

The Pennsylvania State University

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**CAREER MATURITY AND COLLEGE PERSISTENCE:  
A LONGITUDINAL STUDY OF FIRST-YEAR STUDENTS**

A Dissertation in  
Workforce Education and Development

by

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## Abstract

While more of America's students are continuing to gain access to postsecondary education and in some instances beginning a path to higher education and robust careers that eluded many of their parents, a great number of these students are not completing the degrees they begin. An extensive body of research exists and continues to mount, geared at uncovering the answer or set of answers that would help solve this dilemma.

This research study explored the role of career maturity in the persistence process with the premise that higher levels of career maturity contribute to students' ability to persist through postsecondary education. This premise formed the basis for the research questions: 1) Is career maturity related to the college grade point average (GPA) of first-year students? 2) Is career maturity related to college persistence of first-year students?

225 first-year students at a branch campus of the Pennsylvania State University were targeted, of which 169 or 75% voluntarily participated. The Career Maturity Inventory (CMI), comprised of two-25 point sections (attitude and competence), was used as the assessment tool for measuring career maturity. Students were given the CMI three times during the year: the end of their first semester (fall 2004) and spring semester (spring 2005), as well as the beginning of their following year (fall 2005). At each checkpoint, students' enrollment status and GPA were closely monitored. Both multiple and logistic regression data analysis methods were used to draw conclusions regarding the relationship between career maturity and GPA as well as career maturity and persistence.

The study findings revealed a positive, significant relationship between career maturity and first-year persistence. Additionally, competence, an aspect of career maturity, was related to students' GPA at the end of their first semester (fall 2004) while the overall

career maturity score was related to students' GPA at the end of their second semester (spring 2005). This suggests that competence or specific knowledge is a more important factor in students' performance the first semester than in the second semester. Whereas, a more general sense or internalization of career maturity grows increasingly more important as students progress throughout their first year.

As limited studies exist regarding the role of career maturity in the college persistence process, the findings are particularly promising. They provide the opportunity for further research and exploration of an overlooked but important intervening variable within the persistence debate that has received little attention in the past. Additionally, a focus on career maturity provides insight and depth of knowledge regarding potential solutions that can help address the persistence problem. Unlike a number of other factors linked with persistence such as socio-economic status (SES) and parental educational level, career maturity can be affected. This finding provides hope that appropriate career development interventions, which foster career maturity, ultimately increase the likelihood that students are better equipped to finish the degrees they begin.

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## Chapter One: Introduction



## Introduction

Postsecondary education remains the gateway to self-sustaining careers and the opportunity to achieve the American dream (Erisman & Looney, 2007). However, the significance of college persistence extends well beyond the hope it signifies for countless individual American families. Postsecondary education and the degree to which postsecondary educational institutions can produce the next generation of our brightest thinkers, figures into the workforce development strategy of the United States in order for it to continue making the shift to a knowledge economy (Erisman and Looney). Specific impacts on the American economy result from an inadequate supply of skilled, knowledgeable, and competent postsecondary school graduates. In particular, as American corporations aim to develop their competitive edge in a global economy, the talents, abilities, and contributions of the people who work there become increasingly more important and closely tied to corporate strength and viability. Postsecondary education remains the primary pathway for affording social and economic mobility to the American citizenry while also ensuring the future prosperity of American corporations, which directly impact the quality of the American economy. Clearly, the extent to which students pursue postsecondary education and finish the degrees they begin has far reaching impacts.

This introductory chapter addresses pertinent questions pertaining to the scope and relevance of the research topic: the relationship between career maturity and college persistence. Outlined are the following sections: 1) problem statement, 2) significance of study, 3) research questions, 4) conceptual framework, 5) limitations, and 6) definitions.

### *Problem Statement*

Many students who begin college do not graduate. In fact, only 58% of students who begin college finish in eight years or less (National Center for Education Statistics, 2004). Persistence from the first to the second year of college is of particular interest as upwards of 27% of students drop out during this period (Gray and Okou, 2003, p.3). This increasing trend of college attrition is problematic for many reasons including the following:

- Students who drop out of college before earning their degree are likely to be unemployed or employed in lower wage jobs than if they completed their degrees, which equates to lost tax revenue for the United States government (Alliance for Excellent Education, 2006).
- Students who drop out of college create a dilemma for U.S. corporations regarding a steady pipeline of qualified workers trained in respective industries (Driscoll, A., 2007).
- Students who drop out of college with high levels of student loan debt before earning a degree are likely to be employed in low wage jobs and are likely to default on their loans due to their limited income. Defaulting on student loans is an expense not only to the student, whose opportunity to more fully participate in social and economic life is diminished, but also to private sector and government lenders as well as postsecondary schools.
- Students are given a false sense of access to higher education and subsequent opportunity if they are not equipped and prepared to succeed once they are accepted (Driscoll, A., 2007).

Numerous studies have been conducted to identify factors that are related to college retention and persistence such as socioeconomic status, academic preparedness, parental

educational background, financial aid as well as other factors, which will be explored in the literature review.

Research by Gray (2000) and others suggest that career maturity as a variable related to persistence deserves a closer look. To date, little research has examined the relationship between career maturity and college student persistence. The focus of this study is to explore this relationship, with the goal of discovering new information that will provide additional insight into the complex problem of student attrition and shape policy regarding how U.S. educational systems prepare students for postsecondary school and career success.

### *Significance of the Study*

Career maturity as a factor of college persistence is important. The following are potential postsecondary educational outcomes that could result due to a lack of career maturity in students:

- Indecision about a major
- Additional coursework and delay in graduation
- High loan indebtedness, particularly when need-based financial aid is exhausted
- Attrition and loan default
- Underutilization of internships and career related experiences, which helps improve likelihood of employment upon graduation
- Underemployment after graduation
- Workforce shortages due to a reduced supply of skilled postsecondary graduates

- Diminished tax revenue from graduates with higher earnings than that of college dropouts

Such potential outcomes underscore the significance of further exploring the causes of attrition and the role career maturity may play in the college persistence debate.

The findings of this study could have far reaching implications for both K-12 and postsecondary educational systems if a positive significant relationship is determined between career maturity and first-year college persistence. Such findings would underscore the need for K-12 education to enhance its career development programs and expand curriculum to produce career mature students. Such students may be more likely to graduate from high school, choose a postsecondary educational path that more closely matches their needs and interests, and then eventually graduate from that program or institution.

For higher education, these findings could also reveal the need for more colleges and universities to expand the emphasis of their career development programs and services to include facilitating career awareness and development experiences for students, particularly those who are in their first year. Additionally, these findings underscore the need for colleges and universities to take a closer look at their administrative policies regarding declaration of majors. For example, at Penn State University and numerous other universities within the state, a student has until the end of their sophomore year to declare a major. Attrition, extended time to graduation, and correspondingly, higher student loan indebtedness are often the results for many students who remain unfocused or unprepared up to this point. With research that illustrates the relationship between career maturity and postsecondary school retention, colleges and universities can work to address this need of their students, which in combination with other factors, will increase the likelihood that they

will finish college and be better equipped to obtain gainful employment or entry into graduate/professional school upon graduation.

### *Research Questions*

- 1) Is career maturity related to the college grade point average (GPA) of first-year students?
- 2) Is career maturity related to college persistence of first-year college students?

### *Conceptual/Theoretical Framework*

Despite the continuing problem of student attrition and departure in the U.S., much of what we know to help develop successful interventions to curb this problem is due to the foundational work of Vincent Tinto and John Bean and subsequent studies of their student persistence and departure models. Furthermore, Cabrera, Nora, and Castaneda (1993) expanded this knowledge by combining the student persistence and departure models of Tinto and Bean into a more comprehensive model, which identifies additional factors to consider as influences on the persistence process.

Building on their work, the researcher adapted Cabrera et al.'s (1993) model for this study while also incorporating contemporary research about career maturity and persistence by Perry, Cabrera, and Vogt (1999). This adapted model accounts for the role of career maturity in the persistence process as follows:

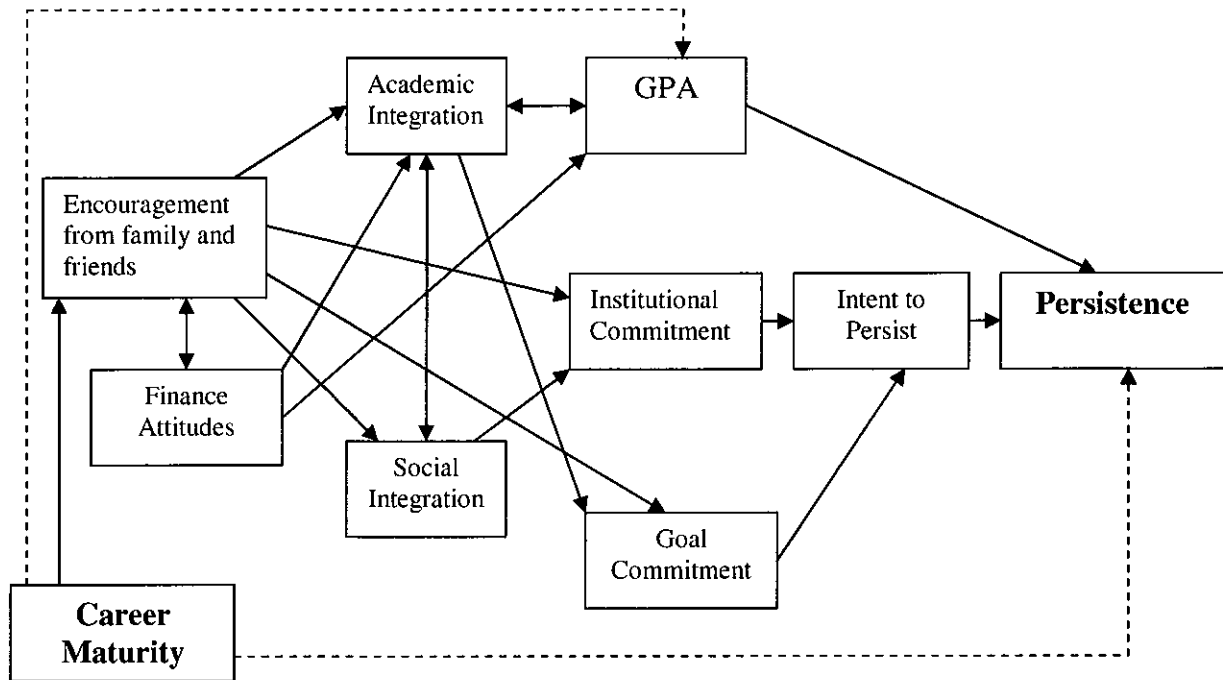


Figure 1. Theoretical model of career maturity and persistence

Adapted from "College persistence: Structured equations modeling test of an integrated model of student retention," by A.Cabrera, A. Nora, M. Castaneda, 1993, *Journal of Higher Education*, 64(2), p.134.; Additional source: Perry et. al (1999)

Of the variables identified, this study will examine the relationship between career maturity and persistence as well as career maturity and GPA. GPA will be examined because the literature review reveals that career maturity is most directly associated with this variable.

