they may influence persistence for the same reasons and so their unique effects may be small when examined together. In contrast to the findings for GPA, the regression analysis for persistence suggests that interventions designed to

address Financial and Transportation Challenges might also promote persistence by contributing to College Readiness. Nevertheless, even though their unique influence may be diminished in the regression analyses, the individual relations examined separately highlight these two barriers as important obstacles to persistence. These results also suggest that subsequent research would likely benefit from examining how these two barriers work together to impact persistence. Furthermore, given the relatively small sample size, it is possible that detection of significant unique effects of these two barriers requires a larger sample size.

### **Limitations**

The Persistence Barriers Survey entails several limitations. Because response to the survey was voluntary, respondents might share common characteristics or experiences that do not represent the entire target population of first-time freshmen. The 10% response rate yielded a small sample size, introducing the possibility that results may not be generalizable to the total target population. Because the survey was administered to students who had already persisted through their first semester and had re-enrolled for their second semester, their responses may not reflect the experiences of students who did not persist through their first semester. In addition, the survey analysis included only one measure of persistence, persistence from spring to fall, and did not analyze two-year persistence, three-year persistence, or degree completion. Finally, the survey only queried students about the challenges they faced to persistence and did not ask students to report the strategies that they thought would help them to overcome the barriers that they experienced.

### **Significant Findings**

The 2011 Persistence Barriers Survey supplies new data about the challenges to persistence that students encounter in their first semester at TCC. Notably, data analysis of



survey results also reveals correlations between student-reported persistence barriers and actual student success outcomes (GPA and spring-to-fall persistence). Statistically significant correlations were found between several categories of persistence barriers and student GPAs at the end of the first year. Specifically, students who were not college-ready (defined in terms of difficulty with adjusting to college, trouble with balancing school and life, a lack of motivation, poor time management, or poor academic preparation) earned lower GPAs than their college-ready counterparts. Students who experienced financial barriers or transportation challenges earned lower GPAs. Students who placed into developmental education also earned lower GPAs. Students testing into more than one developmental area experienced less college readiness, more financial barriers, more transportation challenges, and more negative experience with TCC services than students who tested into only one developmental area or who tested at the college level in academic skills. Finally, a significant correlation was found between spring-to-fall persistence and low levels of social support (defined in terms of a lack of peer connections and a lack of encouragement).

## **Recommendations**

The Data Team makes three recommendations, based on its analysis of the 2011 Persistence Barriers Survey. The Data Team recommends that the survey be revised and re-administered in Spring 2012, that intervention teams specifically address the persistence barriers that are shown to correlate with student success, and that TCC continue to study student persistence and the relationship between persistence barriers and student success outcomes.

### **1. Revise and Re-administer the Survey**

TCC's Persistence Barriers Survey provides valuable information about student persistence and student success, in part because the survey privileges local data and is based on

an extensive study of student focus group responses. The Data Team recommends that TCC administer the Persistence Barriers Survey on a regular basis to track persistence barriers and student success. The detailed analyses that were conducted on the 2011 survey results indicate that a minor revision of the survey would increase its explanatory power regarding the correlation of barriers with student success outcomes. The Data Team recommends that the Persistence Barriers Survey be revised to employ the same response scale for all survey items. Such a revision could be accomplished quickly and with minimal effort, since it entails no substantive change to the survey's content. The Data Team recommends that a revised survey be administered in Spring 2012 to validate the Spring 2011 results, establish student trends, and inform ongoing intervention efforts at TCC.

## **2. Intervention Strategies**

Results of the 2011 survey highlight the importance of making connections with peers and receiving encouragement for student persistence. The Data Team recommends that TCC support intervention strategies that help students to connect with each other and encourage them on their educational path. TCC's New Student Orientation intervention may be uniquely positioned to strengthen such social support for entering students and should continue to pursue this goal.

Results of the 2011 survey also indicate the positive impact on student GPA of college-readiness, including personal maturity and study skills, as well as academic skills. The Data Team recommends continued support for ENGL 1003 Academic Strategies, which directly addresses college readiness, and the Academic Advising Intervention, which encourages students to develop a concrete plan for their education.

Since the 2011 survey results show that financial barriers and transportation challenges are correlated with lower GPAs, the Data Team recommends continued attention to the availability of financial aid to address these challenges. The New Student Orientation Intervention should also address these challenges by helping students to identify and use the financial and other resources available to them at TCC.

