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Truman State University
Final Report

**PROMOTING STUDENT SUCCESS: DEVELOPMENT OF AN EFFECTIVE
INTERVENTION SYSTEM**

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BACKGROUND

Universities and colleges across the nation struggle to find the best ways to assist students who are placed on academic probation and suspension. Truman State University, a highly selective public institution, is no exception. The students admitted to Truman all have excellent high school GPAs, class ranks, and ACT scores, which indicate that they should do well academically in college. However, there is still a percentage of students who experience academic difficulty each year, regardless of their cognitive abilities. Providing support for these students early in their academic career is important because, as Ting (1998) indicates, academic failure, particularly for first-year students, is a significant contributor to non-degree completion. Researchers at the University of Texas San Antonio have conducted studies indicating the usefulness of devising an academic intervention plan targeting first-year students (Mansour & Miguel, 2004). Truman has developed one such plan, the Academic Intervention Program (AIP), which focuses on students' self-assessment, regular meetings with advisors, feedback from course professors, and enrollment in an academic skills course (Academic Planning and Development).

The academic skills course, INDV 110, has traditionally been designed to help students recognize obstacles to academic success and develop strategies to overcome

those obstacles. Last year, we incorporated the College Success Factors Index (CSFI), an assessment of factors known to be associated with college students' success, into the course so as to assist students with the process of self-assessment. Students took the CSFI at the beginning and end of the course in order to assess their progress. During the course, the CSFI's eight factors were used to structure course discussion, reflection, and writing.

In the current study we examine student performance, as measured by semester GPA before and after the AIP, to determine if the Academic Planning and Development course (INDV 110) has made a significant impact on students' academic progress as measured by students' GPA differences (semester GPA after the course minus GPA for semester prior to the course). If there is a difference, we will determine if one type of course is more effective than another, again using differences in GPA as the relevant measure. In addition to examining quantitative data, we have studied qualitative data drawn from interviews and student reflective writing following in the steps of researchers at Sam Houston University (Fleming & Boyd, 2004), Denison University (Vestal & Ghering, 2004), and Brigham Young University (Roberts & Chapman, 2004), where qualitative findings generated useful information in shaping university procedures. Seeing the benefit from these qualitative studies gave us reason to closely examine students' reflective experiences in the CSFI-focused course.

This report is organized by research objectives. We follow each of our research objectives with our research questions. For each data set, we describe our research process along with the findings. We conclude our report with a discussion of our overall conclusions and recommendations for further study.

OBJECTIVE I

Examining Student GPAs

The first objective of our study was to examine if a specific intervention strategy, the Academic Planning and Development (INDV 110) course, made a difference for first-year students on academic probation, and, if so, if one type of course worked better than another. We focused on three research questions:

- 1. Do first-year students on probation taking an Academic Planning and Development (INDV 110) course focused on the College Success Factors Index (CSFI) improve their academic performance more than students on probation who do not take the course?**
- 2. Do first-year students on probation taking an INDV 110 course not focused on the CSFI improve their academic performance more than students on probation who do not take the course?**
- 3. Do first-year students taking the CSFI-focused INDV 110 course improve more than students taking the non-CSFI-focused INDV 110 course?**

Research Process

Initially we planned to conduct a mixed design ANOVA to answer our questions. However, after considering the difficulties inherent in interpreting and communicating the results of this analysis, we decided instead to conduct a one-way ANOVA. The one-way ANOVA gave us the same results as the mixed design analysis, but was much easier to interpret and communicate to multiple audiences. This test allows us to compare the means of two or more groups of subjects that vary on a single independent variable.

In this case, the independent variable was the type of course experienced by first-year students on probation. The dependent variable was a difference score obtained by

subtracting students' fall GPA from their spring GPA. The one-way ANOVA was conducted to evaluate the relationship between the course type experience of first-year students on probation and the improvement in GPA from fall to spring.

A total of 400 freshmen students on probation were sampled for this study. After eliminating those students who had one or more missing values on spring and fall GPA, we analyzed a total of 340 students: 226 students from 2002-2005 who were not enrolled in the INDV 110 course, 83 students from 2002-2004 who were enrolled in the non-CSFI-focused INDV 110 course, and 31 students who were enrolled in the CSFI-focused INDV course in 2005. These students all had both a fall and a spring GPA.

Findings

The ANOVA was significant, $F(2, 337) = 15.94, p < .000$. The strength of the relationship between course experience of first-year students on probation and improvement in GPA from fall to spring, as assessed by η^2 , was moderate, with student course experience accounting for 9% of the variance in the dependent variable.

A follow-up test was conducted to evaluate pairwise differences among the means of difference scores. The LSD (Least Significant Difference) procedure was selected because this test controls adequately for Type 1 error across pairwise comparisons if there are three levels and the overall test is significant. The results of the LSD test, as well as the means and standard deviations for the three course groups are reported in Table 1 below.

Table 1.

Differences among Groups on Changes in GPA

Course Type	M	SD	No Course	Non-CSFI- Focused Course	CSFI-Focused Course
No Course	.3681	.927			
Non-CSFI- Focused Course	.9780	.901	*		
CSFI-Focused Course	.8823	.710	*	NS	

Note: NS – nonsignificant differences between pairs of means, while an (*) = significance using LSD.

There were significant differences in the means of the difference scores between students enrolled in no INDV 110 course and students enrolled in the non-CSFI-focused INDV 110 course and between students enrolled in no INDV 110 course and students enrolled in the CSFI-focused INDV 110 course. In other words, both the students enrolled in the non-CSFI-focused INDV 110 course and the students enrolled in the CSFI-focused INDV 110 course showed greater improvement in GPA than students enrolled in no INDV 110 course. There were no significant differences between students enrolled in the non-CSFI-focused INDV 110 course and students enrolled in the CSFI-focused INDV 110 course in terms of improvement in GPA. The box plot shown below in Figure 1 was created to show the distributions of difference scores indicating improvement in GPA for the three course groups.