Helping students develop career maturity prior to postsecondary education or early in the college process, should they choose college, will likely aid in their success: graduation and commensurate employment. "If they [students] had a goal or a career direction or both, more would stay. In fact, those who have a direction are more likely both to graduate and to find commensurate employment" (Gray, 2000, p.125). The adapted conceptual model proposed in this study seeks to explain this relationship.

### *Limitations*

Although careful steps were taken regarding the methodology of the study, limitations exist, which are discussed here.

#### *Size of sample*

While The Pennsylvania State University is a multi-campus university, this study will focus on incoming freshman (N=225) at a branch campus within the system, which may limit the generalizability of the results. Additionally, student participation in the study is voluntary, which may further reduce the sample size.

#### *Self-report data*

Students will be asked to take the Career Maturity Inventory (CMI). As students voluntarily participate in the study, it is assumed that students will answer the inventory to the best of their ability and truthfully. However, it is a limitation if some students do not take the assessment seriously.

#### *Voluntary participation in study*

Students who volunteer to participate in the study may be more likely to be career mature, career aware, and/or interested in their career development, which could skew the composition of the sample.

### *Control for variables*

As there will not be an experimental control group, this may limit conclusions that can be drawn from correlations between variables despite logistic and multiple regression data analysis methods used.

### *Definition of Terms*

#### College student attrition

Students' departure from college before obtaining a degree.

#### College student persistence

Students who are enrolled in a program of postsecondary education and remain continuously enrolled until graduation.

#### Career exploration

The act of engaging in activities that increase awareness of occupations and careers, the labor market, and individual career interests and abilities.

#### Career maturity

The ability to make tentative decisions about careers based on knowledge about careers, an understanding of the importance of planning, and self-appraisal of abilities (Gray, 2000).



### College

The U.S. National Center for Education Statistics (NCES) offers the following definition for college, which is adopted for this study: "A postsecondary school which offers general or liberal arts education, usually leading to an associate, bachelor's, master's, doctor's, or first-professional degree. Junior colleges and community colleges are included in this category" (Digest, 2002, p.542).

### College student retention

The continuous enrollment of students in a program of postsecondary education until their graduation.

### Effective career decision making

The process whereby decisions about careers are based on self-assessment of interests and skills as well as knowledge of occupations and careers.

### Enrollment

"The total number of students registered in a given school unit at a given time, generally in the fall of a year" (Digest, 2002, p.544)

### Postsecondary education

The provision of formal instructional programs with a curriculum designed primarily for students who have completed the requirements for a high school diploma or equivalent. This includes programs of an academic, vocational, and continuing

professional education purpose, and excludes avocational and adult basic education programs” (Digest, 2002, p. 551)

#### Postsecondary student retention

The continuous enrollment of students in a program of postsecondary education until graduation.

## Chapter Two: Literature Review

## Introduction

Interest in college student persistence has been steady, particularly as persistence rates are just above 50% (National Center for Education Statistics, 2004). While the percentage increases when students who transfer to another institution are factored in, the instance of student departure is still a problem. Many factors have been studied from academic preparedness, employment, financial aid to family background. Despite extensive research, one fact we know for sure about student persistence and departure is that there is no single reason why college students stay in college or leave.

This chapter will examine the literature regarding college persistence, specifically in relation to career maturity and is organized as follows:

1. Historical context of college student persistence
2. Career maturity and college student persistence
3. Career exploration experiences/interventions that promote career maturity

## Body

### *Historical Context*

More students today have access to postsecondary education than ever before. However, fewer are finishing. This departure has many implications not only for students as outlined in chapter one, but also for institutions. "It takes four students who leave prior to their sophomore year to produce as much tuition revenue as one student who stays for four years" (Leppel, 2002, p.433). This issue has become more important today than in previous years as the demographics of students in the educational pipeline have changed and are changing due to shifts in the U.S. population (Leppel, 2002). Furthermore, Leppel (2002) explains that institutions are expanding recruitment efforts to include adults to make up for this loss of students, which underscores the need for interventions that improve college student persistence as adults are more prone to depart due to various environmental influences.

So what can be done to get more students to stay? The research tells us that no single approach is the best way for every student. However, an understanding of the variables which relate to persistence provide insight into what interventions or combination of interventions can be used to influence these variables positively.

Two predominant theorists who have shaped the way college persistence and student attrition are viewed and studied are Vincent Tinto and John Bean. Both developed models about the factors that influence a student's decision to stay in school. Tinto's model focused on the influences that cause a student to stay, while Bean focused on the influences that cause a student to leave school. Many researchers and practitioners have used these theoretical models/frameworks for numerous studies of the issue of college

student persistence. Alberto Cabrera, known for his contributions to the field since the early 1990s, has developed an extensive body of work that has continued to shape what is known about this issue. In particular, Cabrera et al. (1993) developed a model that combined the Tinto and Bean models “to document the extent to which these two theories can be merged in explaining students’ persistence decisions” (p.124). This model is especially comprehensive because it tests the “...non-overlapping propositions underlying both conceptual frameworks” (Cabrera et al., 1993, p.124). As mentioned in chapter one, this combined model serves as the conceptual framework for the study.

While there are numerous factors that have been explored in relation to college student persistence, predominant factors that are known to be associated with student persistence can be categorized as individual, institutional, or environmental. Individual characteristics include such factors as academic preparedness, intent to persist, family background and educational level. Institutional characteristics include such factors such as faculty contact, financial aid, social support network, and college support services, while environmental characteristics include factors as socio-economic level, employment, encouragement from family and friends, part- or full-time attendance, and others. These factors do not develop in a vacuum. Instead, there is interplay among them, which make isolating predictors of persistence more complex.

A student’s intent to persist in college, college GPA, as well as his/her commitment to an institution are the primary variables identified as being most directly related to persistence (Cabrera et al., 1993; Perry, Cabrera, & Vogt, 1999). In particular, intent to persist, meaning a student’s plan to finish at the same school he/she begins and/or his or her plans to finish their degree overall, was found to have the strongest correlation with persistence.

Although many individual, institutional, and environmental variables have been studied as potential influences on persistence, career maturity has received very little interest, but may have an important role in college student persistence.

#### *Career maturity and college student persistence*

Little research exists about the relationship between career maturity and college student persistence. Instead, previous studies have identified goal commitment as a logical substitute for career maturity or have lumped career maturity as a sub-set of commitment. Tinto (1993) explains that “high commitment to the goal of college completion may lead a person to “stick it out” until degree completion or to transfer to another institution” (p.130). Tinto also proposes that commitments may deepen when educational goals are linked with occupational goals. Gray (2000) builds upon Tinto’s work suggesting that college success or persistence is due to “...having a goal or... commitment that comes from career maturity and direction” (p. 5). Additionally, the fact that “the vast majority of students who leave college prior to degree completion withdraw voluntarily,” points to commitment as a cause (Leppel, 2002, p. 434).

However, whether commitment is developed from career maturity or other factors is debatable. In another research study involving Alberto Cabrera, Perry et al. (1999) points out that the two cannot be lumped together synonymously. In their research study, while goal commitment and career maturity were correlated, they are two separate constructs, and therefore cannot be used interchangeably. In summary, career maturity although related to goal commitment is a distinct and different construct from goal commitment and warrants further study in relation to college student persistence.

Perry et al's (1999) insights into the issue of career maturity and college student persistence have filled a void in the literature regarding this topic. Consequently, their research provides the foundation for this study. Their path study analysis found that career maturity was not directly related to college persistence, but instead was directly related to all three of the strongest predictors of persistence. These predictive variables were "...college outcome measures (including GPA), intent to persist, and institutional commitment" (Perry et al., 1999, p.53), which also confirms the findings of Cabrera et al. (1993) described earlier. Of these, career maturity had the strongest correlation with GPA and institutional commitment (Perry et al.). It is important to point out that while career maturity was not highly correlated with intent to persist, the strongest of the predictors, it was one of four variables that accounted for a significant portion of the variance in intent to persist among numerous other variables tested.

The finding that career maturity was directly related to GPA and institutional commitment is particularly important, other than intent to persist, these two variables were most directly related to persistence. Also, in addition to institutional commitment, many of the other variables correlated with career maturity, such as encouragement from family and friends and goal commitment, were most directly related to intent to persist, the strongest proponent of persistence (Perry et al., 1999, Cabrera et. al, 1993). Career maturity is a significant intervening variable with respect to other independent variables that are strong predictors of persistence, which suggests its role in the persistence process is important and worthy of further study.

