1. Proposal Cover Page

2006 AIR/NPEC RESEARCH GRANT/DISSERTATION PROPOSAL

Matching Institutional Characteristics and Student Entry Characteristics for Student Success in Four-Year Colleges and Universities

Data sets of interest:
Beginning Postsecondary Students Longitudinal Study (BPS:96/01)
Integrated Postsecondary Education Data System (IPEDS)

Grant Amount Requested: $15,000

Doctoral Candidate
Kristina M. (Goodwin) Cragg
Department of Educational Leadership and Policy Studies
Florida State University
113 Stone Building
Tallahassee, FL 32306-4452
Phone: (850) 644-6777 Fax: (850) 644-1258
E-mail: KMG9765@fsu.edu

Faculty Dissertation Director
Douglas N. Harris, Ph.D.
Assistant Professor
Department of Educational Leadership and Policy Studies
Florida State University
113 Stone Building
Tallahassee, FL 32306-4452
Phone: (850) 644-8166 Fax: (850) 644-1258
Email: harris@coe.fsu.edu

Authorized Institutional Representative
Kirby W. Kemper, Ph.D.
Vice President for Research
Florida State University
97 S. Woodward Avenue
Tallahassee, FL 32306
Phone: (850) 644-5260 Fax: (850) 644-1464
Email: jjames@mailer.fsu.edu

_____
Kristina M. (Goodwin) Cragg
Principal Investigator

_____
Douglas N. Harris, Ph.D.
Faculty Dissertation Director

_____
Kirby W. Kemper, Ph.D.
Authorized Institutional Representative

2. Project Summary

Students invest resources and time to find the college or university that meets their needs and expectations. Likewise, institutions carefully plan how best to spend their funds and time to recruit an incoming class that matches the college or university's admissions requirements and will graduate from the institution. Despite students' extensive planning for college and institutions' detailed admissions selection process, millions of students do not complete a degree at their first institution of attendance (Tinto, 1993). While some students leave college, never completing, others do obtain a degree at another institution that better meets their needs. Graduation rates could increase and energy, money, and time saved if students and institutions are matched for success.

The purpose of this study is to identify variables that will increase the probability for graduation through matching of student characteristics and institutional characteristics. This study will contribute to an understanding of appropriate theoretical and statistical models to investigate student characteristics' and institutional characteristics' impact on graduation. Examining the probability for graduation, this study will test the validity of the Matching Model by employing a multivariate analysis with selected variables from two datasets: the Beginning Postsecondary Students Longitudinal Study (BPS:96/01), and the Integrated Postsecondary Education Data System (IPEDS). The model includes student entry characteristics & institutional peer group characteristics, student experience characteristics, risk index, and structural-demographic characteristics to assess the probability for graduation.

Using logistic regression, the researcher will evaluate the model by including an assessment of the overall model evaluation, statistical tests of individual regression coefficients, goodness-of-fit tests, and validation of predicted probabilities. Policymakers and college and university administrators will be able to use the findings to engage in meaningful discussions about graduation rates and make changes to state and institutional policies. Additionally, institutional researchers and others studying graduation rates will find the research results of interest.

1. Table of Contents

4. Project Description

a. Statement of Problem and Variables

Statement of Problem

College degree recipients have historically out-earned their non-degree counterparts. While national and state policies have promoted greater access to higher education over the last forty years, access does not guarantee that a student will persist and actually graduate (Heller, 2002). Despite all of the research that exists on higher education and graduation rates, there is substantial variation among different types of students and institutions that research has yet to explain. Of the research that does explore graduation rates, none has considered the role that matching or congruency of student characteristics and institutional characteristics plays on the probability of graduating

Research on graduation has utilized well-known retention theories such as the Interactionalist theory by Tinto (1987, 1993), and the Student Attrition Model by Bean (1980; 1983; 1989; 1990), which places emphasis on the student as the unit of analysis. Recent work by Berger & Milem (2000) acknowledges the importance of both student and institutional characteristics, and prominently places institutional characteristics in their model. Institutional characteristics are important because the characteristics impact the students who attend the institution, which influences institutional peer characteristics (Berger & Milem, 2000), and ultimately an individual student's probability of graduating. While these theories recognize that graduation is a multi-dimensional issue requiring the inclusion of both student characteristics and institutional characteristics, the relationship between student and institutional characteristics is rarely studied.

Purpose of the Study

The purpose of this study is to identify variables that will increase the probability for graduating through matching of student characteristics and institutional characteristics. This study will contribute to an understanding of appropriate theoretical and statistical models to investigate student characteristics' and institutional characteristics' impact on graduation. Examining the probability for graduation, this study will test the validity of the Matching Model by employing a multivariate analysis with selected variables from two datasets: the Beginning Postsecondary Students Longitudinal Study (BPS:96/01), and the Integrated Postsecondary Education Data System (IPEDS).

Variables

Utilizing BPS:96/01 and IPEDS data, the dependent variable in the study is the student's probability for graduation after six years of being enrolled at the same institution. While there are many independent variables that can affect graduation, researchers have identified variables that have more of an impact than others, which helps explain why some students graduate and others do not. The independent variables fall into four categories: 1) student entry characteristics & institutional peer group characteristics, 2) risk index, 3) student experience characteristics, and 4) structural-demographic characteristics. Variables within each category including variable name, source of the variable (BPS or IPEDS), and a brief description of the variable are included below in table 1. In addition to the variables noted in the table, appropriate sampling weights from BPS:96/01 will be utilized to adjust for bias due to oversampling.