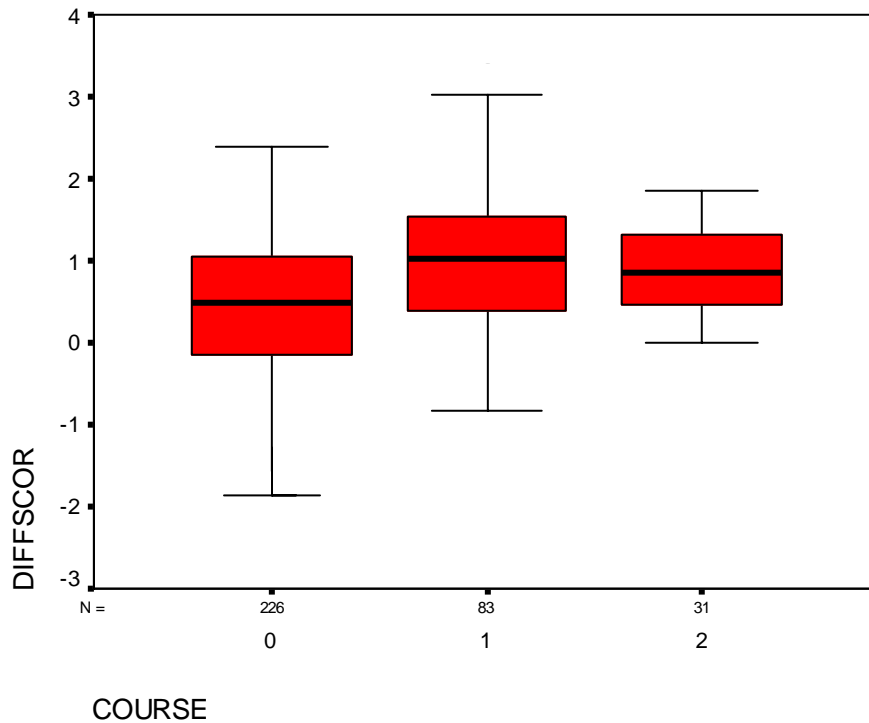


Figure 1. Changes in GPA as a result of no INDV 110 course (0), a non-CSFI-focused course (1), and a CSFI focused course (2).

A review of the stem and leaf plots reveals more specific information regarding the distribution of difference scores. Of the students not enrolled in an INDV 110 course, 69 (31%) actually earned a lower GPA over time and 64 (28%) improved. In contrast, of students enrolled in the non-CSFI-focused course, 11 (13%) students earned a lower GPA over time and 45 (54%) improved. Finally, of the students enrolled in the CSFI-focused course, 1 (3%) student earned a lower GPA over time and 13 (42%) improved.

Next, as a complement to our analysis of the effects of type of course on improvement in academic performance over time, we examined improvements in non-cognitive factors which may have been contributing to academic difficulty for students enrolled in the CSFI-focused INDV 110 course. We focused on the following additional research question:

How have the CSFI scores for the first-year students on probation enrolled in the CSFI-focused INDV 110 course changed over time?

Research Process

In order to answer this question, we conducted a paired-samples *t*-test that allowed us to compare the means of two scores from related samples. In this case, we compared students' pretest scores on the CSFI, taken at the beginning of the spring semester, with students' posttest scores on the CSFI, taken at the end of the spring semester. A total of 69 students were enrolled in the spring 2005 CSFI-focused INDV 110 course. Thirteen students who had missing values on the CSFI posttest were omitted from this analysis. The remaining 56 students had scores on both the CSFI pretest and the CSFI posttest.

Findings

The mean on the pretest was 195.9 (sd = 29.31), and the mean on the posttest was 173.86 (SD = 34.17). A significant difference was found between the pretest and the posttest ($t(55) = 6.987, p < .000$).

Effect size indicates the "practical significance" of the mean difference. We calculated the standardized effect size index, *d*. The *d* statistic evaluates the degree that the mean of the difference scores deviates from 0 in standard deviation units. If *d* equals 0, the mean difference of the difference scores is equal to zero. As *d* diverges from 0, the effect size becomes larger. A value of .93 was obtained for *d*. This is a large effect size.

Our results indicate that there is both a statistically and practically significant improvement in CSFI scores of first-year students enrolled in the CSFI-focused INDV 110 course, indicating a substantial improvement for these students in the non-cognitive

factors associated with academic success. In interpreting these results, it is important to remember that a lower score on the CSFI is indicative of success.

OBJECTIVE II

The second objective will address important questions regarding the face and construct validities of the CSFI-focused INDV 110 course. For these analyses, we examined student journals and final papers. The research questions follow:

- 1. How well do students believe the CSFI factors reflect what is really important in terms of student success?**
- 2. How well do students believe the CSFI factors really reflect what is really important in terms of their personal success?**
- 3. To what extent do students agree with their beginning-of-the-semester CSFI scores?**
- 4. How helpful is the CSFI score report in identifying strengths, concerns, and setting goals for individual students?**
- 5. How useful is the textbook (*Making the Dean's List*) with encouraging further self-assessment and assisting students in skill development?**
- 6. When comparing beginning and end-of-the-semester CSFI scores, do students believe they reflect an accurate picture of their growth and development over the semester?**
- 7. In what ways are students able to use what they learned from the CSFI and the textbook in their discussions with their advisors?**

Analyzing Student Reflective Papers

At the beginning of the course the instructor gave students a syllabus explaining the purpose and content of the course. Within the syllabus, the instructor asked students

to complete a number of reflective journals that applied to either the course content, the course itself, or both. As part of this research study, the instructor included reflective assignments asking students about their perception of the course in helping them improve their academic functioning, as well as students' specific attitudes and perceptions of the CSFI as part of the course.

Once the semester ended, the instructor submitted the original student journal reflections as well as the Informed Consent forms to the research team. The first reflective journals were separated from the final reflective papers so that the researcher could analyze and interpret the data separately.

First Reflection Paper

Research Process

At the start of the third week of the semester, the course instructor asked students to journal about their initial perceptions of taking the CSFI. The instructor fully informed students that their responses would be used for this research project and that they did not have to participate in the project if they did feel comfortable doing so. Each student read over the details of the study and signed an Informed Consent form if he or she agreed to participate. Each student was provided the same prompt for the first reflection assignment:

Reflect on your CSFI scores. Do you agree or disagree with your scores? Do you feel that these areas play a role in your academic experience? Please look at each area separately.

To ensure consistency and depth within the project, a single researcher from the team coded the data. The researcher read each response to familiarize himself with the

data; he then reread the entries marking responses on the papers and recording how each student answered the respective questions into an Excel spreadsheet.