There are other instances within higher education, which link career maturity as a potential cause. A study by Leppel (2001) found that indecision regarding a college major is related to college student attrition. Specifically, "...students with undecided majors have



both low academic performance and low persistence rates” (Leppel, 2001, p. 340).

Consequently, as career maturity is most directly related to GPA, a predictor of persistence, college major undecidedness points in the direction of career maturity.

#### *Career exploration experiences/interventions that promote career maturity*

Given the role career maturity plays within the college persistence process, the implications of the findings would be moot unless career maturity could be affected, advanced or developed. As a result, identifying career exploration experiences and interventions that promote career maturity was not only logical, but also necessary to discuss.

Interventions associated with developing career maturity, the ability to make tentative decisions about careers based on knowledge about careers, and cultivating an understanding of the importance of planning, and self-appraisal of abilities (Gray, 2000) includes:

1. Career courses and group counseling
2. Career assessment/interest inventories
3. Work and work-related experiences

#### *Career courses and group counseling*

Career courses and group counseling are interventions that have been effective in promoting career maturity in students (Pickering & Vacc, 1984; Glaize & Myrick, 1984).

First, career courses are offered in a group and sometimes involve group counseling, which “...can facilitate isolated measures of career development” due to feedback exchanges (Glaize & Myrick, p.170). Information typically provided within a career course includes

such topics as the labor market, careers, career theories, guidance about self-interests, and finding employment. Many vary in "...design, scope, and function" (Folsom & Reardon, 2000). Despite this variation, Folsom et al.'s (2000) comprehensive review of 36 studies of career courses involving 16,320 students found that all but 4 had positive outcomes, which included substantial increases in career maturity and modest increases in college retention. Specifically, when a career course is used as a career exploration intervention to help first-year undecided students choose a major and achieve other career development objectives, overall college retention increased by 7.7%. The gains were 14.1% for students who began the course as undecided, and 22.1% for African American students (Folsom et al.). Considering this, along with research by Davis and Horne (1986) that suggests indecision regarding a major is related to low career maturity, career courses can help contribute to college retention.

While colleges may not require that first-year students take a career course, many require incoming students to take a first-year seminar/experience course for academic credit, which often will include an orientation to careers. Such is the case at Penn State University where the study will be conducted. Interestingly, the first-year seminar at the campus was integrated within specific academic courses from English to Engineering, as designated by Academic Affairs. Within this model, the academic subject together with the first-year seminar is offered as a four-credit course. While the course was geared to orient students to the campus and their career interests, specific objectives related to careers were not listed as one of the course objectives. The question then begs about the design of career courses and first-year seminars in achieving specific career oriented objectives, whether career maturity is a common outcome of these courses, and if the courses play a

role in college student persistence. Similar courses would also benefit students at the high school level.

Small group counseling is a career exploration intervention that has also resulted in increases in career maturity. Specifically, in a study by Glaize and Myrick (1984), the Vocational Exploration Group (VEG)- a structured approach- was found to increase career maturity of high school students. The VEG is effective from “combining group dynamics and world-of-work theories,” assisting “...participants in learning about job functions, demands, and satisfaction through varied group activities” (Glaize & Myrick, p. 170).

#### *Career assessment/interest inventories*

Career interest inventories have existed for over fifty years and have been useful in helping individuals clarify their interests and learn how these interests match with various careers. Additionally, the act of actually taking a career assessment exposes individuals to a variety of careers and has been shown to increase career maturity (Healy, Mourtou, Anderson, & Robinson, 1984). Career inventories usually assess values, interests, personality, aptitudes and skills, career problems, and/or a combination of these. Brown (2003) provides a list of various career assessment inventories including:

**Values:** Minnesota Importance Questionnaire (MIQ), Values Scale (VS), Salience Inventory (SI), and Life Values Inventory (LVI)

**Interest:** Career Occupational Preference System (COPS), Self-Directed Search (SDS), Career Decision-Making System (CDM), Strong Interest Inventory (SI), and Campbell Interest and Skill Survey (CISS)

**Personality:** Myers-Brigs Type Indicator (MBTI) and Sixteen P.F. Personal Career Development Profile (16PFQ)

**Aptitude:** Differential Aptitude (DAT), Armed Services Vocational Aptitude Battery (ASVAB), and O\*NET Profiler

**Diagnostic Inventories:** Career Decision Scale (CDS), My Vocational Situation, Career Maturity Inventory, and Career Development Inventory (CDI)

**Multipurpose Tests and Inventories:** Occupational Aptitude Survey and Interest Schedule (OASIS), McCarron-Dial System (MDS), Valpar 17-Pre-Vocational Readiness Battery (PVRB), and Work Keys.

Career assessments can be used in concert with other career interventions such as individual and group counseling, a career or career exploration/orientation course, as well as within computer assisted career guidance systems (CACGS) in which career assessments are components of these systems. CACGS is a self-guided tool for career exploration whose wide-spread use has increased in recent years, particularly due to advances in technology such as the internet. Popular CACGS are CHOICES (Computerized Heuristic, Occupational Information and Career Exploration System), DISCOVER, and SIGI PLUS (System of Interactive Guidance Information).

Career inventories provide students with invaluable information about themselves and careers that often serve as a foundation to help students begin to explore and develop their careers. Consequently, the use of inventories in high school is critical for students so that they can begin this process prior to graduation when a choice for postsecondary plans must be implemented. The increasing costs of higher education also underscore the need for students to begin career exploration in high school, whereby students are equipped to identify a set of careers of interest within a career cluster and then begin the process of choosing potential corresponding majors. Waiting until college is an expensive way to

explore majors. Additionally, the process of changing majors in college can extend a student's time in school, thus extending the expense and risk factors for dropping out.

It is important to note that while career assessments are important in the career exploration process, which contributes to career maturity, costs can inhibit their use.

### *Work and work-related experiences*

Work and work-related experiences, such as internships and job shadowing have been invaluable in helping students make and test tentative decisions as well as individual abilities. Such was the case for Laney Concilla, a college student who was interested in computer programming. An internship experience allowed her to test her tentative career choice. "Through my internship, I realized I didn't enjoy programming...The internship helped to redirect me in school" (Baron, 2000, p.2). Consequently, Laney was able to make a more informed career decision as she learned more about her identified career interest and the mis-match of this career with her actual interests or skills. It's not likely that she would have gained this knowledge without direct experience. Such experiences not only contribute to career maturity through testing career interests, but it contributes to career maturity by expanding students' knowledge of careers through exposure.

Other benefits of internships are high school retention, higher postsecondary school enrollment, and better academic performance in college. Vishner, Bhandari, & Medrich (2004) found that career exploration experiences, including internships, helped provide students an edge in graduating from high school. In fact, their study further revealed that among all types of career exploration activities, students that participated in internships and mentoring had the lowest high school drop out rate. Further, Knouse, Tanner, and Harris (1999) found that internships have been related to better college performance as evidenced

by higher GPAs. This finding is consistent with Perry et al.'s study (1999) of career maturity and college student persistence whereby career maturity was directly related with GPA, a moderating variable of persistence. This finding underscores the importance of work and work-related experiences in the discussion about career maturity and college student persistence.

Career exploration afforded through work and work-related experiences should happen at the high school level. Early testing of a career interest early on does not restrict a youth to a single career option. Instead, it opens up opportunities for youth by providing them more information to make informed choices (Gray, 2000). Students may decide that college is or is not the appropriate postsecondary choice for them as opposed to pursuing this route with low levels of career maturity. In Leppel's study (2001) regarding the impact of major on college persistence among freshmen, she found that a number of students who leave four-year institutions actually transfer to two-year programs. The National Center for Education Statistics (2003) confirms this finding. Helping students develop career maturity prior to college can help direct students to the path aligned with their interests and equip them for greater success along that path.

Job shadowing is also a valuable way to help develop career maturity in youth. It usually involves spending 1-2 days with a person in a specific occupation where a student can "see for themselves how the skills they are learning in school are applied to a career and ask their mentors specific questions about their jobs" (Lozada, 2001, p.31). However, Lozada (2001) points out that job shadowing is most effective when it is a part of a program or follow-up experiences.

Various youth programs have filled a void in many high school curriculums and career guidance programs by facilitating work and work-related experiences for youth. However,

these programs usually have a limited capacity to only serve targeted sub-sets of the high school population. Systemic change is needed to afford these types of experiences on a full-scale basis to all high school students within a district. The findings of this study may further substantiate the need for this change within school systems to develop career mature students who are better equipped for postsecondary school success or direct entry into the workforce.

In summary, a number of career interventions help develop career maturity, but a combination of these interventions are needed to help students reach their full career and educational potential. Helping students develop career maturity has numerous benefits that contribute to their educational and career success. Specifically, career maturity allows youth to make connections between their school work and real-world applications; it allows youth to explore careers of which they may not have been aware as well as provide exposure to critical workforce shortages; it allows youth to test a career and even prepare for various careers while still in school; particularly for high school students, it enables them to make postsecondary choices based on their career interests/plans; and for those youth who choose college, career maturity is linked with college student persistence (Perry et al., 1999).

### Summary

A review of the literature provides keen insight into the issue of college persistence and the variables related to it. The theoretical framework of Cabrera et al. (1993) is particularly important as it explains the influences on college student persistence by combining the frameworks of two predominant theorists, Tinto and Bean. Sstudents'

intentions to stay continuously enrolled through graduation, their college GPA, and their institutional commitment are the key variables directly related to persistence, with intent to persist having the strongest correlation with college student persistence.

Career maturity plays a major role in the persistence process, although not researched extensively. In colleges and universities, emphasis has been placed on first-year career courses or seminars, which include a career development/planning component. This points at the perceived role career maturity has in orienting students to college to aid them in persisting to the next year once their goals (career, educational, and social) are clarified early on in the process (Perry et al., 1999). On the other hand, is the importance of career maturity in the persistence process reflected in institutional policies? Many schools allow students until the end of their second year to decide on a major. Some are even encouraged to figure out what they want to do within their first two years of college even though research shows that students who have undeclared majors are more at risk to perform poorly and/or depart school (Leppel, 2001).