Table 1
Dependent and Independent Variables Included in the Study

Variables	Data Source	Description
Dependent Variable		
Graduation	BPS	Graduated with a bachelor's degree within six years after enrolling in the same four-year institution (1=yes, 0 =No)
Independent Variables		
Student Entry Characteristics & Institutional Peer Group Characteristics		
Academic Quality - Student	BPS	Comprised of composite SAT score (ACT scores will be converted to SAT scale)
Gender - Student	BPS	Male =1, Female =0
Race/Ethnicity - Student	BPS	White (not Hispanic), African American, Asian, Hispanic
Total Aid - Student	BPS	The total amount of aid the student received (including federal, state, institution, and other)
Academic Quality - Institution	IPEDS	Average academic ability of full-time freshmen attending the same institution (comprised of composite SAT score (ACT scores will be converted to SAT scale)
Gender - Institution	IPEDS	Percent of student population who are male attending the same institution
Race/Ethnicity - Institution	IPEDS	Percent of the student population that is minority
Student Budget for Attendance - Institution	BPS	Indicates total student budget (attendance adjusted) at the institution of attendance.
Risk Index		
Risk Index	BPS	Index of risk. Represents an index of risk from 0-7 related to 7 characteristics known to adversely affect persistence and attainment. Characteristics include: delayed enrollment, no high school diploma (including GED recipients), part-time enrollment, financial independence, having dependents other than spouse, single parent status, and working full-time while enrolled (35 hours or more).
Student Experience Characteristics		
Faculty Contact	BPS	Contact with faculty (never, sometimes, often)
Participate in club or sport	BPS	Frequency of participating in fine arts, club, intramural sport, or varsity sport (never, sometimes, or often)
Hours worked while enrolled	BPS	Average hours per week the student worked while enrolled
Structural-Demographic Characteristics		
Institutional Control	BPS	Public or private
Size	IPEDS	Total unduplicated student headcount (undergraduate, graduate, and professional)
Carnegie Type	BPS	Institution's Carnegie Classification

b. Proposal of Work

Literature Review

This study will examine the probability for graduation given a student's entry characteristics and the institution's characteristics at four-year colleges and universities throughout the U.S. The theoretical construct of this research is based upon the Matching Model that will be used to examine the fit of students and institutions in the pursuit of earning and awarding bachelor's degrees. This section begins with a literature review of the Matching Model, and student and institutional characteristics that contribute toward an increased probability of graduating before concluding with a section on the relevance of recent research.

Matching Model

The Matching Model serves as a tool for understanding why some interactions between persons and organizations are successful and others are not. Historically, researchers studying business or economic issues have used the Matching Model. Prominent authors and their works include Mortensen (1982a; 1982b), Jovanovic (1984), and Pissarides (1984). Researchers examining employment in high turnover fields such as teaching or nursing have used the Matching Model, as the model helps explain why some employees remain at one organization longer than others. Essentially, the core idea behind the Matching Model is that the person's characteristics must align with the organization's characteristics in order for a match to occur and a mutually beneficial relationship to take place.

Also referred to in the literature as 'congruence', the Matching Model, is not new (Tinto, 1993), yet this area has not been extensively researched, leaving, unresolved, many questions regarding the importance of how matching student and institutional characteristics can increase the probability for graduation. In order to understand graduation rates better through the lens of the Matching Model, a definition of a good match must be identified. This study will utilize Mortensen's definition, which is, "any process by which persons and/or objects are combined to form distinguishable entities with some common purpose" (Moretensen, 1982, p.223). This definition can be applied to higher education in that both students and institutions need one another to accomplish the goal of obtaining a degree and awarding a degree; neither can accomplish the goal alone. A more specific definition applicable to higher education comes from Tinto (1993) who defines incongruence as, "the mismatch or lack of fit between the needs, interests, and preferences of the individual and those of the institution" (p.50).

The Matching Model is being recognized as a useful conceptual framework that is appropriate for research in areas beyond business and economics, such as higher education. Recent work by Light & Strayer (2000) applied

the Matching Model to higher education in their article *Determinants of College Completion: School Quality or Student Ability?* Light & Strayer's (2000) research found that when students' academic abilities are matched to an institution's quality the likelihood of graduation is increased. Also, when a student's academic ability is not matched to an institution's quality, even for high achieving students, the likelihood of graduation is decreased.

A similar point was echoed most recently by Tinto (2003), who found that students who are well matched to the institution of attendance are, "more likely to persist when they find themselves in settings that hold high expectations for their learning, provide needed academic and social support, and actively involve them with other students and faculty in learning"(p.15). While their work focused exclusively on academics, Light & Strayer (2000) found that students who are mismatched with their institution of attendance had high dropout rates and low graduation rates. Similar to Tinto (2003), Light & Strayer (2000) found that students with high academic abilities were likely to drop out because they were not challenged at a lower tier institution. Similarly, Titus's (2004) research found a relationship between student academic ability and institution selectivity on persistence. Recent research has attempted to stress the importance of an appropriate match between the student and institution, but current research has yet to identify the student's probability of graduating at the point of entry given a student's entry characteristics and an institution's characteristics.

Characteristics that Impact Graduation Rates

Graduation research over the last fifteen years has focused on three main student areas: 1) financial aid, 2) influence of socioeconomic status on graduation rates, and 3) level of student interaction on campus. Recent work by Braxton (2000), examined graduation rates over the last fifteen years, applied Tinto's Interactionalist theory, and recommended possible improvements and proposed alternate theoretical lenses that researchers can use to investigate graduation and retention rates.

The Impact of Financial Aid on Graduation Rates. While federal financial aid programs through the Higher Education Act of 1965 have fostered greater access, especially for minority and low socioeconomic students, access does not guarantee successful completion of a bachelor's degree (Heller, 2002). Reauthorizations in the 1970's aimed to provide academically qualified students who demonstrated financial need with aid to attend college. Changing times in the 1980's led to the federal government offering need-based students aid in the form of loans rather than grants (Zusman, 1999). "Federal financial aid has undergone two major changes: it has shifted

overwhelmingly toward loans, rising from about half to about three-quarters of all federal aid, and aid eligibility has been expanded to include more middle class students" (Zusman, 1999, p.121).

The transformation from grants to loans has resulted in need-based students relying more on borrowed funds and graduating with higher levels of debt compared to their non-financial aid counterparts. "Low income students are most affected by these changes because they are less willing to incur large amounts of debt to finance college, and federal programs have not increased enough to cover the expanded pool" (Zusman, 1999, p.121). While policymakers were trying to make higher education more accessible by offering more and varied options of financial aid, a decrease in grants and an increase in loans have led to higher debt. As a result, fewer low-income students are willing to risk high debt for a college degree.

Research on the impact of grants and loans on graduation rates is mixed (Pascarella & Terenzini, 1991). Earlier research found that students cited lack of finances as a reason for dropping out (Cope & Hannah, 1975), while research by Tinto (1993) showed that funding was not the only reason. Other research found that financial aid does make a difference whether or not a student persists from year to year and graduates (Hearn & Longanecker, 1985; Heller, 1997; Hu & St. John, 2001; McPherson & Schapiro, 1988; Moline, 1987; Murdock, 1990; Paulsen & St. John, 2002; St. John, 1989, 2000; St. John, Andrieu, Oescher, & Starkey, 1994; St. John & Asker, 2003; St. John, Kirshstein, & Noell, 1991; St. John & Noell, 1989). Reasons for graduating and dropping out are complex and researchers have not reached consensus on these issues, therefore indicating that additional research is warranted.