Finally, the 2011 survey results suggest that students testing into multiple areas of developmental education at TCC are especially vulnerable to attrition and to earning lower GPAs. TCC's Developmental Mathematics and Developmental Reading interventions address aspects of these risks. MathPath has begun to reduce the number of students at each level of developmental mathematics, and the MATH 0013 Beginning Algebra Course Redesign Intervention appears to be increasing student engagement and persistence but definitive data will not be available until after the Fall 2011 semester. The Data Team recommends consideration of an intervention that specifically addresses the needs of students who test into multiple developmental areas, since these students not only earn lower GPAs but are also more likely to experience financial barriers and other challenges to persistence.

### **3. Future Study of Student Persistence**

To understand fully the complex persistence challenges faced by students at Tulsa Community College, it is of paramount importance to examine these barriers via a variety of research methods and techniques. In particular, exploring the complex array of issues requires a range of research designs including focus groups, interviews, surveys, cohort analyses, and longitudinal assessments. Each technique will enable us as a College to capture insights into the realities, complexities, and changes that occur over time with the student populations at the College.

The traditional quantitative methods, while generating much useful work, lack the rich context of student experiences that qualitative methods yield. Conversely, qualitative methods often produce results that are oriented toward one-shot case studies or pilot programs that lack scalable solutions for the College. In short, we need to employ a full range of methods to collect student persistence data to better protect high-risk groups and improve overall persistence across and among all student populations, integrating the advantages of both qualitative and quantitative methods.

The following research design plan considers multiple methods of data collection that would allow for a comprehensive understanding of the changing needs of the TCC student populations:

- Annual focus groups of students at each campus (no more than two groups at each campus) in the middle or late fall semester to continue the examination of barriers to persistence; it is essential that the groups be randomly sampled to best represent the various demographics of students at TCC;
- Annual interviews of students from specific groups identified as high-risk groups, selected using random sampling so that contextual findings can be identified;
- Annual surveys of students from across the college to capture the significance and ongoing existence of persistence barriers; the survey administered in April 2011 provides a framework that can be adapted based on ongoing analysis, in consultation with the Office of Planning and Institutional Research at TCC; since the survey includes both open- and closed-ended questions, the open-ended questions need to be analyzed for themes that can be modified for the existing survey;
- Annual cohort analyses to compare the persistence barriers between and among the various subgroups of cohort populations; and

- Annual longitudinal assessments to view the achievements of students with specific persistence patterns after leaving TCC, focusing on further educational attainment, career growth, and socio-economic status.

Ultimately, the results of the aforementioned research plan need to be analyzed by teams of faculty, staff, and students with an effort to establish meaningful interventions to overcome identified persistence barriers.

*Appendix A*

## Challenges Identified by Students who Participated in ATD Focus Groups

Type of Challenge	Subtype
<b><i>Instructional Issues</i></b>	Communication Issues with Instructors
	Instructor Attitudes
	Instructor Teaching Style
	Instructional Quality
<b><i>Service Issues</i></b>	Understanding Instructor's Course Requirements
	Confusing Enrollment Process
	Financial Aid Service
	Finding your Way Around Campus
	Inter-campus Communication
	Lack of Wireless Connection at TCC
	Limited Times and Locations of Classes
	Parking
	Poor Customer Service
	Textbook Issues
Tulsa Achieves Implementation	
<b><i>Student Academic Issues</i></b>	Academically Underprepared
	Choosing Courses
	Choosing a Major
	Course Placement
	Lacking Computer Proficiency
	Meeting Academic Workload
	Not Coming Right out of High School
	Using BlackBoard and MyTCC Email
<b><i>Student Personal Issues</i></b>	Adjusting to College
	Balancing School and Life
	Childcare
	Connecting with Peers
	Lack of Money
	Lack of Motivation
	Meeting Residency Requirements
	Personal Background
	Personal Support Systems
	Time Management
Transportation	

*Appendix B*

**Challenges to Student Success Survey**

1. Please enter your CWID, starting with a T. Your CWID will be used ONLY to gather demographic information. Your responses will remain completely confidential and will have no impact on your education records. **(Required)**

2. Did the following circumstances make last semester at TCC difficult for you? **(Required)**

	A lot	Somewhat	Not at all
Adjusting to college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having too much freedom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Making the transition from high school to college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. (Optional) Please provide any feedback about this question: \_\_\_\_\_