Perry et al. (1999) provides empirical research on the specific relationship between career maturity and college student persistence, finding that career maturity was most directly related to two of the three strongest predictors of persistence. This study will replicate parts of Perry's study to substantiate and/or further expand their findings regarding the relationship of career maturity and persistence. Additionally, as the causes of persistence are complex, additional research will provide further insight not only into the relationship of career maturity to persistence but also to known predictors of persistence such as GPA, intent to persistence, and institutional commitment. Of these known predictors, this study will examine the relationship between career maturity and academic performance, as evidenced by GPA. Identifying these relationships and experiences expands



the practical applications of the research, not only for higher education, but also for K-12, the educational system, which prepares students for college entry.

## Chapter Three: Methodology

## Introduction

This chapter will review the methodology approach in measuring the relationship between career maturity and college student persistence. Included are the following sections: research questions, participant selection, methodology, instrumentation, data analysis, and operational definitions.

### *Research Questions*

- 1) Is career maturity related to the college grade point average (GPA) of first-year students?
- 2) Is career maturity related to college persistence of first-year college students?

### *Participant Selection*

Participants were selected from a branch campus of the Pennsylvania State University, one of the country's largest land-grant institutions with a multi-campus structure. Enrollment at the campus averages between 750 to 950 students each year with 55% that are male and 45% that are female. Approximately 87% are full-time students and 86% are Pennsylvania residents. The majority or 73% of students are White followed by African Americans (19%) comprising the largest racial minority group. It's interesting to note that African Americans comprise the smallest proportion of minorities at the University Park central campus, but make up the largest number of minorities attending Commonwealth or branch campuses.

As the branch campuses provide the first two years of most Penn State majors, the majority of them provide an opportunity for more students to pursue a Penn State degree who otherwise might be denied admittance to the University Park central campus. However,

as the campuses are also providing the option for students to earn a bachelor's degree for certain majors right at the campus, the branch campuses have enhanced their value to students in providing them with options considering the various backgrounds and preparation students have when they begin their Penn State careers. This suggests that some students are either choosing branch campuses because of the opportunity to gain a Penn State degree close to home, while others receive the support needed to demonstrate their competence to do college level work and readiness to transfer to the University Park campus for their remaining 2-3 years of college. Whether African Americans attend branch campuses of Penn State in higher numbers than other minorities for the above reasons was not examined in this study. Racial demographics of the campus were provided among other characteristics of the Penn State campus where the study was conducted to provide background regarding the student population.

Entering first-year students at the campus who were 18 years of age or older were invited to participate in the study via their mandatory first-year seminar course. For students who were not in attendance during class as well as first-year students who were not enrolled in a freshman seminar course, the researcher coordinated a separate session for these students to take the inventory. All participating students were given an informed consent form approved by the Internal Review Board (IRB) at Penn State. The consent form informed them of the purpose of the study: to assess career maturity and its relationship to first-year college persistence. Students were also informed that the results of the study would be used as a measure to evaluate the effectiveness of the first-year seminar in developing career maturity. The majority of first year students were enrolled in the first-year seminar with approximately thirteen that were not. Unfortunately, only two of thirteen non-seminar students opted to participate in the study. As a result, these participants did not form a

large enough control group to examine the relationship of the first-year seminar to career maturity and persistence. As a part of the consent, students were asked to provide the researcher access to their grades and enrollment status via the Director of Academic Affairs at the campus and were provided assurances that their information would remain confidential although not anonymous.

Students were asked to complete the Career Maturity Inventory (CMI), a 50-item assessment tool. As the CMI was primarily completed as a part of an activity of the first-year seminar, the majority of first-year students participated voluntarily. Of 225 registered first-year students, a total of 169 participated in the study. However, 9 were excluded based on incomplete information provided.

### *Methodology*

The CMI was administered at the beginning of the 2004 fall semester, the end of the fall semester, and the end of the 2005 spring semester (the end of students' first year). The inventory takes approximately 30 minutes and was administered primarily via participants' first-year seminar course. Arrangements were made for first-year students not enrolled in a first-year seminar course. At the end of the year as students were no longer enrolled in a first-year seminar course, the researcher arranged sessions for students to take the last administration of the CMI during common period, a time within the daily course schedule at Penn State when classes were not in session. Despite an incentive of a drawing for two gift cards, only 14 students returned to take the last administration of the CMI in the spring.

The rationale for pre- and post- administrations of the CMI was to capture changes in career maturity during the year, which would likely provide insight into interpretation of the final results. For example, a participant's score on the pre-test administration of the CMI

may be low at the beginning of the year and then increases by the end of the year, as evidenced by his/her post-test score. If that student persists to their second year, this outcome could potentially be attributable to an increase in career maturity. Conversely, if a participant's career maturity decreases from fall to spring semester and the student doesn't persist, the departure could potentially be attributable to a decrease in career maturity.

Participants' CMI results were examined as a moderating variable of both enrollment status/persistence and college GPA. Enrollment status was coded as either 0=no, for not enrolled or 1=yes, for enrolled. Codes were also assigned for gender, ethnicity, and non-enrollment reasons. Finally, the data was analyzed using multivariate analysis, specifically logistic and multiple regression.

### *Instrumentation*

#### *The Career Maturity Inventory (CMI)*

The 1995 revised edition of the Career Maturity Inventory (CMI) was used to assess career maturity of participants. The CMI is appropriate as it has been extensively used to measure career maturity and the effectiveness of career development programs (Rojewski, Wicklein, & Schell, 1995), a purpose of the study. This instrument has been tested in numerous studies where it was found to be reliable and valid. The original 1978 version was revised to include the Competence section and expand its applicability to adult populations among other updates (Crites & Savickas, 1996). A summary of the norms for both the attitude and competence scales are presented in Table 1:

Table 1

*Mean Norms and Standard Deviations for Attitude and Competence Scales of the Career Maturity Inventory-Revised (CMI-R)*

Norms	Attitude Scale	Competence Test	CMI-R
	N	N	N
High School Participants	503	503	503
Mean	17.52	17.40	34.83
SD	2.81	3.01	4.35
Adult Participants (18-23 and 24+)	394	394	394
Mean	17.93	–	–
SD	3.30	–	–

The Career Maturity Inventory (CMI) is comprised of two sections: Attitude Scale and Competence Test. Each section includes 25 questions/statements, which are listed below. For each statement, participants are provided the option to agree or disagree with the statement. Each response is coded as correct or incorrect based on a respondents' attitude about careers and depth of knowledge regarding labor market information and necessary pre-requisite aptitudes for various occupations. Please note that the researcher obtained permission from the vendor to reproduce the CMI for the purposes of this study, which is included in the Appendix. CMIs completed by the participants were hand scored as machine scoring was not available.

### *Data Analysis*

The dependent and independent variables varied as well as the data analysis method according to the research question. For the first research question, 'is career maturity related to the college grade point average (GPA) of first-year college students?', the dependent variable is GPA and the independent variables are the career maturity composite score as well as the individual 'attitude' and 'competence' sections of the inventory. Additional independent variables examined were high school GPA and gender. Note that ethnicity was also examined as an additional independent variable in the initial data runs. However, Caucasian or White participants significantly outnumbered participants from other individual ethnic groups, which limited the usefulness of the inclusion of ethnicity as an independent variable. Multiple regression was used as the data analysis method. Initial data screening was also performed, which included descriptive statistical measures of variability such as mean differences.

For the second question, 'is career maturity related to college persistence of first-year college students?', the dependent variable is college persistence/enrollment status and the independent variables are the career maturity composite score as well as the individual 'attitude' and 'competence' sections of the inventory. Logistic regression was used as the data analysis method. As was performed for the first research question, initial data screening was also completed, which included descriptive statistical measures of variability such as mean differences.

### *Operational Definitions*

#### Career maturity

Career maturity will be operationalized as the score a student receives on the CMI.



College student persistence

College Student Persistence will be operationalized as a student's continued enrollment in postsecondary education for each semester of school. As this study will examine retention of students from their first year to the second year, particular focus will be placed on re-enrollment in college (fall 2005) a year after they begin their freshman year (fall 2004).

## **Chapter Four: Data Analysis and Results**

All entering first-year students at a branch campus of Penn State University were recruited for participation in the study. Of the 225 first-year students enrolled at the beginning of the Fall 2004 semester, 169 or 75% of these students participated in the study. Nearly all of participating students were enrolled in a freshman seminar course, which not only helped boost the participation rate, but also facilitated in the ease of administering the Career Maturity Inventory (CMI). Among the small number of first-year students not enrolled (13) in the seminar course, only two of these students participated. Overall, a very high percentage of first-year students at the university campus participated in the study, thus providing a representative sample of the target population, first-year college students. Nine students were eliminated from the study due to incomplete data provided or other reasons such as one student who was not a first-year student but was enrolled in the first-year seminar course to fulfill a degree requirement for his program of study in order to graduate. With these participants eliminated from the study, the revised participation rate is 71%.

The majority of the sample was 63% male and 74% Caucasian or White (See Table 2). The highest percentage of non-White participants were African Americans (14%) followed by Asians (7%). Because of the disproportionate number of Caucasians in comparison to any other single ethnicity group, the non-Whites were grouped together to form a large enough comparison sample for the data analysis.

Table 2

Participation by Gender and Ethnicity

<u>Participant Characteristics</u>	<u>First-Year Participation</u>	
	<u>N</u>	<u>%</u>
Enrollees	160	—
Gender		
Male	101	63%
Female	59	37%
Ethnicity		
African American/Black	23	14%
Asian	11	7%
Caucasian/White	118	74%
Latino/Hispanic	1	1%
Unknown	7	4%

Table 3 shows the overall enrollment history of students participating in the study. From the beginning of the fall 2004 semester when students entered the university as first-year students to the beginning of the fall 2005 semester, a year later, 25% of students left school. This attrition rate drops to 21% after accounting for students who withdrew to transfer to another campus within the Penn State system or another college/university.