Also, it is important to note that students qualify for financial aid based upon their family's income. Research on family income have found that low-income students' probability of graduating is lower than high income students (Mortenson, June 2005). The goal of financial aid is to equalize the probability for graduation between low and high income students. Thus, the two issues of family income and financial aid are closely related, both impacting the probability of graduating.

The Influence of Student Background on Graduation Rates. Stage and Hossler (2000) have found that socioeconomic indicators are so important that, "few major theoretical models ignore the probable influences of factors such as family education, status, income, and student ability. These factors continue to be reliable indicators of status attainment, education intentions, and success in college" (p. 178).While the national graduation rate continues to hover at 50%, attendance and graduation rates vary by income level. Students in the lowest income

quartile have historically and continue to be the least likely to attend a higher education institution, and have lower graduation rates compared to their higher income counterparts (Perna & Swail, 2002).

Mortenson's (2005) research on the distribution of bachelor's degrees by family income reveals that compounding inequalities in high school and college lead to inequalities of bachelor's degree attainment. Low income students are earning fewer bachelor's degrees than their higher income counterparts, which has worsened over the last thirty years with low income students receiving a smaller share of the bachelor's degrees awarded than students in higher income quartiles (Mortenson, June 2005). While the probability for graduation by age 24, (a traditional college student) from 1970 to 2003 has increased for all income levels, the top quartile has made greater gains than students in the bottom, second, and third quartiles (Mortenson, June 2005).

The Impact of On-Campus Student Involvement on Graduation Rates. Student involvement is another area researchers have found that impacts the probability of graduating. Building on the works of Bean (1980, 1985, 1989), Tinto's (1997, 1993) Interactionalist Theory helps explain student success in college through on-campus interaction and student involvement. The Interactionalist Theory, frequently cited in current higher education literature, posits that students, who have more interactions on-campus such as interaction with faculty, involvement in activities, clubs or sports, are more connected or committed to the institution and therefore more likely to complete a degree.

Institutional Factors that Influence Graduation Rates

National graduation rates have consistently hovered on average at 50% (Tinto, 2003), while some private colleges and universities enjoy upwards of 90%+ graduation rates. Graduation rates for students attending public four-year institutions have declined slightly over the last two decades with the average five-year graduation rate at 41.9% in 2001, which was down from 52.2% in 1983 (Mortenson, 2002). In contrast, selective public colleges and universities have graduation rates in the 80^{th} to 90^{th} percentile (Mortenson, 2002). Research focusing on institutional characteristics that influence persistence and graduation rates found private institutions, that are highly selective, with small to medium sized populations, had the highest graduation rates (Pascarella & Terenzini, 2005). Research on single gender institutions or minority serving institutions and their impact on graduation rates were mixed (Pascarella & Terenzini, 2005). Varying institutional graduation rates suggest a need for additional research that examines the impact of institutional characteristics on graduation.

Relevance of Recent Research to this Study

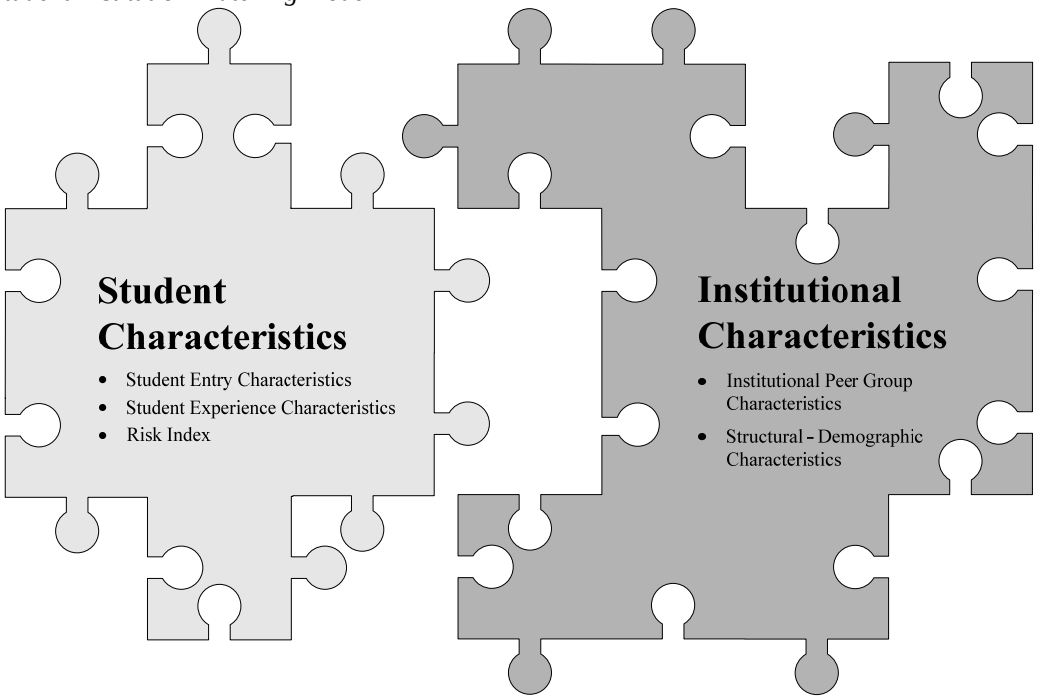
There are three works that are most closely aligned with this study. Mortensen's (1982a, 1982b) works are similar to this study in that they utilized the Matching Model to provide insight in to the interactions between persons and organizations. Mortensen's works differ in that they are used for business and economics whereas this study focuses on higher education. The works of Light & Strayer (2000) and Titus (2004) are both similar to this study in that they included both student entry and institutional characteristics as factors that influence graduation rates. They differ in that Light & Strayer (2000) focused exclusively on academic ability and selectivity, while Titus (2004) examined persistence after three years with relatively few institutional characteristics, and a number of college experience characteristics. Even though three years is ample time to measure persistence, it is not enough time to examine success in the form of bachelor's degree completion. Thus, this study will add to the body of literature by identifying variables that will increase the probability for graduation through matching of student characteristics and institutional characteristics using the Matching Model. Past research that has included student characteristics and institutional characteristics studied the impact of each variable separately. This study is similar to past research in that it will also include student characteristics and institutional characteristics; however, the study differs in that the researcher will focus on the *relationship between* student characteristics and institutional characteristics.