4. Please indicate how true the following statements were of you last semester: **(Required)**

	Very true	Somewhat true	Not at all true
I attended all my class sessions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I completed my school work each week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was committed to going to college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I knew I could succeed in college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was motivated to do my school work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had the self-discipline to study.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. (Optional) Please provide any feedback about this question: \_\_\_\_\_

6. Did these circumstances apply to you last semester? **(Required)**

	Yes	No
I had enough money for living expenses.	<input type="radio"/>	<input type="radio"/>
I had to take out a loan to stay in school.	<input type="radio"/>	<input type="radio"/>
I had reliable transportation.	<input type="radio"/>	<input type="radio"/>
I had to ride the city bus to school.	<input type="radio"/>	<input type="radio"/>
I had to rely on friends or family members to get to school.	<input type="radio"/>	<input type="radio"/>
I had enough money for gas for my car.	<input type="radio"/>	<input type="radio"/>

7. (Optional) Please provide any feedback about this question:

8. Did the following aspects of your life outside TCC make last semester difficult for you?

**(Required)**

	Does not apply to me	A lot	Somewhat	Not at all
Not coming to TCC straight out of high school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not getting enough sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not realizing how much time my schoolwork would take	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. (Optional) Please provide any feedback about this question:

10. Please indicate how true the following statements were of you last semester: **(Required)**

	Very true	Somewhat true	Not at all true
I had friends at TCC.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had classmates to study with at TCC.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My family encouraged me to succeed in college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had friends who encouraged me to succeed in college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



I had friends who discouraged me about college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had financial support from family to go to college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. (Optional) Please provide any feedback about this question: \_\_\_\_\_

12. Did the following circumstances make last semester at TCC difficult for you? **(Required)**

	<b>Does not apply to me</b>	<b>A lot</b>	<b>Somewhat</b>	<b>Not at all</b>
I did not know which textbooks to buy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I could not afford my textbooks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was not satisfied with TCC’s textbook buy-back.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did not receive my financial aid in time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. (Optional) Please provide any feedback about this question: \_\_\_\_\_

14. Did the following aspects of your life outside TCC make last semester difficult for you? **(Required)**

	<b>Does not apply to me</b>	<b>A lot</b>	<b>Somewhat</b>	<b>Not at all</b>
Balancing my family’s needs with my study time and personal time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Caring for children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Caring for family members (not children)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sickness (yours)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A life crisis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. (Optional) Please provide any feedback about this question: \_\_\_\_\_

16. Did these circumstances apply to you last semester? **(Required)**

	Yes	No	Does not apply
I had enough scholarship assistance or financial aid.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had reliable childcare.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. (Optional) Please provide any feedback about this question:

18. Was it a challenge when one or more of your instructors... **(Required)**

	Never	Sometimes	Always
...did not keep you informed about your progress in class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...did not provide feedback on assignments?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...did not use a variety of teaching methods?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...did not set and maintain high course standards throughout the semester?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. (Optional) Please provide any feedback about this question:

20. Please indicate how true the following statements were of you last semester: **(Required)**

	Very true	Somewhat true	Not at all true
I put off doing schoolwork until the last minute.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I made a schedule to get my schoolwork done each week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I stuck to my schedule each week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I modified my schedule as needed to get my schoolwork done each week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enrolled in too many courses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. (Optional) Please provide any feedback about this question:

22. Were you able to... **(Required)**

	Always	Sometimes	Never
...contact your instructors outside of class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...understand your instructors' grading system?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...follow your instructors' late work policy?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. (Optional) Please provide any feedback about this question:

24. Did you experience any of the following challenges last semester? **(Required)**

	Never	Some of the time	Most of the time	All of the time
I had too much homework.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had trouble keeping up with my assignments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I lacked the academic skills needed for one or more of my classes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One or more of my courses was harder than I expected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. (Optional) Please provide any feedback about this question:

26. When you began your course work last semester at TCC, did you... **(Required)**

	Yes	No
...know that Blackboard existed?	<input type="radio"/>	<input type="radio"/>
...know that you had a MyTCC e-mail address?	<input type="radio"/>	<input type="radio"/>

27. (Optional) Please provide any feedback about this question: \_\_\_\_\_

28. Did you experience any of the following challenges associated with the use of different types of technology at TCC? **(Required)**