In order to gather the information needed to address the research questions and to also include relevant information regarding the study, we devised a method for organizing student responses (see Table 2). It should be noted that most students omitted answering parts of the questions or prompt. This was indicated in the data with a “NC” which stands for “No comment.” Additionally, other students included information extraneous to our specific research questions but potentially useful in other areas. These reflections were recorded in the column marked “Comments” in Table 2.

The rows split the table into sections for students’ comments on the CSFI as a whole, and then for each subscale. In the first column students wrote about their perceptions of the CSFI and if they agreed with their scores. The second column refers to students’ feelings regarding the instrument; each answer was coded as a positive or negative reflection. The third and fourth columns record student responses regarding the academic and personal importance of the CSFI and its subscales.

Answers were separated into yes/no responses. The final column provides the researchers a way to collect data relevant for future direction and/or exploratory research regarding the instrument.

Table 2. Template for Student Reflections on CSFI

Name	Overall Agree or Disagree	Feelings, Positive or Negative	Important Academically? Y/N	Important Personally? Y/N	Comments
<i>Overall</i>					
<u>Time Management</u>					
<u>Family Involvement</u>					
<u>College Involvement</u>					
<u>Expectations</u>					
<u>Task/Precision</u>					
<u>Wellness</u>					
<u>Competition</u>					
<u>Responsibility/Control</u>					

Findings

Most students wrote candid reflections regarding the usefulness of the instrument as a whole, as well as the individual subscales. After reviewing student responses it became clear that a few commonalities existed among some of the students' perceptions. Many of the commonalities dealt with students' difficulty in seeing the relevance of a particular subscale in their lives. As for the overall instrument, student responses varied considerably. Some felt the instrument attempted to define and simplify their existence with unfair labels, suggesting the assessment could not do what it reports to do no matter how hard it tries ("I do not condone the standardization of the human mind in any way"; "...a specific test could never reflect anyone's individuality or mindset."). Others appreciated learning things about themselves which they had not realized before ("Because of my scores....I decided to make necessary changes."). Still others found that

the test just confirmed things about themselves which they had already known. (“...a generally accurate assessment of my overall college performance.”).

Wellness subscale. Most students seemed to agree with their Wellness scores even though they were not in agreement as to what the scale had measured (physical vs. mental health, etc.). While this subscale does in fact measure a range of characteristics, students’ reflections showed that they may have considered it to measure only one of them. Additionally, a few students noted that the items of the Wellness subscale asked questions like “Do you keep a regular exercise schedule,” and reported that just because they don’t exercise at a consistent time each week, does not mean they have unhealthy exercise patterns.

Expectations subscale. Other information surfaced regarding the Expectations subscale. Among students who received poor scores in this subscale, some attributed those results to having very low expectations of themselves; however, others believed that having very high expectations of themselves caused the poor scores. Still others believed that their scores were unfair because not knowing what they want to do after college affects their goal-setting but not necessarily their academic performance. It was interesting to see that many of the students offering comments on this subscale did indicate that they viewed it largely as a means of “goal-setting.” Also of interest was that many students said that they expected too much from others, which somehow contributed to their score.

The data indicated that, at least as far as students are concerned, the subscale may be measuring something that some interpret as goal-setting, while others apply it to their expectations of others or expectations for themselves. The students may be confused as to what this subscale is measuring.

Competition subscale. Many students reported that they are “the most competitive person” they know and yet earned poor scores on the Competition subscale. Many even listed that they are very driven internally to compete with themselves, but have trouble competing against others. Understanding that students reflected this dichotomy gives our previous examination of the psychometric properties of the CSFI support and provides us motivation to examine possible future courses of action.

In our previous research we identified that the subscale may be measuring (at least) two different traits: competition with oneself (related to intrinsic motivation or *mastery goals*), and competition with others (related to extrinsic motivation or *performance goals*). Members of our research team are aware that there are many studies showing that performance-oriented competition has been linked with less successful outcomes than mastery-oriented competition. These two areas have been researched in the literature as having very different effects; students’ responses overwhelmingly reflected this concept.

Other subscale findings. As we had suspected, the Time Management and Responsibility/Control subscales tended to garner the highest scores (or poorest scores) from students. According to the data, most students had no trouble accepting their poor scores, and could identify that their difficulty in these areas has played a crucial role in their academic struggle. As far as the Task Precision subscale, almost all the students reflected positive or neutral comments such as “this is important for any job in life.” There were a couple of students who noted that they viewed themselves as “perfectionists,” and could not understand why they earned poor scores in this subscale. When compared to the other subscales, this scale received far fewer comments.

As mentioned earlier, the Family Involvement subscale prompted some negative comments from students. Some students questioned the legitimacy of including a subscale measuring anything about their family since they have lived without needing their family's involvement in college and yet have been successful. Others mentioned that an increase in their family's involvement would hamper their study. One student reported that his family "would move to Kirksville if I let them," and said that his poor score on the subscale made little sense to him because his family is so supportive. Another emergent theme involved students' dismay over the Family Involvement subscale. More students had something negative to say about the subscale and its relevance to the instrument than those who did not, especially relating to their academic experience.

General observations. The data indicated that students often disagreed with their scores. In some cases students responded that they had received an unfairly poor score. However, students did not only disagree with their scores when their scores were poor¹. In some instances, students reflected that the CSFI gave them a better score than they deserved. Similarly, students' perception of the usefulness of the instrument or a particular subscale (perhaps most evident in the Wellness subscale) seemed to bear no relationship to how well they had scored. Additionally, students mentioned that their self-image likely affected the way they answered the items on the instrument. After identifying this confounding variable, students either dismissed their unfairly poor scores or their better-than-they-deserved scores as not being truly representative of themselves or dismissed the assessment as "faulty." A small, but vocal number of students expressed

¹ A "high" CSFI score indicates that one has more difficulty functioning whereas a low CSFI score indicates a normal or good level of functioning.

the desire that self-image be measured along with the CSFI. We believe this issue might be worth probing in more depth.

Student responses regarding the lack of representativeness of their CSFI scores supported findings from our previous quantitative studies of the CSFI. For example, our concerns about the reliability of the College Involvement subscale were reinforced by student reports indicating that they received a more generous score on this subscale than they would have expected. Others questioned the inclusion of this factor in the instrument at all. They stated that they did not feel the need to become involved on campus in order to do well academically.