Research Design

Conceptual Model

This study will use the Matching Model to examine the probability of graduating measured by a match between student entry characteristics and institutional characteristics. The dependent variable, defined as having graduated from a four-year institution within six years after enrolling in the same four-year institution, is hypothesized to be predicted by both student variables and institutional variables. As shown in figure 1, both student and institutional variables are used in this study. The match between those variables along with control variables are examined to predict the probability of graduating.

Figure 1
Student-Institution Matching Model



Data and Sample

The National Center for Education Statistics (NCES) conducts surveys and collects data on higher education institutions and the students who attend them. This study will utilize two national data sets from NCES, the Beginning Postsecondary Study 96/01 (BPS:96/01), and the Integrated Postsecondary Education Data System (IPEDS). BPS:96/01 provides a nationally representative sample of students, and IPEDS collects institutional data for all higher education institutions receiving federal funds. Since BPS:96/01 provides a representative sample, and IPEDS is a census of institutions, utilization of these datasets will allow for generalizations to the population of students attending four-year colleges and universities. The majority of the variables used in the model will be selected from the BPS:96/01 dataset. There are four institutional variables from IPEDS that will be used in the model to supplement the BPS:96/01 dataset. (Table 1 contains a detailed list of variables.)

Data from the BPS:96/01 is representative of students by region in the nation and representative of the nation; not all students are surveyed, only a sample. This study will include first-time-in-college (FTIC) students at public and private four-year institutions. Table 2 details the number of institutions in each category and the percentage of students surveyed in public institutions and private institutions. Of the 788 institutions surveyed in the

BPS:96/01 dataset, 446 institutions (56%) are four-year institutions. A total of 40.4% of the students surveyed will be captured by examining public and private four-year institutions. The remaining students surveyed attended 2-year institutions or less than 2-year institutions (45.4%). Since this research focuses on the probability of graduating from a four-year college or university with a bachelor's degree, student attending two-year institutions are not in the scope of the research.

Table 2
BPS:96/01 Sample Size

	Number of Institutions	Percentage of Students
Public 4 year non-doctorate-granting	114	25.90%
Public 4-year doctorate-granting	120	
Private not-for-profit non-doctorate granting	98	14.50%
Private not-for-profit doctorate granting	114	
Total	**446**	**40.40%**

Source: (US Department of Education National Center for Education Statistics, 2002)

Research Questions

The main research questions addressed in this study are:

1. Is there evidence that university effectiveness in graduating students varies with student characteristics, suggesting that the match between students and universities plays an important role?
2. Are students who are more similar to the institution's average student entry characteristics more likely to graduate?
3. Similarly, are students who are far above or below the institution's average student entry characteristics more or less likely to graduate?

These three research questions will guide the research so that the model in this study can be estimated and then compared to other more traditional models.

Analyses

This study will analyze data from BPS:96/01 and IPEDS, using logistic regression, a statistical technique for an outcome variable that is dichotomous (i.e. graduate vs. not graduate). Logistic regression has two main advantages over multiple regression. First, logistic regression permits a dichotomous outcome whereas a dichotomous dependent variable along with multiple regression would result in a violation of normality. Second, logistic regression results allow the researcher to make graduation probability interpretations based upon a student's group membership. "Logistic regression transforms the outcomes into a log of the odds ratio or logit, which is the

natural log of the quantity: the probability of belonging to one group divided by the probability of belonging to the other group" (Borden, 2005, p.144).

Many researchers studying the probability for graduation have utilized a traditional form of logistic regression. Those models tend to resemble the following form:

$$P = \alpha + \beta_1 S \ + \beta_2 I \ + \beta_3 C$$

P is a dependent variable representing the probability of graduating with a bachelor's degree within six years after enrolling in the same four-year institution. S represents a student characteristic, I represents an institutional peer group characteristic, and C represents a control variable. Studies employing this type of model are investigating the probability of graduating by examining student and institutional characteristics *separately*.

This study is different in that it will look at the *relationship between* student entry characteristics and institutional peer characteristics while still including other important control variables. Therefore, this study's model will still incorporate student characteristics, institutional characteristics, and control variables in the following form:

$$P = \alpha + \beta_1 (S - I) + \beta_2 C$$

P is a dependent variable representing the probability of graduating with a bachelor's degree within six years after enrolling in the same four-year institution. The term (S-I) represents the *relationship* between S, a student characteristic and I, an institutional peer group characteristic. C represents a control variable. The final model will include four student entry characteristics and four institutional characteristics (for matching), and seven control variables.

$$P = \alpha + \beta_1 (S - I) + ... + \beta_4 (S - I) + \beta_5 C \ + ... + \beta_{11} C$$

There are four categories of variables: 1) student entry characteristics & institutional peer group characteristics, 2) risk index, 3) student experience characteristics, and 4) structural-demographic characteristics. The first category (student entry characteristics & institutional peer group characteristics) requires creating a new variable, which is obtained by subtracting the institutional peer group variable value from the student's variable value for four variables: academic quality, gender, race/ethnicity, and total aid/student budget. The procedure incorporates the conceptual framework of the Matching Model, which calls for constructing a new variable to determine the student's relative position to the institutional average on four measures (academic quality, gender, race/ethnicity, and aid/budget for attendance). In other words, these four variables are measuring the difference

between the student and the institutional average to determine whether close proximity to the institution's average increases the probability of graduation. The variables remaining in the other three categories serve as control variables and are included in the model as the variables have been found by researchers to contribute toward the probability for graduation.

Using a stepwise method, variables will be entered in three blocks in the following order:

1. Student entry characteristics & institutional peer group characteristics
2. Risk index
3. Student experience characteristics
4. Structural-demographic characteristics

Estimation of the Model

The logistic regression model will be estimated by testing the overall relationship with the likelihood ratio test. As recommended by Peng, Lee, & Ingersoll (2002), assessment of the logistic regression model will include: an overall model evaluation, statistical tests of individual regression coefficients, goodness-of-fit tests, and validation of predicted probabilities. More specifically, assessment of each interval and dichotomous independent variables will include a description of the unique effect with the odds ratio, including the significance tests, interval estimate, and assessment of practical importance (Tate, 1998). Analysis of categorical variables will include testing the global effect with the likelihood ratio test. For each associated pairwise comparison analysis will include determining the odds ratio, significance tests, interval estimates, and assessment of practical importance (Tate, 1998).