	Does not apply	Never	Some of the time	Most of the time	All of the time
I lacked the appropriate computer and keyboarding skills needed for my classes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I experienced difficulty using my MyTCC e-mail account	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I experienced difficulty using Blackboard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. (Optional) Please provide any feedback about this question: \_\_\_\_\_

30. Did the following aspects of your life outside TCC make last semester difficult for you? **(Required)**

	Does not apply to me	A lot	Somewhat	Not at all
Having a full-time job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having a part-time job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having more than one job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. (Optional) Please provide any feedback about this question: \_\_\_\_\_

32. When you enrolled for the classes you are taking now, did you... **(Required)**

	Yes	No
...visit with an academic advisor to select your courses?	<input type="radio"/>	<input type="radio"/>
...receive enough information from an academic advisor for your degree plan?	<input type="radio"/>	<input type="radio"/>
...know which courses would transfer?	<input type="radio"/>	<input type="radio"/>
...need to take one or more developmental (zero-level) courses (reading, math, or writing)?	<input type="radio"/>	<input type="radio"/>
...need more guidance in planning your course schedule?	<input type="radio"/>	<input type="radio"/>

33. (Optional) Please provide any feedback about this question:

34. Did the following circumstances make last semester at TCC difficult for you? **(Required)**

	Does not apply to me	A lot	Somewhat	Not at all
The financial aid process was confusing to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had to wait in line during the enrollment process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I could not reach TCC by phone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I got conflicting information from TCC staff.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TCC staff did not help me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did not know how to get started at TCC.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Classes were not available when I needed them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had trouble finding my way around the campus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. (Optional) Please provide any feedback about this question:

Note: Only students indicating participation in Tulsa Achieves completed item 37.

36. Were you a Tulsa Achieves participant last semester? **(Required)**

- Yes
- No

37. Please indicate how true the following statements were of you last semester: **(Required)**

	<b>Very true</b>	<b>Somewhat true</b>	<b>Not at all true</b>
I understood how Tulsa Achieves worked.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Tulsa Achieves community service requirement presented a challenge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had trouble meeting the Tulsa Achieves deadlines.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

38. (Optional) Please provide any feedback about this question: \_\_\_\_\_

39. You are almost finished taking this survey. The next page will give you a \$0.50 off voucher for any purchase at any TCC Campus Store for participating in the survey. You will need to print this voucher and present it to the cashier when you chose to redeem it. If you are unable to print at this time, please enter your email address below and a coupon will be emailed to you:

*Appendix C*  
Challenges to Student Success Survey Descriptive Statistics

Table C1

Descriptive Statistics for Question 2, “Did the following circumstances make last semester at TCC difficult for you?”

	Mean	Standard Deviation
Adjusting to college	1.79	.702
Having too much freedom	1.31	.552
Making the transition from high school to college	1.52	.712

*Note.* The scale for question 2: Not at all= 1, Somewhat= 2, A lot= 3

Table C2

Descriptive Statistics for Question 4, “Please indicate how true the following statements were of you last semester:”

	Mean	Standard Deviation
I attended all my class sessions.	2.64	.537
I completed my school work each week.	2.76	.461
I was committed to going to college.	2.89	.350
I knew I could succeed in college.	2.82	.388
I was motivated to do my school work.	2.61	.549
I had the self-discipline to study.	2.43	.654

*Note.* The scale for question 4: Not at all true= 1, Somewhat true= 2, Very true= 3

Table C3

Yes/No Percentages for Question 6, “Did these circumstances apply to you last semester?”

	Yes	No
I had enough money for living expenses.	65%	35%
I had to take out a loan to stay in school.	27%	73%
I had reliable transportation.	90%	10%
I had to ride the city bus to school.	3%	97%
I had to rely on friends or family members to get to school.	21%	79%
I had enough money for gas for my car.	70%	30%

Table C4

Descriptive Statistics for Question 8, “Did the following aspects of your life outside TCC make last semester difficult for you?”