Taken together, these findings suggest that we might want to do further studies of the reliability and validity of the CSFI subscales as well as the relationship of the eight factors to a measure of student self-image. A self-image measurement may also prove a useful tool in assessing academic success which could enhance our ability to refine the AIP.

Other emergent themes. Other comments regarding the course surfaced in the reflections. Many dismissed the CSFI as being a useful part of the course and found little worth in its feedback while some appreciated the instrument for what it intended to show. An additional theme, which had little to do with the CSFI, was that students apparently had a great deal of respect for the instructor, even if they held everything else about Truman in disdain. One student's reflection consisted of candid rants regarding his distaste for Truman and the INDV 110 course, but ended his response by thanking the professor for her kind and helpful instruction in class and in her personal interviews with students. Though the prompt and our research questions had no connections with exploring the nature of the professor-student relationship, student responses were potent

enough to show that if the course had anything positive within it, the professor was responsible.

Second Reflection Papers

Research Process

The instructor asked students to complete a final reflection on the course and the CSFI. Students completed the reflection during the final week of the course after they had taken the CSFI a second time. Like the process for the first journal, students were reminded that their responses would not affect their grade and that they did not have to participate in the study if they decided they did not want to be part of it.

During the class, the course instructor asked all students enrolled in the course to journal about their perceptions of taking the CSFI. Each student was provided the same prompt:

This semester you have been a part of the Academic Planning and Development course at Truman State University. For many of you, this class was an effort to improve your college performance. In this paper I want you to reflect on your academic journey in college and share with me how INDV110 has played a part in that. There are two major topics that must be covered in this paper.

- 1. Reflecting on the last two semesters how has your college experience changed and what part has this course played in that? Academically are you doing better or worse this semester? Did you learn particular strategies in this course which impacted your achievement? Are you feeling more a part of the college community? Have you become involved with any groups on campus or found resources here that have helped you become more connected? What specific topics or activities from this course did you find useful? Was the*

textbook useful? Did it cause you to reflect on your personal strengths and weaknesses?

2. Specifically focus on the CSFI. Do you feel the CSFI factors reflect what is really important in terms of college success? Do you feel those factors are relevant to your own personal success? Did you agree with your beginning of the semester CSFI report? Was the CSFI report helpful to you in terms of discovering strengths and weaknesses? Were you able to use the information from the CSFI when setting goals for the semester? Comparing your beginning of the semester CSFI report and the end of the semester report do you believe the change reflects your personal growth? What types of things do you believe caused the change in your CSFI report?

To ensure consistency and depth within the project, a single researcher from the team coded the data. The researcher read each response to familiarize himself with the data; he then reread the entries marking responses on the papers and recording how each student answered the respective questions into an Excel spreadsheet.

In order to gather the information needed to address the research questions and to also include relevant information regarding the study, a method for organizing student responses was devised (see Table 2). It should be noted that most students omitted answering at least some part of the questions or prompt. This was coded in the data with a “NC” which stands for “no comment.” Additionally, other students included information extraneous to our specific research questions but potentially useful in other areas. These reflections were recorded in the column marked “Comments” in Table 2.

The row of the table splits into columns for students’ comments on the CSFI as a whole, the course, and then for each subscale. In the first column students wrote about

their perceptions of the CSFI and if they agreed with their scores. The second column refers to students' feelings regarding the course; each answer was coded as a positive or negative reflection. The rest of the columns record student responses regarding student impressions of the CSFI subscales which provided the researchers a way to collect data relevant for future direction and/or exploratory research regarding the instrument.

Each titled row reflects a separate question related to each of the specific objectives. When comments on a specific subscale were included in answering a research question (i.e. "Family involvement subscale made me realize how important my family is to me for my success...") those comments were recorded in the box that matches with the objective question and the implied subscale.

Table 3. Template for Students' Second Reflections on the CSFI

name	Overall CSFI	Overall Course	Well	Time	Res/Con	Comp.	Fam.	Coll.	Exp	Task
Comments										
Academically Important?										
Personally ?										
Strengths										
Concerns										
Goal-Setting										
Beginning Perceptions										
What caused change?										
Comparison of Accurate Growth?										
Text Perceptions										
Doing Better or Worse?										

Findings

The findings in this section are organized according to the prompt that students used to answer questions assigned by the professor. The prompt very closed mirrored our

research questions therefore each question is addressed throughout this section.

Additionally, there were findings outside our research questions that are presented after each question is addressed.

1. *How well do students believe the CSFI factors reflect what is really important in terms of student success?*

Overall, students seemed to believe the CSFI factors reflected what is important to student success. However, when analyzing subscales discretely, many students reported that certain subscales did not reflect what is important for student success. Additionally, their interpretation of “student success” varied somewhat. Some seemed to believe the term applied to any particular college student, some seemed to apply the term to the general Truman State University student, and others interpreted the score to their own identity as a student. The majority of students applied the term to themselves or to Truman State University students.

Competition. Students made a significant number of comments on the Competition subscale. Most students expressed some level of difficulty with this subscale, either in identifying how it connects to student success, or in understanding what it measures. Students were able to identify that there are two types of competition, which they referred to as an internal drive or an external competitiveness. Many students interpreted competition to be an external construct, or a performance-driven trait, which involves competing against others. Others interpreted competition as that which applies to their internal ability to compete with themselves, or a mastery-driven trait. Students made more comments on this difference than any other issue. One student expressed his distaste for the subscale, assuming it measured performance-related competition, “I would rather be judged on how I do compared by own standards than by others.”

Some students expressed confusion when considering what their poor Competition score meant about them, their ability to compete externally or internally. One student mentioned that her low level of competitiveness was directly related to a lack of “assertiveness,” which was a logical and shared conclusion for a few other students. Another student stated that his Competition score improved because his personal sense of responsibility improved. It seemed this student thought he had an unhealthy high level of competition at the start of the semester, but as he started making changes related to his responsibility, his competition level improved. Students did not come to a consensus on whether the subscale was measuring *healthy* competition or simply a *high* level of competition.