c. Dissemination Plan

This study will serve as the primary component of the researcher's dissertation. Study findings will be disseminated through national conferences including the Association for Institutional Research's 2007 Annual Forum in Kansas City, Missouri. A program proposal will be submitted to the American Education Research Association's (AERA) 2007 Annual Meeting in Chicago, IL. Findings from this study will also be submitted for dissemination to journals such as *New Directions for Institutional Research*, *The Journal of Higher Education*, and *Research in Higher Education*.

d. Description of Policy Relevance

National higher education policy has long focused on increasing opportunities to access postsecondary education while leaving colleges and universities with the responsibility of ensuring that the student graduates. While access to higher education has increased since the Higher Education Act of 1965, overall graduation rates have remained at 50%, with select institutions continuing to enjoy higher rates (Tinto, 2003). States have become increasingly interested in graduation rates and as a result, 41 states have decided to use graduation rates as an accountability measure and another 7 states tie graduation rates to funding (American Association of State Colleges and Universities, 2002). Despite all of the research available, there are still many unanswered questions with respect to how colleges and universities can increase their graduation rates. This research will provide guidance to policymakers and administrators when creating policies that impact access and graduation rates.

e. Discussion of Innovative Aspects of the Project

This study will provide at least two unique contributions to the literature. First, this is the first work that utilizes National Center for Education Statistics (NCES) datasets with the Matching Model. Second, this research is the first to exclusively examine the impact of student entry characteristics and institutional characteristics on graduation rates, while isolating student experience characteristics, and including control variables. This is intentional as the findings from this research will identify the degree to which the match between student entry and institutional characteristics impact graduation rates alone.

f. Discussion of Audience to Whom the Project will be Important

Results from this study will be useful to policymakers, as well as college and university administrators. Policymakers utilizing graduation rates as a form of accountability will be able to use the results from this study to make institutions responsible for realistic graduation rates. Findings from this study will help direct funding to groups of students and institutions that could use additional funding and/or programming to increase graduation rates.

g. Appendices

None

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St. John, E. P., Andrieu, S., Oescher, J., & Starkey, J. B. (1994). The influence of student aid on within-year persistence by traditional college-age students in four-year colleges. *Research in Higher Education, 35*(4), 455-480.

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St. John, E. P., Kirshstein, R. J., & Noell, J. (1991). The effects of student financial aid on persistence: A sequential analysis. *Review of Higher Education, 14*(3), 383-406.

St. John, E. P., & Noell, J. (1989). The effects of student financial aid on access to higher education: An analysis of progress with special consideration of minority enrollment. *Research in Higher Education, 30*(6), 563-581.

Stage, F. K., & Hossler, D. (2000). Where is the student? Linking student behaviors, college choice, and college persistence. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 170-195). Nashville, TN: Vanderbilt University Press.

Tate, R. (1998). *An introduction to modeling outcomes in the behavioral and social sciences* (Vol. 2). Edina, Minnesota: Burgess International Group.

Tinto, V. (1993). *Leaving college: rethinking the causes and cures of student attrition* (2nd ed.). Chicago; London: University of Chicago Press.

Tinto, V. (2003). Establishing conditions for student success. In L. Thomas, M. Cooper & J. Quinn (Eds.), *Improving completion rates among disadvantaged students*. Sterling: Trentham Books.

US Department of Education National Center for Education Statistics. (2002). *Beginning Postsecondary Students Longitudinal Study 1996-2001 (BPS:96/01) Methodology Report* (No. NCES 2002-171). Washington, DC.

Zusman, A. (1999). Issues facing higher education in the twenty-first century. In P. G. Altbach, R. O. Berdahl & P. J. Gumport (Eds.), *American higher education in the twenty-first century: Social, political and economic challenges* (pp. 109-148). Baltimore, MD: Johns Hopkins Press.

6. Biographical Sketches

KRISTINA M. (GOODWIN) CRAGG
Doctoral Candidate

I received a bachelor's degree from the State University of New York (SUNY), College at Brockport, triple majoring in Political Science, International Business & Economics, and International Studies. Working for SUNY Brockport as an admissions advisor, I recruited students and provided college counseling to prospective students and their parents. Through this experience I assisted students who were attempting to find a college or university that matched their needs and expectations. This inspired me to pursue a Master's in Higher Education Administration at Florida State University so that I could learn more about students as well as colleges and universities. While earning my Master's degree I held an assistantship in the Center for the Study of Student Values in College Student Development where I researched areas of student ethics and values, including conducting a national survey on campus ethics and values efforts to senior college and university administrators. I also coordinated a national conference, *The Institute on College Student Values*, for two consecutive years. In this position I worked with senior college and university leaders. In addition to a full course load and an assistantship, I taught undergraduate education courses to prospective teachers at Florida State University. As the instructor, I created the course syllabus including all assignments and exams.

After completing my Master's degree, I began my doctoral degree in Educational Policy, Planning and Analysis with a concentration in Higher Education Policy at Florida State University. I have strong quantitative skills, which stem from my statistics coursework and research experiences. I have taken courses such as economic cost benefit analysis, general linear modeling, hierarchical linear modeling, and finance of higher education.

During my doctoral program I completed coursework for a certificate in Institutional Research. Through the certificate program I was exposed to national databases and gained experience using NCES/NSF databases at the AIR/NCES/NSF Summer Data Policy Institute in Washington, DC in the summer of 2004. I have continued to utilize these databases in my coursework and research, further developing my skills with national databases. I have also enjoyed giving back to the Certificate in Institutional Research at Florida State University by recruiting students for the certificate program at AIR Forums during poster sessions and assisting faculty with course content development.

While working on my Ph.D., I have served as a Policy Analyst for the Florida Legislature's Council for Education Policy, Research, and Improvement where I conducted research and provided analyses to the Florida

Legislature on a variety of higher education issues including three well received reports: *The Benefits of Multi-Year Contracts Between the State and Public Universities*, *Career and Professional Education: Preparing Students for the Knowledge Economy*, and *An Analysis of the Need for New or Expanded Apprenticeships and Workforce Education Programs*. Currently, I am a Senior Analyst at MGT of America, Inc., a higher education consulting firm in Tallahassee, FL, where I conduct higher education research to improve the efficiency and effectiveness of government, nonprofit, and other organizations serving the public. Recent work utilizing my quantitative skills and national databases has included higher education funding analyses for state legislatures, an investigation of accessibility to postsecondary education opportunities in the State of Florida, and assessment and enhancement analyses for colleges and universities throughout the country.