	Mean	Standard Deviation
Not coming to TCC straight out of high school	1.86	.824
Not getting enough sleep	2.01	.651
Not realizing how much time my schoolwork would take	2.08	.699

*Note.* The scale for question 8: Does not apply to me= 0, Not at all= 1, Somewhat= 2, A lot= 3

Table C5

Descriptive Statistics for Question 10, “Please indicate how true the following statements were of you last semester:”

	Mean	Standard Deviation
I had friends at TCC.	2.17	.781
I had classmates to study with at TCC.	1.86	.786
My family encouraged me to succeed in college.	2.75	.508
I had friends who encouraged me to succeed in college.	2.54	.636
I had friends who discouraged me about college.	1.19	.470
I had financial support from family to go to college.	1.86	.853

*Note.* The scale for question 10: Not at all true= 1, Somewhat true= 2, Very true=3

Table C6

Descriptive Statistics for Question 12, “Did the following circumstances make last semester at TCC difficult for you?”

	Mean	Standard Deviation
I did not know which textbooks to buy.	1.42	.623
I could not afford my textbooks.	1.58	.726
I was not satisfied with TCC’s textbook buy-back.	2.22	.796
I did not receive my financial aid in time.	1.53	.772

*Note.* The scale for question 12: Does not apply to me= 0, Not at all=1, Somewhat= 2, A lot= 3



Table C7

Descriptive Statistics for Question 14, "Did the following aspects of your life outside TCC make last semester difficult for you?"

	Mean	Standard Deviation
Balancing my family's needs with my study time and personal time	2.21	.679
Caring for children	1.80	.860
Caring for family members (not children)	1.74	.696
Sickness (yours)	1.58	.646
A life crisis	1.52	.666

Note. The scale for question 14: Does not apply to me= 0, Not at all=1, Somewhat= 2, A lot= 3

Table C8

Yes/No/Does Not Apply Percentages for Question 16, "Did these circumstances apply to you last semester?"

	Yes	No	Does Not Apply
I had enough scholarship assistance or financial aid.	69%	16%	15%
I had reliable childcare.	14%	9%	77%

Table C9

Descriptive Statistics for Question 18, "Was it a challenge when one or more of your instructors"

	Mean	Standard Deviation
...did not keep you informed about your progress in class?	1.91	.702
...did not provide feedback on assignments?	1.81	.688
...did not use a variety of teaching methods?	1.67	.673
...did not set and maintain high course standards throughout the semester?	1.52	.669

Note. The scale for question 18: Never= 1, Sometimes= 2, Always= 3

Table C10

Descriptive Statistics for Question 20, "Please indicate how true the following statements were of you last semester:"

	Mean	Standard Deviation
I put off doing schoolwork until the last minute.	1.83	.674
I made a schedule to get my schoolwork done each week.	2.17	.736
I stuck to my schedule each week.	1.95	.656
I modified my schedule as needed to get my schoolwork done each week.	2.23	.680
I enrolled in too many courses.	1.31	.581

*Note.* The scale for question 20: Not at all true=1, Somewhat true= 2, Very= 3

Table C11

Descriptive Statistics for Question 22, "Were you able to..."

	Mean	Standard Deviation
...contact your instructors outside of class?	2.48	.624
...understand your instructors' grading system?	2.59	.542
...follow your instructors' late work policy?	2.82	.414

*Note.* The scale for question 22: Never=1, Sometimes= 2, Always= 3

Table C12

Descriptive Statistics for Question 24, "Did you experience any of the following challenges last semester?"

	Mean	Standard Deviation
I had too much homework.	1.95	.717
I had trouble keeping up with my assignments.	1.85	.783
I lacked the academic skills needed for one or more of my classes.	1.43	.671
One or more of my courses was harder than I expected.	2.03	.820

*Note.* The scale for question 24: Never=1, Some of the time= 2, Most of the time= 3, All of the time=4

Table C13

Yes/No Percentages for Question 26, "When you began your course work last semester at TCC, did you..."

	Yes	No
...know that Blackboard existed?	85%	15%
...know that you had a MyTCC e-mail address?	86%	14%

Table C14

Descriptive Statistics for Question 28, "Did you experience any of the following challenges associated with the use of different types of technology at TCC?"

	Mean	Standard Deviation
I lacked the appropriate computer and keyboarding skills needed for my classes	1.15	.472
I experienced difficulty using my MyTCC e-mail account	1.33	.625
I experienced difficulty using Blackboard	1.57	.704

*Note.* The scale for question 28: Never=1, Some of the time= 2, Most of the time= 3, All of the time=4

Table C15

Descriptive Statistics for Question 30, "Did the following aspects of your life outside TCC make last semester difficult for you?"