Family involvement. Many students stated that they found the Family Involvement factor to be either not necessary for student success or not important to student success. One student presented a case in which she felt her family’s involvement would be detrimental to her academic success. She insisted that because of the unhealthy relationships within her family, the subscale would not necessarily apply to her. In another case, one student stated that having her family’s involvement would only be a distraction to her, since her parents were divorcing. Additionally, a portion of the sample stated that their understanding of student emotional development or maturation may conflict with having an involved family, particularly as it applies to their academic success. One student thought that weighing the importance of family involvement was “not a good display of the reality” at Truman. Another student wrote that the items of this subscale may be misleading as one statement reads, “My parents expect me to do well here.” The student took issue with the word “expect.” She stated that having parents’ expectations is not necessarily positive or negative. She stated that for her, it

was not a good thing but that others might read it as positive. She said that she was unsure about the function of this item. Another student noted “I know people whose families play little or no role in their college education, yet they lead very successful academic careers.”

It seems reasonable to say that, at least for some, this subscale measured something that was not only unimportant for their academic success, but a hindrance. However, these students may be thinking too narrowly about terms like “academic success” or “involvement,” as the subscale purports to measure “healthy” family involvement. Further research may need to be done to clarify these terms from a student’s perspective.

In contrast, this subscale did have support from other students. Some stated that they had not realized how supportive their families had been in their experience at college. Others stated they thought their family’s involvement was integral to their academic success. It seems that this disparity may be due to students having a different perspective on their family; some viewed their family amicably, while others had either neutral or negative feelings about their family support. This is an important consideration when discussing the construct validity of this subscale. Because students may possess a different idea about what their family means to them, poorer scores on this subscale may not necessarily be indicative of a problem. A seemingly “unhealthy” score might actually be a considerably healthy score for an individual coming from a dysfunctional family. Perhaps the subscale could be refined on the item-level to reflect something closer to asking if students’ families are involved to the extent each student wishes, versus assuming that the traditional family structure and involvement is a necessary component for college students’ success.

College involvement. Likewise, many students took issue with the College Involvement subscale. Students made comments like, “I don’t think it is necessary to involve oneself in a group to be successful in college,” and “college involvement can be a blessing or a curse.” More students expressed the latter comment than students providing either completely positive or completely negative comments about the construct measured in the College Involvement subscale. Students seem to perceive too much college involvement as a potentially negative factor while at the same time considering too little involvement detrimental. One student remarked Truman State University did not have enough opportunities for nontraditional students, therefore suggesting her score was not valid. More students described their involvement as a positive aspect of their academic success than a negative one. Of these students, many stated that they suspected a direct correlation between their increased involvement and their (perceived) improvement in academic functioning. Greek organizations, athletic teams, and academic clubs seemed to be the most common campus activities for these students. However, these activities were sometimes cited as part of the difficulty with students’ time management.

For instance, one student stated that his fraternity, though supportive, was a significant reason he had little time to devote to his academics. It may be worth exploring the connection between college involvement and time management, as the negative comments regarding the college involvement construct may be actually referring to a construct like Time Management or perhaps Responsibility and Control. Statistically, the Time Management and College Involvement subscales are moderately correlated ($r = .44$). Perhaps studying item-level correlations may provide further insight.

Over-involved college students may be blaming their difficulties on problems with their level of college involvement when, perhaps, their real struggle lies in their ability to *manage* their many scheduled commitments. Student reflections seemed to blur the line between the subscales. That, however, does not neutralize those statements from over-involved students that truly feel pressure due to their time commitments. Due to the inconsistent student responses there is no consensus on whether College Involvement may be positively or negatively correlated with Time Management; individual students vary in their perceptions. Based on these reflections, it may not be possible to make a definitive conclusion. This difficulty may warrant future research in order to establish direct conclusions.

Wellness. The Wellness subscale garnered fewer comments than the previously discussed subscales. However, students expressed similar concerns related to their confusion over what the subscale measures. One student commented that it was “hard to believe” that wellness contributed to her academic success. Additionally, some students defined wellness as a construct of both their psychological and physical wellness, “My wellness improved as my self-esteem went up.” But many other students seemed to only apply this subscale to either a psychological factor or a physical one. Students reflected that their poor scores were solely representative of things like their stress management, sleep patterns, psychological functioning, and eating patterns.

It seems students had some difficulty interpreting this subscale as one that measures both physical and psychological components. A few students also mentioned that they do not believe that their Wellness score related to their academic success, but there was no conclusive reason as to why that may be. The important factor may simply be that students’ perception or attitude of the subscale (or instrument for that matter) may

be related to their score. This issue, referred to as *face validity* in psychometric literature, could skew the outcome of student responses.

Time management. The vast majority of students articulated that the Time Management subscale was most relevant for them. These students suggested that their ability to increase their time management skills (usually learned through the course) was the most significant reason they have improved their academic functioning. Other students stated that their time management skills stayed about the same but their academic functioning improved, which supports the CSFI's position that there are multiple aspects that can influence students' academic functioning. As a whole, the students seemed to believe this subscale was important to their academic success. It was widely referenced as the issue students believed they needed to improve in order to perform better academically.

Responsibility and control. Students seemed to agree that this subscale was important for their success, although there was a discrepancy as to what exactly a poor score in this subscale meant (students are too focused on controlling things or students do not take enough control). One student stated that her academic performance increased after she realized that "she can't control everything." Another student mentioned that his academic performance increased when he realized he needed to "become more accountable" to himself. Altogether, students seemed to believe this subscale truly connected to their academic success.

Task precision. Somewhat similar to the College Involvement subscale, some students may have confused Task Precision's construct with the Time Management construct. Many students agreed that their Task Precision score was important to their college success but when they explained why, they cited things related to the ability to

perform tasks in a timely manner (e.g. “I started completing my assignments early” “my inability to complete tasks at a decent hour...had been a problem”). A quantitative analysis showed that the Task Precision and Time Management subscales are fairly strongly correlated ($r = .72$). Another student commented on the subscale directly by saying she was more “capable” to complete things in classes than she had realized prior to focusing on this aspect of her academic life. Students did not comment too much on this subscale, which may relate to their lack of clarity on what it measures.