Table 3

*Enrollment History of First-Year Students*

Participants	Semester Enrollment							
	Beginning Fall 2004		End Fall 2004		End Spring 2005		Beginning Fall 2005	
	N	%	N	%	N	%	N	%
Enrollees	160	—	155	97%	137	86%	120	75%
Withdrawals	0	0%	5	3%	23	17%	40	25%
Dropped Out	0	0%	5	3%	23	17%	33	21%
Transferred Within Penn State	0	0%	0	0%	0	0%	5	3%
Transferred to Another School	0	0%	0	0%	0	0%	2	1%

By the end of the first semester, 5 students dropped out, of which 60% were male and 40% female (See Table 4). This distribution of males and females closely matches the gender composition of the entire sample. When examining the percentage of dropouts for the fall 2004 semester by ethnicity, only two or 40% of the 5 dropouts were African Americans. However, this percentage is more than twice that of African American students participating in the study.

Table 4

*Student Attrition (Drop Outs Only) by Gender and Ethnicity*

Participants	Semester Withdrawals					
	End Fall 2004		End Spring 2005		Beginning Fall 2005	
	N	%	N	%	N	%
Dropouts	5	3%	23	14%	33	21%
Gender						
Male	3	60%	19	83%	18	55%
Female	2	40%	4	17%	15	45%
Ethnicity						
African American/Black	2	40%	5	22%	5	15%
Asian	0	0%	1	4%	1	3%
Caucasian/White	3	60%	17	74%	27	82%
Latino/Hispanic	0	0%	0	0%	1	3%
Unknown	0	0%	0	0%	0	0%

With each measure of student attrition per semester, the percentage of dropouts by gender and ethnicity became more balanced or proportional. Numerically, dropouts were more likely to be male and Caucasian. However, as shown in Table 5, a closer examination of the data reveals that dropout data in comparison to the number of students overall by gender and ethnicity was proportional. For example, while the majority of dropouts were

male, in proportion to the overall number of males, the percentage at the beginning of the fall 2005 semester was less than the dropout rate among females. Similarly, the highest number of dropouts were Caucasian participants. However, their rate of dropping out was nearly identical to the dropout rate of African Americans.

Table 5

*Student Attrition (Drop Outs Only) Among Gender and Ethnic Groups*

Participants	Beg. Fall 2004		End Fall 2004		End Spring 2005		Beg. Fall 2005	
	Enrollees		Dropouts		Dropouts		Dropouts	
	N	%	N	%	N	%	N	%
	160	100%	5	3%	23	14%	33	21%
Gender:								
Male	101	63%	3	3%	19	19%	18	18%
Female	59	37%	2	3%	4	7%	15	25%
Ethnicity								
African American/Black	23	14%	2	9%	5	22%	5	22%
Asian	11	7%	0	0%	1	9%	1	9%
Caucasian/White	118	74%	3	3%	17	14%	27	23%
Latino/Hispanic	1	1%	0	0%	0	0%	0	0%
Unknown	7	4%	0	0%	0	0%	0%	0%

Central to the study in examining attrition trends was the academic performance of students during their first year. Table 6 compares mean grade point averages per semester and corresponding career maturity scores. Average college GPA declined from the first

semester, 3.03, to the second semester, 2.73. An increase in standard deviation illustrates the variability of GPAs among students.

It is also important to highlight that career maturity scores remained constant from the first to the second semester. As indicated in chapter 3, there was no control group of students not taking the first-year seminar course because this group was very small in number and of these 13 students, only two opted to participate in the study. However, as the career maturity scores remained constant from the beginning of the fall semester to the end, this suggests that the first-year seminar course did not have an impact on developing students' career maturity.

As a result of constant CMI scores, the initial career maturity score and career maturity component scores for each participant from the fall 2004 semester were used in the logistic model equations developed for each data run per semester (beginning fall 2004, end of fall 2004, and end of spring 2005), which assessed the relationship of the two dependent variables, persistence and GPA, with the selected independent variables.



Table 6

*Mean GPA and Career Maturity Scores of First Year Participants per Semester*

	Semester	N	Mean	SD
Fall 2004	GPA	155	3.034	.721
	High School GPA	155	3.051	.579
	Attitude 1	155	18.084	2.776
	Competence 2	155	18.265	2.520
	Composite Score 1	155	36.348	3.955
Spring 2005	GPA	137	2.731	.899
	High School GPA	137	3.099	.580
	Attitude 2	137	18.073	2.820
	Competence 2	137	18.350	2.568
	Composite Score 2	137	36.423	4.023

Having examined important characteristics of the sample, further data analysis, specifically logistic and multiple regression, were performed to uncover answers to the two research study questions as follows:

- 1) Is career maturity related to the college grade point average (GPA) of first-year students?
- 2) Is career maturity related to college persistence of first-year college students?

For the first question, the relationship between career maturity and grade point average (GPA) was examined. Correlational analysis revealed that career maturity is positively related to GPA, which is consistent with the foundational literature reviewed in chapter two of this study. Two data runs were conducted to examine the relationship between career maturity and GPA: 1) career maturity and first semester college GPA (Fall 2004) and 2) career maturity and end of the year GPA (Spring 2005). The results were interesting. For the first semester, competence was highly correlated to GPA, second only to high school GPA,  $p=.024$ , while the composite CM score was slightly correlated to GPA for the second semester,  $p=.042$ . Competence provides a gauge of student's knowledge of the labor market, pre-requisites necessary for various occupations, and an understanding of the types of competencies necessary for specific occupations. The results suggest that this level of specific knowledge is a more important factor in students' performance the first semester than in the second semester. Whereas, a more general sense or internalization of career maturity grows increasingly more important as students progress throughout the year and thus is an important factor in students doing well the second semester of their first year in college.

Table 7

*Hierarchical Regression Analysis for Variables Predicting Fall 2004 College GPA*

Model	Unstandardized Coefficients B	SE	Standardized Coefficients B	<i>t</i>	<i>p</i>
High School GPA	.569	.093	.455	6.134	.000*
Attitude 1	-4.116E-03	.019	-.016	-.218	.828
Competence 1	4.651E-02	.020	.163	2.278	.024*
Gender	4.149-02	.108	.028	.384	.702

\*-Significant at the .05 alpha level

In the multiple regression model for fall 2004, the equation is statistically significant,  $F(4, 150)=12.385$ ,  $p<.001$ .

Table 8

*Hierarchical Regression Analysis for Variables Predicting Spring 2005 College GPA*

Model	Unstandardized Coefficients B	SE	Standardized Coefficients B	t	p	sr <sup>2</sup>
High School GPA	.592	.126	.382	4.708	.000*	.132
Competence 1	-3.557E-02	.039	-.102	-.909	.365	.0049
Composite Score 1	5.213E-02	.025	.233	2.049	.042*	.025
Gender	4.535E-02	.144	.025	.314	.754	.001

\*-Significant at the .05 alpha level

In the multiple regression model for spring 2005, the equation is statistically significant,  $F(4, 132)=8.796$ ,  $p<.001$ .

Lastly, logistic regression analysis was performed for the second question to determine the relationship between career maturity and persistence. This relationship was examined in two ways: first as a composite career maturity score but also separately with the two individual attitude and competence components of the composite score. The relationship of career maturity and persistence was measured for each semester a participant was enrolled during the first year, beginning with the end of the first semester (fall 2004) until the beginning of the second year (fall 2005). Career maturity was directly related to persistence (see Table 9). Interestingly, both the composite score was related to persistence,  $p=.007$  as well as competence, an aspect of career maturity,  $p=.043$ .

Table 9

*Logistic Regression for College Persistence of First-Year Students Predicted by Career**Maturity for Each Semester Enrolled*

Semester Enrolled Career Maturity Score		$\beta$	SE	df	p	Exp(B)
Fall 2004	Attitude 1	.092	.158	1	.562	1.096
	Competence 1	-.102	.185	1	.580	.903
	Composite Score 1	-.007	.098	1	.946	.993
Spring 2005	Attitude 1	.002	.084	1	.985	1.002
	Competence 1	.118	.091	1	.195	1.126
	Composite Score 1	.083	.043	1	.056	1.086
Fall 2005	Attitude 1	.101	.072	1	.164	1.106
	Competence 1	.165	.082	1	.043*	1.180
	Composite Score 1	.133	.050	1	.007*	1.142

\*-Significant at the .05 alpha level

The results of this research study directly link career maturity with persistence as well as GPA, a primary predictor of persistence. The primary study findings support previous research regarding the relationship of career maturity with GPA, a well-documented direct predictor of college persistence. While GPA is a strong predictor of persistence, limited studies have linked career maturity as a direct predictor of GPA and none have discussed

particular aspects of career maturity in relation to GPA or persistence. Even more importantly, the research findings not only provide additional information not yet discussed in the literature, they suggest a different interpretation regarding the direct role of career maturity in the persistence debate. Prior studies, although limited, have not shown a direct link between career maturity and persistence as was found in the current study. Both competence, an aspect or construct of career maturity, and career maturity overall were directly correlated to persistence. These new findings are significant and highlight the role career maturity plays in students' academic performance during college and subsequent completion of a postsecondary degree. Additionally, the findings provide insight about particular aspects of career maturity, specifically competence, and varying types of intervention activities that can be implemented to develop competence and career maturity overall to increase the likelihood of college student persistence.