I am active in professional organizations having served in various capacities and won awards including the Association for Institutional Research (program reviewer), the American Educational Research Association (Division L Student Representative), the Southeastern Evaluation Association (Graduate Student Representative), and the Southern Association of Colleges and Schools (Graduate Award Winner).

Currently, I am a doctoral candidate having completed all required coursework, passed my preliminary exams, and successfully defended my prospectus; I plan to complete my dissertation by spring 2007. My future plans include continuing my research efforts and utilizing my findings to improve higher education graduation rates for all students, especially those students who have historically low graduation rates. The AIR Dissertation Grant will assist me in obtaining these goals and making a contribution to the field of institutional research.

Kristina M. Cragg

1103 Woodbern Lane, Tallahassee, FL 32304
Home: (850) 574-6748 Work: (850) 386-3191
Email: KMG9765@fsu.edu

E D U C A T I O N

Ph.D. Educational Policy, Planning, and Analysis — ***May 2007***
Florida State University, Tallahassee, FL — *(Anticipated)*
Department of Educational Leadership and Policy Studies

Certificate, Institutional Research — ***August 2005***
Florida State University, Tallahassee, FL
Department of Educational Leadership and Policy Studies

M.S. Higher Education Administration — ***May 2003***
Florida State University, Tallahassee, FL
Department of Educational Leadership and Policy Studies
Hardee Scholar

B.A., Political Science, International Business & Economics, and International Studies — ***May 2000***
State University of New York College, at Brockport, Brockport, NY
Delta College Program (Advanced Liberal Arts Program)
Magna Cum Laude

University at Pittsburgh, Semester at Sea — ***Fall 1999***
Countries Explored: Japan, Hong Kong, The People's Republic of China, Vietnam, Malaysia, India, Egypt, Turkey, Croatia, Italy, and Morocco
Concentration: International Business

E M P L O Y M E N T

Senior Analyst, MGT of America, Inc.
Tallahassee, Florida — ***August 2005 - Present***
Conduct research for public and non-for-profit sector clients throughout the country; create and analyze electronic databases using national and regional datasets; design and produce tables, figures, and other summaries of data; analyze research findings and assist in the creation of final reports.

Research and Program Associate, Department of Educational Foundations and Policy Studies
Florida State University, Tallahassee, Florida — ***February 2004 – August 2006***
Assist in the coordination of a new certificate program in Institutional Research including, developing courses and course content, recruiting students, advising students, managing finances, and conducting research on institutional research.

Policy Analyst, Council for Education Policy Research and Improvement
The Florida Legislature, Tallahassee, Florida — ***May 2003 – June 2005***
Conducted research on current topics in education, including agency programs and operations; created and analyzed electronic databases; designed and produced tables, figures, and other summaries of data; analyzed research findings and assisted in the production of reports for publication; read research literature and followed state and national trends and philosophies relative to assigned topics, and contributed to the development of state education policy recommendations.

Instructor, Department of Educational Foundations and Policy Studies
Florida State University, Tallahassee, Florida ***January 2002 – December 2003***
Instructed and taught courses designed for undergraduate students considering teaching as a profession; piloted service learning project with FSU Schools; developed weekly materials to assist students in learning the assigned content; integrated Blackboard course management software in weekly assignments, mentored students; actively participated in professional organizations; and maintained an awareness of current developments in education through journals and newspapers.

Program Coordinator, Center for the Study of Values in College Student Development
Florida State University, Tallahassee, Florida ***August 2001 – May 2003***
Conducted research on values and ethics in higher education; coordinated the 12th and 13th Annual Institute on College Student Values at Florida State University; designed advertisements for the Center and Institute to appear in higher education publications such as *The Chronicle*, *The Presidency*, and *NASPA*; directed planning committee meetings; maintained the Institute Web site; managed financial statements; presented values research at national conferences, and assisted in special projects.

Admissions Advisor, State University of New York College at Brockport
Brockport, New York ***June 2000 – August 2001***
Coordinated international student admissions application review and processes; organized campus open houses for more than 500 prospective students and parents; conducted interviews of admission candidates and evaluated applicant credentials; provided campus tours, formal presentations and information sessions about SUNY Brockport and the application process; coordinated and assisted with a variety of campus programs and special events for prospective students and their families; assisted the operations staff with workload at peak periods; planned, developed, implemented, coordinated, and evaluated assigned programs and activities to formulate and present recommendations; and worked cooperatively and sensitively in a team environment with individuals from varying backgrounds.

A W A R D S R E C E I V E D

- Florida Association of Women Educators, Sue James Award — February 2005
- AIR/National Center for Education Statistics Data Policy Institute, Washington, DC — June 2004
- Southern Association of Colleges and Schools, Graduate Grant Award — December 2004
- Outstanding Teaching Assistant Award, Florida State University — Spring 2003
- Class of 1942 Endowed Scholarship (Florida State University) — Fall 2002

P R O F E S S I O N A L A S S O C I A T I O N S

- Association for Institutional Research, Program Reviewer
- American Educational Research Association, Graduate Student Representative, Division L (Policy)
- Southeastern Evaluation Association, Graduate Student Representative
- Program for Instructional Excellence, Florida State University
- NASPA: Student Affairs Administrators in Higher Education

P R E S E N T A T I O N S

- SUNY Brockport, Delta College World Conference (Keynote Speaker), Brockport, NY — April 2005
- NASPA: Student Affairs Administrators in Higher Education, St. Louis, MO — March 2003
- NASPA Region III: Student Affairs Administrators in Higher Education, Gainesville, FL — October 2002
- Illinois Community College Core Values Initiatives Institute, Chicago, Illinois — July 2002

DOUGLAS N. HARRIS, Ph.D.

Assistant Professor, Florida State University

Douglas Harris is an assistant professor of education and economics. His research interests include teacher labor markets, accountability, school finance, higher education, and the relationship between education and economic competitiveness. In addition to his academic research, he advises elected officials and other policymakers at the local, state, and federal levels and is frequently cited in the national media. He has a Ph.D. in economics from Michigan State University.

Dr. Harris is currently leading a team of researchers to investigate various approaches to training and selecting teachers, including the role of teacher certification and the school principals' discretion in the hiring process. The project utilizes mixed-methods analysis, combining quantitative value-added analysis of the State of Florida's education data warehouse with interviews of principals and district officials. The U.S. Department of Education is funding this four-year project. Dr. Harris is also principal investigator on a project to evaluate the effects of NBPTS teacher certification (funded by NBPTS).