Expectations. The Expectations subscale also seemed to confuse students. Many students stated that their low expectations had a causal relationship to their academic difficulty, while others stated that their unreasonably high expectations had put a strain on their ability to perform in the classroom. Other students were able to discuss the balance of these two poles in their lives, assuming that the subscale measured *healthy* expectations, not simply *high* expectations. It was not overtly clear to students what the subscale actually measures.

Students also professed a belief that expectations were related simply to their long-term goals, not short-term ones. In addition, one non-traditional student stated that her expectations did not play a large role in her academic success, as she had accomplished many of her life-time goals and had more experience than traditional students when it came to failing to meet and exceeding her expectations.

2. How well do students believe the CSFI factors reflect what is really important in terms of their personal success?

Students varied in their responses to this objective. Most students agreed that the CSFI was useful as a whole instrument though some students insisted that it was completely useless to them. Even those students that did believe the CSFI was an

important assessment for their personal success took issue with one or more of the subscales. This qualitative finding supports the quantitative results the research group found when analyzing the validity of the CSFI total score and its subscales. The CSFI total score was a far better predictor of students' academic standing than were any of the subscales by themselves.

Unfortunately, most students did not comment on how each subscale influenced them on a personal level. The majority of those that did comment entangled the construct of "academic importance" with the construct of "personal importance." That is, many students believed that something of academic performance was inherently personally important. This concept may be a function of the caliber of students admitted to the university.

However, of the students that mentioned the Family Involvement subscale had no impact on their academic success, many stated that this subscale was an important personal construct. One student commented that he had not realized how important his family was to him until he saw how high his Family Involvement score had been. Likewise, some students very well may feel personally successful if their family was *not* involved in their academic functioning (families where boundaries are not clear or where emotional enmeshment is prevalent). There may be discrepancy among students as to how valid a subscale measuring their family's involvement would be to their academic identity.

3. *To what extent do students agree with their beginning-of-the-semester CSFI scores?*

The students' perception on this objective seemed to slightly shift. Whereas after they took the CSFI the first time about half of the students had something negative to say about their initial scores, a few students retracted their initial dissenting opinion after time

had passed. It may be that taking the test (and improving) may be part of the reason why students reacted this way. This phenomenon is of interest, since many students vehemently disagreed with their scores initially but softened their views after the second assessment.

4. How helpful is the CSFI score report in identifying strengths, concerns, and setting goals for individual students?

Students seem to agree that the CSFI report was helpful in identifying their own strengths and concerns. There was less agreement of students' perception of the CSFI's role in helping them set individual goals. Most students stated that the assessment helped them learn valuable insights into their personalities. This was especially true on the subscales that posed problems for students deciding what the subscale had measured, which poses a peculiar problem: those subscales that lacked clarity (Competition, Expectations, Wellness, and College Involvement) were the same subscales that caused students to reflect deeply upon their strengths and weaknesses. The exceptions were the Time Management subscale and, to a lesser extent, the Expectations subscale, as many students were able to reflect upon how their scores in these areas also helped them identify both weaknesses and strengths. The other subscales may have also helped students in the process, though they were cited less often. Again, the Time Management area seemed to be the most significant.

As far as setting goals is concerned, most students made no mention of how the CSFI actually helped their goal-setting process. Those that did mention it were split as to whether it helped or not. Students who claimed it was helpful said that the instrument helped them face reality, particularly when the scores were poor. One student said that after seeing her first CSFI score, she worked hard to do better just to "prove the test

wrong.” Of the students that did not think it was helpful for goal-setting, most did not explain why. However, one student mentioned that his disapproval of the assessment likely affected his belief that the CSFI could help him set any goals.

5. How useful is the textbook (Making the Dean’s List) with encouraging further self-assessment and assisting students in skill development?

Students overwhelmingly reported that the textbook was not helpful through the process. Most students provided negative reflections about the book (“the exercises were useless,” “it did not bring any new information to the table,” etc.). However, some students did find the text useful (“stories in the text were comparable to my life,” “it was somewhat informative”). Altogether, the comments collected reflect a general attitude that the book was similar to what the CSFI and the lecture material had covered already; this seemed minimally helpful for some students, and unnecessary for others.

6. When comparing beginning and end-of-the-semester CSFI scores, do students believe they reflect an accurate picture of their growth and development over the semester?

Most students reflected that retaking the CSFI did provide an accurate picture of their growth and development over the semester. They evidenced their claim saying that seeing the difference in their scores was helpful in assessing how much they had grown. About half of the students said that they agreed with the growth that the scores reflected. The other half was split by students that either disagreed or had no comment on that area. Many students stated that their second score did not show much difference from their previous score but they believed or felt that they had gained some ground. Some of these students were distraught by this, others did not seem to care. A few students brought up the idea that their attitude or mood may reflect their performance on the assessment. This may explain why some students did not have a congruent feeling with the change in their

scores. If a student does not particularly like him or herself on assessment day, he or she may end up with scores that are significantly lower than they normally would be.

Statistically, this may result in a larger amount of random error which, in turn, may weaken the validity of the CSFI.

7. In what ways are students able to use what they learned from the CSFI and the textbook in their discussions with their advisors?

Students did not give any indication as to how the CSFI or the textbook aided in discussions with advisors. For this particular course, it seems that many students relied on the instructor to fill or at least supplement the role of their advisors. An overwhelming number of students mentioned that the instructor's one-on-one meetings (which were required as part of the course) were extremely useful in processing information on both a personal level and an academic one. One student stated that "talking one-on-one made a bigger difference than the book" and another stated that the individual attention from the professor made a significant difference for her, "Without the opportunity to focus on me and my life, I would not have been able to even finish the semester."

This was an unexpected but important finding. Many students, particularly those in their first-year, may benefit greatly by having a professor help them through a class on both a professional and personal level. It seems many of these students had not yet connected with a professor that took time to reach out to them on an academic and personal level. This finding should not be underestimated and was uniquely apparent after reading through student reflections on the course.

Discussion

Overlapping Constructs

A large number of students involved in the study seemed unclear as to what each subscale had actually measured. It is difficult to determine why students expressed confusion in these areas. It is possible though, that some of the subscales are measuring overlapping constructs. For instance, as cited above, the College Involvement subscale seemed to give students the impression that a poor score on this subscale meant they were not able to manage their busy schedule (a construct closer to Time Management). From there, students drew conclusions that academic success means limiting their college involvement, which would account for their poor score in College Involvement, even though they are succeeding academically.