	Mean	Standard Deviation
Having a full-time job	2.35	.772
Having a part-time job	2.04	.711
Having more than one job	1.92	.874

*Note.* The scale for question 30: Does not apply to me= 0, Not at all=1, Somewhat= 2, A lot= 3

Table C16

Yes/No Percentages for Question 32, “When you enrolled for the classes you are taking now, did you...”

	Yes	No
...visit with an academic advisor to select your courses?	69%	31%
...receive enough information from an academic advisor for your degree plan?	61%	39%
...know which courses would transfer?	50%	50%
...need to take one or more developmental (zero-level) courses (reading, math, or writing)?	51%	49%
...need more guidance in planning your course schedule?	49%	51%

Table C17

Descriptive Statistics for Question 34, “Did the following circumstances make last semester at TCC difficult for you?”

	Mean	Standard Deviation
The financial aid process was confusing to me.	1.99	.709
I had to wait in line during the enrollment process.	1.85	.842
I could not reach TCC by phone.	1.83	.848
I got conflicting information from TCC staff.	1.72	.773
TCC staff did not help me.	1.42	.645
I did not know how to get started at TCC.	1.64	.722
Classes were not available when I needed them.	1.56	.664
I had trouble finding my way around the campus.	1.58	.664

Note. The scale for question 34: Does not apply to me= 0, Not at all=1, Somewhat= 2, A lot= 3

Table C18

Yes/No Percentages for Question 36, “Were you a Tulsa Achieves participant last semester?”

	Yes	No
	36%	64%

Table C19

Descriptive Statistics for Question 37, "Please indicate how true the following statements were of you last semester:"

	Mean	Standard Deviation
I understood how Tulsa Achieves worked.	2.49	.646
The Tulsa Achieves community service requirement presented a challenge.	2.11	.823
I had trouble meeting the Tulsa Achieves deadlines.	1.66	.773

*Note.* The scale for question 37: Not at all true=1, Somewhat true= 2, Very= 3

*Appendix D*

Persistence Barriers Survey Concordance of Survey Items to Student Barriers March 2011

<b>Barrier code</b>	<b>Barrier Type</b>	<b>Barrier Subtype</b>	<b>2008 freq</b>	<b>Survey question #</b>
1.1	Student Personal Issues	Adjusting to college	16	2
1.2	Student Personal Issues	Balancing school and life	15	8b, 8c, 14, 30
1.3	Student Personal Issues	Lack of motivation	7	4
1.4	Student Personal Issues	Time management	7	20
1.5	Student Personal Issues	Lack of money	6	6a, 6b, 16a
1.6	Student Personal Issues	Childcare	5	16b
1.7	Student Personal Issues	Transportation	4	6c, 6d, 6e, 6f
1.8	Student Personal Issues	Connecting with peers	2	10a, 10b
1.9	Student Personal Issues	Personal support systems	2	10c, 10d, 10e, 10f
1.10	Student Personal Issues	Meeting residence [residency] requirements	1	(none)
1.11	Student Personal Issues	Personal background Tulsa Achieves	1	(none)
2.1	Service issues	implementation	13	37
2.2	Service issues	Textbook issues	13	12a, 12b, 12c
2.3	Service issues	Financial aid service	9	12d, 34a, 34b, 34c, 34d,
2.4	Service issues	Poor customer service	8	34e
2.5	Service issues	Confusing enrollment process	6	34f
2.6	Service issues	Limited times and locations of classes	6	34g
2.7	Service issues	Finding your way around campus	5	34h
2.8	Service issues	Parking	5	(none)
2.10	Service issues	Lack of wireless connection at TCC	1	(none)
3.1	Instructional Issues	Communication with Instructors	12	18a, 18b, 22a

3.2	Instructional Issues	Instructional quality	6	18d
3.3	Instructional Issues	Instructor teaching style	6	18c
3.4	Instructional Issues	Understanding instructor's course requirements	6	22b, 22c
3.5	Instructional Issues	Instructor attitudes	2	(none)
4.1	Student Academic Issues	Meeting academic workload	8	20e, 24a, 24b
4.2	Student Academic Issues	Choosing courses	6	32c
4.3	Student Academic Issues	Using BlackBoard and MyTCC email	4	26
4.4	Student Academic Issues	Academically underprepared	3	24c, 24d
4.5	Student Academic Issues	Course placement	3	32d, 32e
4.6	Student Academic Issues	Lacking computer proficiency	3	28
4.7	Student Academic Issues	Not coming right out of high school	3	8a
4.8	Student Academic Issues	Choosing a major	1	32a, 32b