## Chapter Five: Discussion

### **Extent to which the results are consistent with results of the review of literature**

The results of this study are consistent with previous studies as outlined within the review of literature and provide new information not yet discussed regarding the role of career maturity in helping college students persist. Using the theoretical framework of Cabrera et al. (1993) and Perry et al. (1999), the study examined the relationship between career maturity and college GPA, a direct predictor of persistence as well as the direct relationship between career maturity and persistence. The findings of this study are consistent with the work of these researchers regarding the direct link of career maturity to college GPA. However, the study provides new information and diverges from the foundational research findings of Perry et al., as career maturity was found to be directly related to first-year persistence of college students. With very limited research on the role of career maturity in the college persistence debate, this finding is significant. It validates the connection between career maturity and college persistence, thus suggesting an emphasis on intervention measures that can be taken to help young people begin developing career maturity long before they enter postsecondary education. Additionally, as stated in the results section, the study uncovered new information about specific aspects of career maturity in relation to college persistence.

As revealed in the results, the study showed an attrition rate of 21%, which is also consistent with other findings. It is important to note that this finding is particularly significant as the study controlled for students that transferred to another school, which provides a more accurate view of first-year persistence, a factor that has been difficult to account for in other studies. In the end, this finding points to the importance of student



preparation prior to college and within the first year, as the risk of students dropping out is highest during their freshman year.

### **Interpretation and explanations**

The results suggest that competence, a construct of career maturity, i.e. specific knowledge about careers, occupations, and the necessary prerequisites to prepare for them is more important to students' initial college success when they begin their college career as freshman than at the end of their first year. As general career maturity overall was significant and more closely tied to students' GPA in the second semester of students' first year, these findings suggest that technical competence becomes less important as students progress through the year, while an internalization of career maturity increases in importance. Further, this suggests that students' attitudes and feelings about careers become as important as their specific knowledge about careers.

The direct link of career maturity to persistence highlights career maturity as an influential factor among others in determining whether a student is equipped and likely to persist through the postsecondary educational process to earn a degree.

### **Strengths and limitations of the study**

#### ***Strengths***

There are a number of strengths of this study, some of which have been suggested throughout this dissertation. The first of which is accounting for the reason students depart or drop out of college their first year. Many attrition studies are not able to distinguish between those who leave an institution because they are truly dropping out or merely transferring to another school at the time they leave their original institution. This study

accounted for this limitation of other studies by identifying the students, which not only dropped out but that withdrew to transfer to another school. This strength provides a more accurate view of persistence by accounting for students who leave a particular school but do not leave the educational process.

Additional strengths are as follows: A high percentage of eligible first year students, which were invited to participate in the study did; individual constructs of career maturity, i.e. attitude and competence were examined in addition to a composite career maturity score, which provide focused insight into understanding specific components of career maturity that influence GPA and persistence. Lastly, strong institutional support from the administrative leadership as well as key faculty members was instrumental to gaining access to the students and conveying the importance of the study to them, which improved student participation. This level of institutional support also played an important role in being able to gather follow-up data about students such as enrollment status.

### *Limitations*

While there were strengths of the study, limitations existed. There was a high participation rate. However, there was not a control group and the size of the sample limits the overall generalizability of the results to the broader public. Also, while the results were significant, the effect size was small for the second semester correlation between the career maturity composite score and GPA and the third semester correlation between competence and persistence.

Regarding other limitations, the number of participating minorities among the sample was too small to compare specific ethnic groups as independent variables. For example,

separate data runs to compare results for African Americans and Whites could not be completed as the number of African Americans participating in the study was too small.

Additionally, the Career Maturity Inventory (CMI) is a reliable and valid instrument for assessing career or vocational maturity among youth and adult populations. However, it is not as readily available an instrument to the public since Bridges.com, an international company specializing in career development software, resources, and assessments sold the inventory to a private vendor. This has some impact on the ability of other researchers to replicate the study using the same instrument.

### **Implications**

The fastest growing careers requiring some level of postsecondary education account for 80% of the occupations in the United States, which illustrate the shifting demand for knowledgeable and educated workers (Occupational Outlook Handbook, 2006-07). The highest paying occupations, also require the highest level of education (Pennsylvania Career Guide, 2006-07). Who persists through school equipped to pursue these paths is particularly important, not only for individuals and their families, but also for corporations needing pipelines of creative and agile thinkers skilled in respective industries necessary to maintain a competitive edge in a global economy. As a high skill, high wage strategy provides the best opportunity for U.S. prosperity within a global knowledge economy, the importance of workforce quality is underscored.

The quality of our workforce is one consideration, but this issue is compounded by a projected need for the increasing quantity of qualified workers. In particular, the impending out migration of baby boomers (mass retirements of aging baby boomers), which outnumber current young workers to fill their places three to one, raises the stakes regarding workforce

and the role postsecondary schools play in developing students' potential to smoothly transition to knowledge-based careers.

Clearly, developing the potential of our current and future workforce is critical. Investments that help students persist through the educational process not only help fulfill students' aspirations to achieve the American dream but they help increase the supply of qualified and competent students entering the workforce. Retaining a competitive edge in the global marketplace in large part hinges on this, and the intellectual contributions postsecondary graduates are able to make.

There is also a social justice aspect of the college persistence epidemic. While there was not a difference in persistence rates between Caucasians and African Americans in this study, many research studies document that there is a difference. Unique to this study that may have helped balance various factors (e.g. low socio-economic status (SES), poor academic preparation) that tend to put minorities at a disadvantage are as follows: participants were enrolled at a branch location of Penn State, which provides for a smaller campus environment of approximately 750-950 students per year. Such an environment allows for closer student-faculty relationships and other opportunities that facilitate students' ability to develop individual relationships on campus, which strengthen a student's attachment to the school and the school process. This attachment or as Tinto (1994) describes it, institutional commitment, is one of three of the strongest predictors of persistence, likely playing a role in the persistence process for African American students at the campus.

Also, at the branch location where the study was conducted, there are two federal TRIO programs, geared to help students from low-income, first-generation backgrounds persist and succeed in college. In particular, Student Support Services (SSS) is geared to

provide academic support and limited financial aid to help retain students in college. A program like this is particularly important as African Americans and Hispanics are disproportionately more likely to be enrolled in development courses their first semester, which increases a student's chance for dropping out ("Study Should Help," 1997). As African Americans and Hispanics disproportionately come from lower income families and attend poor urban school districts, they are often poorly prepared to perform well academically in college and consequently are predisposed to dropping out of college. Intentional supports such as SSS can help colleges address the social justice impact of minorities dropping out of college. As a result, youth from minority backgrounds are afforded a greater opportunity to enhance their potential for advancing their social and/or economic status, ultimately resulting in their ability to access mainstream American liberties.

#### *What can and should K-12 educational systems do?*

The results of this study have promising implications for preventative and intervention strategies to help equip students for postsecondary success, namely to complete the degrees they begin. This study informs us that career maturity is an important intervention factor. As was illustrated in the literature review, career exposure experiences and career education principles that are integrated within K-12 academic curriculum as well as the K-12 experience overall are interventions that can play a large role in helping students increase their career maturity. The recent passage of the Pennsylvania Academic Standards for Career Education and Work by the Pennsylvania Departments of Education and Labor serves as curricular guidelines for schools about the types of career-oriented experiences students need to be prepared for life after high school. Studies affirm this,

reporting that student involvement in various exposure experiences such as job shadowing, job tours, career assessments, and internships, do more than merely enrich a student's high school experience. Career exploration enrichment has been proven to help students perform well academically, graduate high school, and go onto postsecondary education at higher rates than students who are not afforded such experiences (Vishner et al., 2004).

Making this shift illustrates the need to look at career exploration differently than we have in the past. The topic of career education can no longer be talked about solely for students in a specific track, namely those in vocational programs or in college-prep. If the hallmark of success for K-12 education is to engage more youth in the educational process and improve their academic proficiency, increase high school graduation rates, and postsecondary-going rates, career exploration and career education for all students can play a pivotal role in achieving this goal. The impact of participation in career exploration programs is even greater for students from minority and low-income backgrounds. For example, Visser et al. (2004) found in their study of participation rates in career exploration programs that an African American student from a low socio-economic background with poor grades in the eighth grade was 20% more likely to graduate from high school by participating in career exploration than a student with a similar profile who did not.

With the increasing challenge of so many of our K-12 educational institutions to help all students possessing wide-ranging abilities to achieve at a high level, career exploration provides a useful tool for helping those who have struggled to catch up and persist through to graduation. The youth that do complete high school, whereby they were afforded career exploration during their school experience, will likely graduate with a heightened sense of career maturity and an improved chance to perform well academically in postsecondary education and persist through to graduation.

Essential to thinking differently about career exploration is how schools access resources beyond their respective districts to meet the wide-ranging needs of its students. Developing community partnerships is a critical pathway to leveraging school resources. There are services and financial resources that can be provided by businesses, community-based organizations, government, foundations, and other interested stakeholders. Schools must think much bigger and broader about their approaches to meeting their goals.

In particular, there are crucial opportunities to leverage community resources to support the school guidance structure. With very high guidance staff to student ratios in schools, many guidance counselors serve students in a fashion similar to that of a hospital emergency room where patients are triaged according to the most critical needs, in particular, students with discipline problems. For those schools, which are fortunate enough to have guidance staff with career development backgrounds, still, attention is often focused on entering high school freshman and class registration schedules, or, on the other end of the spectrum, juniors and seniors who will be applying to college. Career guidance ends up being relegated to providing administrative and peripheral career development help such as completing applications for college entrance exams and college, fee waivers, obtaining transcripts, and other related activities. Consequently, very little time is leftover or prioritized for truly providing activities that guide students' career development. Guidance staff have limited opportunities to develop the kinds of career exploration experiences described earlier in this section, nor the quantity for the vast numbers of students on their caseloads. Such a gap in resources illustrates the perfect opportunity to partner with an outside agency whose mission is aligned to developing complementary career development services.