Dr. Harris has recently begun a project on student persistence in college with the RAND Corporation and MGT of America. This project, pending federal funding approval, would create a national research center devoted to understanding why students drop out of college before graduating. The center's research would focus on detailed longitudinal analysis of individual students, as well as analysis of public policies that might influence student persistence, such as remediation and accountability.

Among his other recent research projects, he co-edited a special issue of the *Peabody Journal of Education* with Kenneth Wong and James Guthrie that revisits the arguments and evidence of A Nation at Risk on the report's 20th anniversary. With Carolyn Herrington, he recently published research on the role of standards and accountability in reducing the racial achievement gap in the *American Journal of Education*. This study was featured at the conference of the Harvard Achievement Gap Initiative at Harvard's Kennedy School of Government in June, 2005. His research on teacher turnover was recently published in the *Economics of Education Review*.

In addition to research, Dr. Harris is a school board member and Program Chair of the Policy and Politics division of AERA for the 2006 annual meeting. He also teaches several graduate courses at FSU, including Economics of Education, Economic Analysis of Education Programs, and Policy and Accountability.

DOUGLAS N. HARRIS

Department of Educational Leadership and Policy Studies
Department of Economics
113J Stone Building
Florida State University
Tallahassee, FL 32306
harris@coe.fsu.edu
(850) 644-8166

RESEARCH INTERESTS

Economics of education, school choice, accountability, teacher quality, educational inequity, schooling and the economy, school finance, international education, higher education

CURRENT POSITION

Florida State University 2002-present
Position: Assistant Professor of Education and Economics
Department of Educational Leadership and Policy Studies
Department of Economics (courtesy)
Tenure-track
Courses: Economics of Education (graduate level)
Economic Evaluation of Education Programs (graduate level)
Policy and Accountability (graduate level)
Awards: First-Year Assistant Professor Award (2003)
Nominated for University Teaching Award (2005)

EDUCATION

Michigan State University 2001
Ph.D., Economics
Dissertation: "Three Essays on the Economics of Education"
Fields: Public Economics, Econometrics, History of Economic Thought

University of Wisconsin at Madison 1996
M.A., Public Affairs and Policy Analysis

Central Michigan University 1993
B.S. Business Administration and Economics

PUBLICATIONS

Harris, D. & Herrington, C. (in press). "Accountability, standards, and the growing achievement gap: Lessons from the past half century," *American Journal of Education*.

Harris, D. et Herrington, C. (in press) "L'accountability contribue-t-elle à l'amélioration des écoles," in Gaétane Chappelle et Denis Meuret, Améliorer l'école, Paris, PUF. (in French)

Harris, D. & Adams, S. (in press). "Understanding the level and causes of teacher turnover: A comparison with other professions," *Economics of Education Review*.

Glomm, G., Harris, D., & Lo, T. (2005) "Charter school location," *Economics of Education Review*, 24(4), pp.451-457.

Guthrie, J., Wong, K., & Harris, D. (2004) "A Nation at Risk: A 20-year reappraisal." (eds.) Special Issue of the *Peabody Journal of Education*, 19(1).

Harris, D., Handel, M., & Mishel, L. (2004) "Education and the economy revisited: How schools matter," *Peabody Journal of Education*, 19(1), pp. 36-63.

Harris, D. (2002) "Identifying optimal class sizes and teacher salaries," in *Cost Effectiveness Analysis in Education*, Henry Levin and Patrick McKewan, eds., American Education Finance Association, Larchmont, NY.

Harris, D. and Plank, D. (2000) "Cost effective policies for reducing class size and increasing teacher quality," in *Allocating School Resources to Improve Student Performance*, U.S. Department of Education (North Central Regional Education Laboratory), Chicago.

MANUSCRIPTS

Harris, D. "Diminishing marginal returns and the production of education: An international analysis," *manuscript.* (Under review.)

Harris, D. "Misallocation or misunderstanding? The case of teacher quality and teacher quantity," *manuscript*. (Under review.)

Harris, D. "Toward an economics-based theory of educational accountability," *manuscript*.

Harris, D. "NCLB: Reframing the picture of educational inequality," *manuscript.* (Financial support from Arizona State University.)

Harris, D. & Rutledge, S. "Models and predictors of teacher effectiveness: A review of the evidence with lessons from (and for) other occupations," *manuscript.* (Grant support from IES.) (Under review.)

Harris, D. & Sass, T. "The purposes, assumptions, and results of educational value-added models," *manuscript*. (Grant support from IES.)

Harris, D. & Sass, T. "The effects of NBPTS teachers on student achievement and peer teacher effectiveness," *manuscript*. (Grant support from NBPTS.)

EXTERNAL GRANTS

Principal investigator (with co-PI Tim Sass, FSU) 2004-2008
"Assessing teacher effectiveness: How can we predict who will become an effective teacher?"
U.S. Dept. of Education, IES Teacher Quality Research Grant
Award: $1 million

Principal investigator (with co-PI Tim Sass, FSU) 2005-2006
"National Board certification in Florida: Does it make a difference?"
National Board for Professional Teaching Standards
Award: $400,000

Investigator (PIs: Laura Hassler and Carolyn Herrington) 2003-2004
"Applied data analysis: Using student performance data to improve instruction and decision-making."
U.S. Department of Education
Award: $150,000

Principal investigator (with co-PIs: David Plank & Betsann Smith) 2000
"Cost effective policies for reducing class size and increasing teacher quality."
North Central Regional Education Laboratory.
Award: $25,000

PENDING GRANT APPLICATIONS

Principal investigator (with co-PIs: Georges Vernez and Janet Hansen, RAND)
"Center on improving persistence and attainment in postsecondary education"
U.S. Department of Education
Submitted: November, 2005
Requested Funding: $10 million

Investigator (PIs: Adam Gamoran, Thomas Smith, and Lora Cohen-Vogel)
"National center for research on state and local education policy"
U.S. Department of Education
Submitted: November, 2005
Requested Funding: $10 million

CONFERENCE PRESENTATIONS

American Economic Association (2000)
American Education Finance Association (2002-2005)
American Education Research Association (2002-2005)
Association for Public Policy and Management (2000-2002, 2004)
Comparative and International Education Society (2005)
Econometric Society (1999)
Harvard Achievement Gap Initiative (2005)
Public Choice Society (1999)

POLICY REPORTS

Harris, D. (2004) "Funding Florida's schools: Adequacy, costs, and the state constitution," Arizona State University Education Policy Studies Laboratory, Tempe, AZ.