*Appendix E*

## List of Inferential Tests Performed\*

**Data Reduction**

- *Cronbach's Alpha* to assess internal consistency among subscales (i.e., barrier subtypes)
- *Principal Components Analysis (PCA)* to identify broad barriers based on 16 barrier subtypes

**Preliminary Analyses**

- *Multivariate Analysis of Variance (MANOVA)* examining gender differences on all five broad barriers identified in PCA
- *Chi-square tests* examining gender differences on Developmental Placement Status, Multiple Developmental Placement Status (i.e., in two or more Developmental Education areas), and Persistence
- *Two independent-samples t-test* examining gender differences on GPA
- *Multivariate Analysis of Variance (MANOVA)* examining race differences on all five broad barriers identified in PCA
- *Chi-square tests* examining race differences on Developmental Placement Status, Multiple Developmental Placement Status (i.e., in two or more Developmental Education areas), and Persistence
- *Analysis of Variance (ANOVA)* examining race differences on GPA
- *Multivariate Analysis of Variance (MANOVA)* examining differences on all five broad barriers identified in PCA based on Developmental Placement Status (a separate MANOVA was also performed for Multiple Developmental Placement Status)
- *Multivariate Analysis of Variance (MANOVA)* examining differences between students who persisted and those who did not on five broad barriers identified in PCA
- *Chi-square test* examining differences on Persistence based on Developmental Placement Status (a separate chi-square test was also performed for Multiple Developmental Placement Status)
- *Pearson correlations* between five broad barriers and GPA



- *Two independent-samples t-test* examining differences on GPA as a function of Developmental Placement Status (a separate *t-test* was also performed for Multiple Developmental Placement Status)

### **Regression Analyses**

- *Multiple logistic regression analysis* predicting persistence from five broad barriers and Developmental Placement Status (a separate logistic regression that included Multiple Developmental Placement Status instead of Developmental Placement Status was also performed)
- *Multiple linear regression analysis* predicting GPA from five broad barriers and Developmental Placement Status (a separate linear regression that included Multiple Developmental Placement Status instead of Developmental Placement Status was also performed)

\*Statistics are available from the Office of Planning and Institutional Research upon request

*Appendix F*

## Subscales on the Persistence Barriers Survey

Barrier Subscale	Survey Items	Possible Range of Scores	Mean (Standard Deviation)	Cronbach's Alpha
Difficulty with adjusting to college	2a, 2b, 2c	1 – 3	1.54 (.52)	.69
Trouble with balancing school and life	8b, 8c, 14a, 14b, 14c, 14d, 14e, 30a, 30b, 30c	1 – 3	1.93 (.45)	.86
Lack of motivation	4a, 4b, 4c, 4d, 4e, 4f	1 – 3	1.31 (.33)	.75
Poor time management	20a, 20b, 20c, 20d, 20e	1 – 3	1.76 (.44)	.68
Lack of money	6a, 6b, 16a	0 – 3	.94 (.94)	.54
Transportation challenges	6c, 6d, 6e, 6f	0 – 4	.63 (.95)	.61
Lack of peer connections	10a, 10b	1 – 3	1.99 (.70)	.74
Lack of encouragement	10c, 10d	1 – 3	1.35 (.48)	.57
Textbook issues	12a, 12b, 12c	1 – 3	1.74 (.56)	.55
Negative experiences with TCC offices	12d, 34a, 34b, 34c, 34d, 34e, 34f, 34g, 34h	1 – 3	1.69 (.48)	.76
Poor instructor quality	18a, 18b, 18c, 18d	1 – 3	1.73 (.56)	.84
Poor instructor communication and expectations	22a, 22b, 22c	1 – 3	1.37 (.40)	.62
Poor academic preparation	24a, 24b, 24c, 24d	1 – 4	1.81 (.57)	.76
Advising issues	32a, 32b, 32c	0 – 3	1.21 (1.11)	.64
Lack of knowledge regarding TCC technology	26a, 26b	0 – 2	.30 (.66)	.82
Technological challenges	28a, 28b, 28c	1 – 4	1.38 (.50)	.57