Updated Literature

Indeed, it is likely that individual students may require more “college involvement” than other students. Due to the discrepancy among students’ interpretation of this subscale, it seems that the CSFI may be more effective to better define the construct the subscale measures (healthy college involvement). Additionally, the literature supporting this subscale is outdated. The most recent article cited a study in 1984, over twenty years ago with the majority coming from studies in the 1970s and many in the 1960s. The structure and environment of universities has changed in significant ways over the years so that a construct of “college involvement” today may mean very different things than what the literature supports. Additionally, on Truman’s campus, many older students giving advice often tell students not to become over-involved on campus, as it caused them some difficulties when they started college.

Further Construct Exploration

For the Wellness subscale, there is a distinct divide between students internalizing it as a psychological construct and a physical one. It may be worthwhile to examine the possibility of splitting the wellness subscale into a psychological component and a health component. The psychological component may be related to the physical as one student noted, “as my self-esteem improved, my wellness got better,” or it may be entirely separate as other students seemed to believe.

There may be another undefined construct underneath the psychological component referenced in the Wellness construct. Students used general language to identify this underlying construct. They described that their general motivational level, attitude, or self-efficacy may be affecting their ability to take care of themselves. The issue of including something that more concretely measures students’ general motivational level (which may encompass their attitude and self-efficacy) pours into the discussion of competition as well. Some students, who called themselves “very competitive” with others, were not internally competitive (a potential motivational problem).

As discussed in the Wellness section, student perceptions of the instrument may affect their score. A few students in particular stated that their perspective on the instrument (in these cases a negative perspective) directly or partially accounted for their low score. It may be worthwhile to add something to the instrument that assesses the assessee’s attitude about taking the instrument or the assessee’s perception of the usefulness of the instrument (or idea of the instrument). An assessment measuring this underlying construct may help students better interpret their scores, particularly if the

student's attitude regarding the instrument reflects the student's attitude about succeeding in college. One student commented:

My attitude will always likely be poor, so I am probably not answering all of the questions objectively on the scoring range...I have not paid that much attention to the CSFI because I do not trust surveys where I cannot explain why I answered the way I did. The change (a better 2nd score) resulted from an attitude change the 2nd time.

Another student said that her answers "changed depending on the mood she was in" at the time she took the instrument. Unfortunately, there was one student that admitted that his "conclusion about the CSFI is that if one lies, they will do better on the test," which suggests that once students are aware what constructs the instrument measures they can adjust their answers to fit a portrait that they wish to look like. This "test-taker bias" phenomenon, or socially desirable responding, is not necessarily particular to the CSFI, but future researchers should remember to take that into consideration when working with the instrument.

Application to Minority or Other Populations

Additionally, the feedback from a nontraditional student's perspective illuminates some very different concerns when considering the CSFI as it applies to nontraditional students. This notion suggests a number of others concerns related to the multicultural-friendliness of the CSFI. One can tell that international students' reflections were somewhat less candid and more academic than the traditional American students. For example, two students from Africa wrote reflections void of any concerns regarding the instrument while almost every other student had at least some constructive criticism regarding the instrument. It would also be worthwhile to study how nontraditional,

international, or disabled students' CSFI experiences may differ from the traditional populations on both quantitative and qualitative levels.

Additional Observations

In addition to the overwhelming proclamation that the professor's one-on-one contact was a crucial part of students' academic improvement, students provided other information that was outside of our research goals. Another theme that seemed constant in student responses was that students, either consciously or not, expressed their academic journey during the semester by including personal components in their narrative. For their final reflection, they were asked to describe their academic journey and how the course played a part in that. Almost every single student provided some kind of personal detail in their reflection. Without reading into this fact too much, it was at least evident that every student had something important enough to mention in this reflection. Each student brought a unique perspective to their academic journey, with no two students ever having the same story to tell. This is an important element to remember in research because, while it is easy to group similar answers together, there is no way to separate the students from their narratives. It was almost like each student *needed* to tell his or her story for this process. There is research in Narrative Therapy which has provided empirical evidence that individuals met with personal conflict or turmoil can benefit simply by working through their personal narratives. This finding, like the first, was overwhelming. Future researchers may want to explore the value of including Narrative Therapy into academic intervention programs in order to further examine this phenomenon. University counseling centers may be able to act as a resource which integrates Narrative Therapy into an intervention system.

Some other findings were less common in the data. One of those was related to students' level of motivation or attitude, which was discussed earlier. Since research shows there are multiple kinds of motivation (motivation to succeed, motivation to achieve, motivation to survive, etc.) it is difficult to assess the specific construct students were referring to when using the term "motivation." What is clear is that some students suggested that their low motivational levels were to blame for their lack of success. One student phrased it this way, "I may now understand the information better, but my motivation hasn't changed." Obviously, neither the course nor the CSFI state they were designed to change student's motivational level, but perhaps that is the point. Students are suggesting that no matter how much they learn, their academic performance will not change unless their general motivational level increases. Whether or not "motivation" is truly the key component is not clear, but it is probably the best way to describe this unknown factor as students themselves used it to define the construct. This played into something other students identified a bit differently. Some students thought the course did a fine job helping them understand *what* to change, but not necessarily *how* to change. This discrepancy was not widespread, but some students expressed frustration that there was not clearer direction on how to practically implement changes into their lives.

Lastly, some students made comments about interpreting the CSFI questions as a whole. Many expressed dissatisfaction that items used words like "always" or "never" and felt that their poor scores were an indication of being forced to answer items in the middle of the spectrum because of those extreme statements. Other students expressed concerns about particular CSFI-items being unsatisfactory in general. It may be appropriate to reword some of the items to reflect cultural-lingual changes that may be

causing some students this frustration. Some students made comments on the subjectivity of the items as well, suggesting that two people reading the CSFI could easily confuse the meaning of the same item. Unfortunately, students did not provide explicit examples of the particular items they were referencing.