Harris, D. (2004) "Putting a high quality teacher in every Florida classroom," Arizona State University Education Policy Studies Laboratory, Tempe, AZ.

Harris, D. (2004) "Class size, pre-kindergarten, and educational adequacy: Costs and funding options for Florida," Arizona State University Education Policy Studies Laboratory, Tempe, AZ.

Harris, D. (2001) "What caused the effects of the Florida A+ program: Ratings or vouchers?" *School Vouchers*, Martin Carnoy, ed., Economic Policy Institute, Washington, DC.

PROFESSIONAL SERVICE

Florida State University School (K-12) 2003-present
Organization Description: Developmental research school affiliated with Florida State University; 1,600 students
Roles and Responsibilities: Member, Board of Directors; Budget Committee Chair

Reviewer:
American Journal of Education
Economics of Education Review
Educational Administration Quarterly
Educational Evaluation and Policy Analysis
Educational Policy
Educational Policy Analysis Archives
Journal of Policy Analysis and Management
Teachers College Record

Leadership Roles in Professional Associations:

American Education Research Association	
Program chair, 2006 conference, Division L	2005-present
Section chair, 2005 conference, Division L, Section: Economic, fiscal, and resource management issues	2004-05

Research Associate:

Arizona State University, Education Policy Studies Lab	2002-present
Center for American Progress, Washington, DC	2005-present
Economic Policy Institute, Washington, DC	2002-present
Michigan State University Education Policy Center	2001-present

Consultant:

RAND/AIR Technical Working Group on Value-Added Models	2005-present
U.S. Department of Education, IES (proposal reviewer)	2004-present
Florida Association of District School Superintendents	2005-present
Florida Council for Education Policy Research and Improvement	2005
Florida Center for Personnel Studies in Special Education	2005
Florida Department of Education	2004
Michigan Center for Education Performance and Information	2000-2001

OTHER EXPERIENCE

Education Economist Economic Policy Institute	2001-2002
College Instructor Michigan State University	1998-2000
Legislative Aide Wisconsin State Legislature	1994-1995
College Instructor Orel University, Russia	1993

LANGUAGES

English (Native)
Spanish (Intermediate)

7. Budget and Budget Justification

Category	Requested Funds
a. Salaries and Wages	
Kristina (Goodwin) Cragg 11 months @ $1045 per month	$11,500
b. Fringe Benefits	
Workers Compensation (required) 0.0030 of salary	$35
Tuition Remission: 7 credits remaining @ $245 per credit hour (in-state rate)	$1,715
c. Travel	
AIR Forum 2007 Kansas City, MO AERA 2007 Chicago, IL (Hotel, airfare, registration, etc)	$1,500
d. Participant Support	$0
e. Other Direct Costs	
Materials and Supplies Publication and dissemination	$250
f. Indirect Costs and Costs Sharing	$0
TOTAL AMOUNT OF AWARD	**$15,000**

Budget Request Explanation

Travel to national conferences includes the cost of an economy round-trip airfare, hotel, registration fees, and other travel related expenses. Other direct costs include purchase of research related books and journal reprints. Publication and dissemination funds include transparencies for presentations, and costs associated with preparing articles for journal submissions.

8. Current and Pending Support

I am currently receiving a small stipend for work with a faculty member (this is not a graduate assistantship). Funding for this work is not guaranteed beyond July 2006. The position does not include a tuition waiver and a future tuition waiver is not anticipated. Presently, no support has been guaranteed for the 2006-2007 academic year. I plan to apply for an AERA Dissertation Grant.

9. Facilities, Equipment, and Other Resources

My major professor currently holds a restricted access license for NCES databases. We are currently in the process of submitting a request to NCES to amend Dr. Douglas Harris's current license to include the BPS:96/01 restricted dataset that will be used for my dissertation. A separate, secured, stand-alone computer has been provided for analyses of the restricted datasets by Florida State University, and is housed in the office of Dr. Douglas Harris. Florida State University provides use of photocopiers, printers, and a research library.

10. Special Information and Supplementary Documentation

A letter of recommendation is attached from my faculty dissertation director, Douglas N. Harris, Ph.D., Assistant Professor, Florida State University.

The Florida State University
Tallahassee, Florida 32306-4452

College of Education
Department of Educational Leadership
and Policy Studies
113 Stone Building
Telephone: (850) 644-6777
FAX: (850) 644-1258

January 7, 2006

Association for Institutional Research
Dissertation Fellowship Committee
222 Stone Building
Tallahassee, Florida 32306-4462

Dear Grant Review Committee:

I strongly recommend **Kristina Cragg** for the AIR Dissertation Research Grant. I have known Kristina for three years as a student in my courses, as a dissertation advisee, and as a collaborator on a large research proposal. Kristina takes her work seriously and, rather than simply jumping through the hoops on the way to the dissertation, she is dedicated to making a real contribution to higher education research and policy.

Kristina is one of only a handful of students to receive an A in the two courses she has had with me over the past three years (Economics of Education and Economic Evaluation of Educational Programs).

Kristina has demonstrated her interest in higher education through her previous graduate work in FSU's higher education program, as well as her dissertation topic. Her proposed dissertation topic specifically addresses some timely issues regarding why many students drop out of college before they graduate. Nearly all past studies on this topic assume that the role of any one student factor, such as family income, is independent of institutional characteristics, such as tuition levels. This is an unrealistic assumption and could impact our understanding of the causes of low college persistence. Kristina's work will instead consider whether it is really the "match" between student and institutional characteristics that matters most.

This past fall, I collaborated with her on a $10 million research proposal to the U.S. Department of Education, also on the topic of student persistence. This proposal, still pending, would create a national research center to study college student persistence. The center would be led by the RAND Corporation with FSU and MGT of America, Inc. as sub-contractors. In addition to helping coordinate meetings among the Florida participants (FSU and MGT), she made valuable contributions to the review of research and development of project ideas. Kristina is listed as an investigator on the project. I am a principal investigator on the project along with researchers at the RAND Corporation.

I have no doubt that Kristina will produce an important contribution to the research literature and policy debate regarding student persistence and that she will become a productive scholar in the years to come. The AIR Dissertation Research Grant will help her in these efforts and provide important recognition and support to a very deserving student. I heartily recommend that Kristina Cragg receive this award.

Should you need additional information, please do not hesitate to contact me at (850) 644-6777 or harris@coe.fsu.edu.

Sincerely,

Douglas N. Harris