Further, in addition to curricular enhancements schools must make to integrate career education within their curriculums, they can partner with outside groups to provide career exposure experiences both inside and outside of the school. For example, Junior Achievement, a national non-profit that facilitates job shadowing experiences for thousands of middle and high school students, would be a likely partner. Instead of guidance staff either working directly to coordinate such experiences themselves with local businesses or being too overwhelmed to do so at all, staff could work to develop a partnership with Junior Achievement or organizations like it. Developing such partnerships are a win-win all around. Schools can ensure more career enriching experiences for their youth without spending more in staff resources while a local community organization provides a much-needed service according to their mission.

School districts can reap fuller benefits from community partnerships when they institutionalize a system-wide process for developing them. Otherwise, school districts achieve modest results that depend on the heroic efforts of individual principals, whereby some schools have very strong partnerships and others do not. Of course, it's logical and not unreasonable that some schools will have stronger partnerships with various outside partners than others. However, it's when there's great disparity among schools regarding the quality of such partnerships that proves to be a barrier to ensuring experiences for all students.

#### *What can and should colleges do?*

The reality is that thousands of students step onto college campuses unprepared every year, from being academically behind to having a low sense of career maturity. "...Of those who do receive a [high school] diploma, only half are academically prepared for



postsecondary education” (Greene and Winter’s study (as cited in Alliance for Excellent Education, 2006)). If colleges are to address this preparation mis-match, they must institute interventions to assist more of their students to persist through the process, if not in the interest of their students, then from a selfish standpoint. There are drawbacks to universities admitting entering ill-prepared first year students. The cost of faculty, the use of classroom space, and a host of associated issues of providing remedial courses cost colleges and universities money, and put a strain on their ability to offer resources to remediate its entering students (Alliance for Excellent Education, 2006). Even with the remedial courses colleges provide, they aren’t enough to meet the demand of students who need them, as schools are forced to reduce the level of courses offered due to space and faculty restrictions, as this must be balanced with credit courses.

Nonetheless, the cost of remediation to students and their families as well as to the economy must not get lost in the shuffle. Alliance for Excellent Education (2006) suggests that students who take developmental and remedial courses spend additional time in school, which has tough consequences, as they pay for these classes that typically don’t qualify as college credit, are more at-risk to not finish within eight years, and thus reduce their lifetime earnings due to their delayed or uneventual graduation. The cost to the economy is estimated at \$3.7 billion a year with about a third of this estimate for students requiring remedial reading and two-thirds that account for lost earning potential of students who drop out, as taking a remedial course put students at greater risk to not complete postsecondary educational degrees (Alliance for Excellent Education, 2006). Further, they assert that “...when students enter but do not complete college, not only do they lose future income, but governments take in less tax revenue, and state and national economies are deprived of the additional earnings that would make them stronger and more robust” (¶ 15).

Another consideration that colleges and universities can't ignore is that African American and Hispanic students from low-income backgrounds disproportionately comprise the number of students taking remedial courses. As taking remedial courses is a leading predictor of student attrition, the gap widens between these racial groups and Whites regarding college completion, and ultimately disenfranchises them from participating and contributing to our economy at alarmingly lower rates. As stated earlier, colleges can do more to provide academic support services such as those provided at the branch campus where the study was conducted.

Concurrently, while addressing the academic needs of its incoming students, colleges and postsecondary schools can do more to implement career exploration experiences that help students develop career maturity, and correspondingly help them gain relevance from their coursework, improve their academic performance, and improve the likelihood of their eventual graduation. In particular, more colleges could incorporate such career-oriented experiences within their curricular degree requirements as opposed to making them optional, whereby limited numbers of students get the career development help they need, with those that need it most often getting the least amount of help. As was described in the literature review, there are a range of career exploration experiences that promote career maturity. For example, career courses and first-year seminars often provide the opportunity for students to take career and skills assessments, as well as provide a structured curriculum to help students develop and/or solidify a career plan. However, in order for first-year seminar courses to increase their effectiveness at developing career maturity, these courses must be explicit in listing career development as a clear goal of the course. As was revealed in the methodology section that students' CMI scores were unchanged after completing their first-year seminar course, a simple change such as developing specific

career-focused objectives would likely guide the content taught within a course and increase the likelihood that students gain experiences, which enable them to meet the objectives.

Lastly, internships or field experiences provide the opportunity for students test their interests, explore careers, gain work experience, and make connections with professionals at businesses and organizations that can serve as prospective employers upon graduation. With experiences like these that are afforded to youth, more students would be better positioned to not only declare a major at the end of their first year but to declare one that is more closely aligned with their skills and interests, and potentially with the needs of hiring employers.

### *Reinventing our educational systems to develop the potential of all*

Our nation's schools face serious challenges to preparing students for postsecondary success, as the overwhelming majority of schools are not meeting the academic and career development needs of our students to help them succeed beyond secondary school. The U.S. has one of the lowest graduation rates of an industrialized nation, and as stated earlier of those that graduate, "...only half are academically prepared for postsecondary education" (Greene and Winter's study (as cited in Alliance for Excellent Education, 2006)).

The issue of postsecondary preparation is largely a problem for students in poor urban or rural districts with significantly less resources in terms of the level of preparation afforded to students. For years, we've relied on a Darwinian approach to students persisting through high school, accessing postsecondary education, and ultimately gaining the skills and aptitudes necessary to obtain fulfilling careers. Apart from "survival of the fittest" being a social justice issue as described earlier, the health of our country's economy and overall prosperity is best served when its citizenry is educated, prepared, and empowered to make

career choices that fulfill individual dreams and connect with our economy's workforce challenges. Without such preparation, there are a disproportionate number of individuals, which drop out of the workforce all together, thus becoming a drain on the country's resources, and some of which participate in illicit activity that contributes to higher crime rates. Additionally, poor preparation produces another group of individuals that don't reach their potential, the working poor. While capitalistic principles are essential to our country's success, which inherently posits that a good majority of citizens will be on the bottom, whereby the jobs people fill are determined by their abilities, ranging from high to low. However, this researcher proposes that untapped talent exists within the ranks of the working poor. And, that many of these folks hold low level jobs based on their ability, not their potential. This then begs the question, 'at what point do people reach their maximum potential?' Many of these individuals have potential that could be developed if cultivated earlier and that a part of their station in life is not due to inability, but poor environment, limited access to information and people of influence, as well as missed opportunities and interventions that would improve their lives and bring their talents into the forefront. The benefits of their contributions would not just be felt by these individuals, but also by their families, individual communities, our full economy, and the future of the children and families of every socio-economic group of our region and beyond.

This researcher witnessed untapped potential among low-income adults first hand as an administrator of a federal TRIO program that helps adults, 19 and older, pursue a program of postsecondary education. More often than not, circumstances that led up to these adults' low-wage employment was not due to lack of ability but rather a lack of uncultivated potential due environmental circumstances (i.e. poor school preparation, financial hardships, low parental education, strained family homelife, lack of an advocate,

etc.). Again, there will always be individuals that are smarter than others. Knowledge of the principles of the Bell Curve's distribution of normality removes any doubt about this fact. However, station in life is not always an indication of intellectual capacity.

As mass baby boomer retirements loom across industries and workforce shortages increase in specific industries whereby corporations import workers abroad that they can't find locally, developing the potential of all of our citizenry as best possible to the limits of their capacity makes sense. On its face, this notion may come across as naïve or misinformed. However, it's not. A fundamental principle of workforce development is that individuals possessing appropriate intellectual capacity, when properly educated and trained, are significant contributors to the success of the corporations for which they work. As foundational educational preparation is essential to postsecondary success in college, work, a career, and life in general, no other institution is better poised to institute the level of preparation and interventions necessary to impact the college persistence problem than K-12 education. Long term, such interventions would not only prepare the academically talented for greater postsecondary school success and retention, but it would also provide greater mobility for marginally performing students to move from a path of dead-end employment to one that leads to postsecondary education or to higher quality entry-level employment with career ladder opportunities.

So what resources do schools need to help them do their job better? Many of our nation's school districts, which serve students from poor urban and rural backgrounds must reinvent themselves and re-commit themselves to the ideal that all children can achieve at high levels. Reinvention is key as past methods have accomplished little today to advance the adequate preparation of all students. In the majority of school districts locally and across the country, schools reflect an educational system that was developed first around an

agrarian economy and then later an industrial economy. From a year-round school calendar with summers off to outdated career and technical programs, a number of current school practices are by-products of a system in sync with an economy past.

The urgency of this educational system mis-match with the current economy is that a great number of students today are finishing high school without the skills and preparation needed for entry-level employment and/or postsecondary educational success. The implications of this are significant, not only for the many young people unable to access and/or succeed in meaningful employment and postsecondary education, but also for our communities, which are impacted by the lost potential of these individuals. Twenty, thirty, or even fifty years ago, a high school diploma wasn't needed to obtain a living wage and respectable career. However, today it's hardly enough to even qualify individuals for entry-level employment, which is typically low-skill, low-wage work. With this reality upon us, the stakes are high for our schools' role in either worsening or improving the widening economic gap between the poorly and well educated.

As a member of the Executive Committee of the High School Reform Task Force for Pittsburgh Public Schools, this researcher has had the opportunity to research successful high school reform models throughout the country that are meeting the ideal that all students can achieve at high levels and be appropriately prepared for postsecondary success. Some best practices and strategies that have helped meet this goal were mentioned earlier such as the role of career exploration activities (e.g. job shadowing and internships). Inherent in this approach and the central underlying theme of our benchmarking trips to schools implementing successful high school reform models is personalization. More specifically, the degree to which education can be personalized is a key success factor. From high quality schools within schools or small learning communities

to teachers engaged in the educational process that take an individual interest in their students to remediation for those struggling students to enrichment for the advanced students, personalization makes the difference. Even for large comprehensive high schools, principles of personalization can be implemented to meet the diversity of needs among students. From our research, additional principles were identified as important to student success, including a safe and welcoming culture/school environment, relevance, rigor, and student supports.