CONCLUSIONS AND FUTURE DIRECTIONS

Results of the quantitative analysis show that students enrolled in the INDV 110 course in the past few years increased their GPA more than students who were not enrolled. However, results also showed that there was no statistically significant evidence to indicate that the CSFI-focused course made a difference, positive or negative, in students' GPA compared to the non-CSFI-focused course. These results were surprising to us. The CSFI-focused course encouraged students to reflect and self-assess on multiple factors known to be associated with academic success. Indeed, students enrolled in the CSFI course improved their CSFI scores over the course of the semester. However, we also expected to see greater gains in GPA compared to the non-CSFI-focused course where students primarily practiced study skills.

Results of the qualitative analysis showed that students expressed benefits as well as concerns regarding the CSFI. Our findings indicated that most students taking the CSFI-focused course believed that the instrument had some benefit in helping them to positively adjust their academic performance. Students did not agree on which aspects of the assessment were most useful, but the majority of the students found something that was of benefit to them. After analyzing the reflective writing, it appeared that students benefited from thinking critically about their academic selves. Incorporating both the CSFI and the reflective assignments into the course may have helped students to identify

and consciously capitalize on their strengths as well as to recognize and work on remedying their weaknesses.

While students indicated that they benefited from the use of the CSFI in the course, they also expressed some reservations concerning the instrument. Specifically, they noted that the instrument could be revised and updated to more accurately measure what it claims to measure. Students took issue with the College Involvement subscale, sometimes confusing it with the Time Management subscale. Similarly, students reported differing ideas on what the Wellness subscale was measuring, including psychological wellness, physical wellness, and a combination of the two. These findings supported our previous quantitative analysis of the instrument, which showed that some subscales may not be valid measures of the constructs they intend to measure. Students also took issue with the Family Involvement and Competition subscales, saying that factors measured by subscales did not have a personal impact on their academic lives or that they did not see how a poor score on one of these subscales could tell them anything about themselves. These reflections led us to believe that the CSFI may also be lacking in face validity, or whether the instrument appears valid to those taking it.

Our future directions are guided by both our quantitative and qualitative results. While our quantitative findings indicate little difference in benefits to students from taking the CSFI-focused course compared to the non-CSFI-focused course, our qualitative results indicate that further study of students taking the CSFI-focused course and the CSFI itself is warranted. Based on the results of the current study, we have determined four possible avenues for further research.

First, we need to replicate our current study with all three course experience groups, but with the no course group more closely matched in terms of fall GPA to the

two other course groups. When we conducted the current study, we discovered that the mean fall GPA for the no course group was considerably higher than the mean fall GPA for the CSFI-focused course group and the non-CSFI-focused course group. We want to compare the three groups again with all three groups matched on GPA to determine if there are still significant differences in student gains over the course of the semester between students enrolled in the CSFI-focused course and students not enrolled in a course and between students enrolled in the non-CSFI-focused course and students not enrolled in a course. We are currently exploring various techniques for matching our three course experience groups.

Second, we want to extend our current study to examine the long-term effects of the CSFI-focused course on students compared to the other two course experiences. We have some anecdotal evidence that students later in their academic careers—and even beyond graduation—have benefited from the academic planning course. We would like to track students in the three course experience groups to determine if, in fact, our anecdotal information is supported by empirical evidence and if students in the CSFI-focused course experience greater long-term benefits than students in the non-CSFI-focused course.

Third, we would like to assess both the predictive and the preventive power of the CSFI and the CSFI-focused course for first-semester freshmen enrolled in the course, since our ultimate goal is to be able to strengthen students' "academic survival skills" when they first begin their college experience. We intend to use as subjects students enrolled in the Fall 2005 Academic Planning and Development course instructed by Residential College Advisors, which employs the CSFI and the CSFI-based textbook. We will verify the significance of the five factors (high school GPA and class rank; ACT

composite score; number of Cs, Ds and Fs; CSFI total score) in determining students' academic standing at the end of the Fall semester, and the predictive value of the 5-factor equation developed through discriminant analysis. This work will replicate the study done with support from a previous Truman Assessment Grant, Promoting Student Success: Development and Assessment of an Early Identification Model (2004). In addition, we will compare the Fall 2005 semester GPAs of two matched groups: first-year students enrolled in the Fall 2005 Academic Planning course and first-year students not enrolled in the Fall 2005 Academic Planning course. In this manner we will assess how a CSFI course aids in preventing students from being placed on academic probation.

Finally, we will continue to advocate for further psychometric study and possible revising and updating of the CSFI instrument. Quantitative and qualitative findings from our studies over the past few years point to a need to reexamine the CSFI both in terms of construct and face validity. More sophisticated and sensitive data analysis techniques like confirmatory factor analyses would assist in identifying problem items and subscales and would be an effective first step toward revising this potentially very useful instrument.

References

- Baron, J. & Norman, M. F. (1992). SATs, achievement tests, and high school class rank as predictors of college performance. *Educational and Psychological Measurement, 52*(4), 1047-1055.
- Beck, H. P. & Davidson, W. D. (2001). Establishing an early warning system: Predicting low grades in college students from Survey of Academic Orientations scores. *Research in Higher Education, 42*(6), 709-723.
- Carey, Kevin (2004). A matter of degrees: improving graduation rates in four-year colleges and universities. Washington D.C.: The Education Trust.

- Dollinger, S. J. (2000). Locus of control and incidental learning: An application to college student success. *College Student Journal*, 34(4), 537-540.
- Gerald, D. E. (1992). Projections of education statistics to 2003. Washington D.C.: National Center for Education Statistics.
- Gose, B. (1996). New programs for freshmen smooth transition to college life. *The Chronicle of Higher Education-Academic Today*. Accessed from today@chronicle.com.
- Larose, S., Robertson, D.U., Roy, R., & Legault, F. (1998). Nonintellectual learning factors as determinants for success in college. *Research in Higher Education*, 39, 275-297.
- Schumacker, R.E., & Sayler, M. (1995). Identifying at-risk gifted students in an early college entrance program. *Roeper Review*, 18, 126-129.
- Ting, S. (1998). First-year grades and academic progress of college students of first-generation and low-income families. *The Journal of College Admission*, 158, 15-23.
- Wesley, J. C. (1994). Effects of ability, high school achievement, and procrastinatory behavior on college performance. *Educational and Psychological Measurement*, 54(2), 404-408.
- Wilson, R.L., & Hardgrave, B.C. (1995). Predicting graduate student success in an MBA program: Regression versus classification. *Educational & Psychological Measurement*, 55, 186-195.