### **Recommendations for Future Studies**

There are many promising findings from this study that suggest further exploration and research. While this study was able to replicate findings of the Perry et al. (1999) study regarding the relationship of career maturity with college GPA and college GPA with persistence, very limited research still exists in the field. As a result, a key recommendation of this study is to replicate it with a larger sample. This is particularly essential as the findings of this research study regarding the direct relationship between career maturity and persistence differ from those of the Perry et al. study.

In examining the benefits of expanding the sample size of the study, choosing an inventory instrument that is available in an interactive electronic format would play a big role in accomplishing this goal. An on-line version of the CMI inventory would facilitate the ease of expanding student participation from other schools, which otherwise would be limited by geographic restraints. Participation in the study could be broadened as on-line assessment tools eliminate geographic location as a barrier. However, with broader participation via an on-line assessment, without appropriate measures to verify the identity of students completing the inventory or a maximum time period to take it, the integrity of the results

would be at risk of being compromised and should be factored into the research design approach.

Additionally, expanding the length of the study to five years, the average length of time it takes for most first-year students to graduate, would document whether the initial trends of this study regarding GPA and persistence during the first year hold true throughout a student's college career. A longitudinal study would provide the opportunity to also examine influences on career maturity such as a first-year seminar course and involvement in career exposure experiences and whether these factors influence GPA and persistence. Further, as career maturity has been linked to choice of major and goal commitment, this connection should also be examined more closely in future studies.

Other recommendations include expanding the study to compare both the level of career maturity and persistence rate of students attending college with those attending shorter-term postsecondary programs and institutions. This could shed light on whether students attending one type of postsecondary school have higher levels of career maturity and if this impacts their school performance and ultimate completion of the programs they begin.

As numerous studies have documented differences in postsecondary persistence rates in regards to socio-economic status and ethnicity and race, a more in-depth look at the impact of such additional independent variables would help uncover if any of these variables serve as moderators of career maturity, GPA, or persistence. Additionally, examining student placements in a remedial/developmental course across racial and SES groups is another independent variable that should be explored.

Lastly, as the implications of this study point to preventative measures that should be taken to help equip students long before they attend postsecondary education, a future



study that assesses the career maturity of high school students would prove beneficial on multiple levels. Primarily, a pre- and post- career maturity assessment for high school freshman through to their senior school year would provide particular insight into career exploration interventions within high school that are related to improving career maturity and GPA.

### Summary

The doors to postsecondary education and the career success it consistently affords have expanded like never before in years past. However, unfortunately, this increased access for the masses masks the quiet epidemic that looms behind the scenes. Mass numbers of individuals are entering postsecondary schools, but limited selected groups are leaving. The implications are wide ranging. From unfulfilled dreams of individuals, to limited participation of minorities within the economy as they make up the largest proportion of college dropouts, to lost intellectual and financial contributions to our nation's economy, the postsecondary educational persistence problem is one that warrants notice by many.

Numerous studies have researched potential root causes of postsecondary attrition and persistence. The results are not simple but rather a complex set of factors from parental educational levels, socio-economic status, high school preparedness, institutional commitment, intent to persist, to grade point average. Surprisingly, limited research studies have examined the role of career focus or career maturity within the persistence debate. This research study examined the relationship of career maturity to persistence and GPA, which uncovered findings that provide greater insight into the important role career maturity plays in helping students persist. A particular emphasis on the first year was the focal point

of this study as prior literature have indicated that the highest incidences of attrition occur in the first year of school.

Career maturity was directly related to both GPA and college persistence. These findings are particularly promising as unlike factors that cannot be changed or changed easily such as SES, parental educational level, or high school preparation, career maturity is a factor that can be developed. Secondary and postsecondary educational institutions, as well as non-profit organizations and corporations can band together to ensure that more of our nation's emerging workforce are afforded the critical career exposure experiences they need to develop their career potential, their opportunity for postsecondary success and the resulting potential of our country that will benefit from their cultivated contributions.

## Appendix- Career Maturity Inventory (CMI)

### Section 1: Attitude Scale

1. Everyone seems to tell me something different; as a result I don't know which kind of work to choose.
2. It's probably just as easy to be successful in one occupation as it is in another.
3. I have little or no idea what working will be like.
4. Once you choose a job, you can't choose another one.
5. I keep wondering how I can reconcile the kind of person I am with the kind of person I want to be in my future occupation.
6. Sometimes you have to take a job that is not your first choice.
7. Work is dull and unpleasant.
8. I can't understand how some people can be so set about what they want to do.
9. As far as choosing an occupation is concerned, something will come along sooner or later.
10. Choosing an occupation is something you have to choose on your own.
11. As long as I can remember, I've known what kind of work I want to do.
12. There may not be any openings in the job I want most.
13. I don't know how to go about getting into the kind of work I want to do.
14. There is no point in deciding on a job when the future is so uncertain.
15. I spend a lot of time wishing I could do work I know I could never do.
16. If someone would tell me what occupation to enter, I would feel much better.
17. I know very little about requirements of jobs.
18. When choosing an occupation, you should consider several different ones.

19. There is only one occupation for each person.
20. The best thing to do is to try out several jobs, and then choose the one you like best.
21. You get into an occupation mostly by chance.
22. I seldom think about the job I want to enter.
23. You almost always have to settle for a job that's less than you had hope for.
24. I really can't find any work that has much appeal to me.
25. I'd rather work than play.

## Section 2: Competence Test

1. Floyd likes his job as a tool-and-die maker and spends much of his spare time in his home machine shop. His interests are working with things rather than people.
2. Cheryl operates an IBM Personal Computer on her job and also does typing at home on her Macintosh. Her interests are working with data rather than things.
3. Juan sold real estate before he took a job with a bank as a credit manager, but he wants to get back into sales. His interests are in working with people rather than data.
4. Frank likes to repair cars and worked part-time in a garage while in high school, but dropped out during his junior year due to low grades in math and science. His aptitudes are more in mechanics than engineering.
5. Otis works as a "middle" manager with a large manufacturing company. He could retire at his present level in 10 years, but he has decided to take a more senior position in a smaller firm. He values challenge more than he does security in his job.
6. Occupations that require only a high school diploma, with no further formal training, are: firefighter, bus driver, and office machine operator.

7. Occupations in the technical field, which require, at least, a 4-year college education is: industrial engineer, urban and regional planner, and computer systems analysis.
8. All these occupations in the science career field require the same amount of education; dentist, radiological (x-ray) technician, and podiatrist.
9. All of these occupations are in the same career field and require the same level of education; bank teller, buyer, and computer programmer.
10. All these occupations require, at least, a college education for entry: social worker, stockbroker, and forester.
11. Mary worked as a secretary before her marriage and liked the business world. While her children were growing up, she was president of the P.T.A., and the local United Way Campaign. Now she plans to complete college in business administration and pursue a career in management. This is a good choice for her.
12. Jody likes to work with ideas, and in college her best grades were in anthropology, political science, and philosophy. Possible occupations for her are; journalist, lawyer, and urban planner.
13. Phil recently retired from the Air Force after 20 years as an aircraft and engine mechanic. He plans to operate his own airfield for small planes on property he bought in Maine hunting country. His choice matches his background and experience.
14. Terry has studied art since grade school and has a Master of Fine Arts degree in printmaking. To support himself while in school, he worked as a bartender. He has an opportunity now to become a managing partner in a new restaurant and lounge. He should take the new job because entertainment is in the same field as art, and he could use his previous training in art.

15. During high school, Jim worked summers on building construction jobs, being promoted to foreman his last year before going to college. He liked the work and was successful at it. Basic engineering, with a minor in business, would be a college major consistent with his experience.
16. Anita wants to be a lawyer. She must first pass the bar exams and then go to law school.
17. Hugh has decided to be a printer. He must train as an apprentice first, and then pass his journeyman's printers test.
18. Tom plans to become a forester. He must pass civil service tests with the Forest Service before being admitted to college for a degree in forestry.
19. After 20 years in the Army as an automotive mechanic, Rich wants a civilian job as an X-ray technologist. He must graduate first from a 2-year X-ray technology program.
20. Kate wants to be a long-distance truck driver. She must first complete truck-driving school and then obtain a chauffeur's license.
21. Jody's father is a dentist and wants him to be a dentist also, but he prefers a career in business. He decided to become a lawyer to avoid an argument with his father.
22. Lou has a degree in engineering but prefers working with people. He thinks he can do both by becoming a sales engineer and eventually starting his own technical products company.
23. Juliet started as a medical technologist and now manages a biomedical laboratory in a large hospital. To advance further, she plans to take graduate training in hospital administration.
24. Carol has the ability to go to college and be successful in business, but she wants to work as soon as she graduates from high school. She plans to take some college courses at night and go full-time later on.

25. Angie wants to be a lawyer, but she has failed the Law School Entrance Examination twice. She plans to stay in the field by taking training as a paralegal worker (Crites and Savickas, 1995).

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- 2002 "40 under 40" Award. Presented by Pittsburgh Magazine and Pittsburgh Urban Magnet Project (PUMP) to young professionals working to make a positive difference in the Greater Pittsburgh region
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- 2005 YWCA of Greater Pittsburgh's Professional Development Day. Contracted to present on the following topic: *'Time Management and Organizational Tips'*
- 2005 Penn State Altoona Conference, Teaching and Learning Consortium: Wings to the Future-Using Assessment to Grow Life-Long Learning. Co-presenter with Joseph Marchesani, Ph.D. on the following topic: *Career maturity as an index of college persistence in a first-year seminar program'*
- 2007 Annual Meeting of the Pittsburgh Human Resources Association. Panelist on the following topic: *Youth workforce development trends*
- 2007 Pennsylvania Partners Youth Services Academy. Panelist on the following topic: *Southwestern Pennsylvania partnerships for career education success*