2004 AIR/NPEC RESEARCH GRANT PROPOSAL

Analysis of Institutionally-Specific Retention Research Methods:

A Comparison Between Survey and Institutional Database Approaches

Grant Amount Requested: $29,778

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Project Summary

Regardless of the conceptual framework employed, student retention research has typically utilized various survey instruments designed to measure the components of the study's theoretical framework (e.g., Mallette & Cabrera, 1999; Cabrera, Nora, & Castenada, 1993; Berger & Braxton, 1998; Berger & Milem, 1999). However, Cabrera, Nora, and Castenada (1993) caution that such research is not broadly generalizable to other institutions because patterns in persistence may vary according to institutional type, setting, and student characteristics and should only be used as a starting point in studying retention at individual institutions. Unfortunately, the costly and time-intensive development and administration of survey instruments often exceed the available resources of many institutions and preclude them from conducting institutionally-specific retention research. While some research has been conducted using only institution data variables (e.g, Porter, 1999; Antley, 1999; Porter 2002), the comparability of these findings to survey-based studies has not been empirically established.

In response, this research project will compare the predictive ability of a traditional survey-based retention study with that of a parallel study on the same student cohort using standard institutional variables likely to be readily available in student databases at a broad range of colleges and universities. A two-part research design using logistic regression will compare a set of candidate student retention models based on both survey data and on institutional data. Through the comparison of these models, this project will offer institutional researchers valuable guidance regarding the feasibility and predictive power of using more readily available institutional student databases for retention studies compared with the traditional resource-

intensive survey-based approach by determining which approach yields the best approximate

model of student retention.

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Project Description

Statement of Problem

Research on factors related to student retention has traditionally relied on surveying a student cohort and following them for a specified period of time to determine whether they ultimately dropped out or whether they continued their education. Using this design, researchers have worked to validate theoretical models of student retention including Tinto's (1987, 1993) widely employed model of student integration (Mallette & Cabrera, 1991; Terenzini, Lorang, & Pascarella, 1981; Pascarella & Terenzini, 1983; and Pascarella & Terenzini, 1980). Results of these efforts have led other researchers to elaborate Tinto's theory by integrating components of other theoretical approaches such as Astin's (1984) theory of involvement (Berger & Milem, 1999) and Bean's (1985) student attrition model (Cabrera, Nora, & Castañeda, 1993; Berger & Braxton, 1998) using a variety of survey instruments comprised of various scales designed to measure the components under consideration.

Using this type of survey research, Cabrera, Nora, and Castenada (1993) caution that their findings of which factors significantly contribute to student retention are not broadly generalizable to other institutions because patterns in persistence may vary according to institutional type, setting, and student characteristics and should only be used as a starting point in studying retention at other institutions. However, individual institutions may not have the capacity to construct and administer a similar instrument to study their unique retention situation. While most institutions do administer surveys to their students at various times during their academic career, these instruments meet other institutional goals and are usually not specifically designed to support theoretically-based retention research. Adding an additional survey to an institution's research agenda is likely to be well beyond the available capacity of the institution.

Even if an institution is capable of fielding a one-time retention survey, repeated administrations over time may be too burdensome to sustain. Thus, it is key for enrollment professionals and researchers to have an efficient means of evaluating the trends in the circumstances of student retention at their institution in order to develop or adjust support programs accordingly; a need which is not well suited to the sort of robust survey research employed in the literature.

However, institutions do routinely collect a broad array of information on their students' backgrounds, socioeconomic status, academic progress, and, in many cases, their academic goals and social involvement; factors which do align well with the major theoretical models of student retention (e.g., Tinto (1987, 1993); Astin (1984); and Bean (1985)). While some research has been conducted using only institution data variables (e.g, Porter, 1999; Antley, 1999; Porter, 2002), the comparability of these findings to results of survey-based studies has not been empirically established. If found to be of comparable predictive ability to traditional survey-based retention studies, the use of these institutional variables as proxies for factors measured through survey scales would be of great benefit to institutions who do not have the resources to support an ongoing retention research program. Further, because these institutional databases of student information are often retained for each entering cohort, it would be possible for institutions to conduct longitudinal analyses on factors contributing to retention.

Thus, this research project will consist of two parallel retention studies designed to investigate the comparability of a traditional survey-based retention study and a retention study based on standard, widely available institutional student data of theoretical importance to retention. The predictive ability of the survey-based research process will be compared to the parallel study of the same cohort based on institutional student database variables to determine which approach is more robust. Research indicates that the majority of withdrawals occur during

the first year of postsecondary education (Horn & Carroll, 1998). Further, Nelson, Scott, and

Bryan (1984) have demonstrated that students at risk of second-semester attrition can be

identified in sufficient time to allow for intervention programs to succeed. Therefore, it is key

for enrollment professionals to have an efficient means of evaluating the early trends in student

retention in order to adjust support programs accordingly. The findings of this project will offer

institutional researchers valuable guidance in the strengths and limitations of these

methodological approaches.

Tinto's theory of student integration is perhaps the most widely cited in the literature on

student retention and, as such, will guide this study. Tinto's theory grows out of the work of

Durkheim (1951) on suicidal behavior. Durkheim concluded that suicidal behavior was the

result of the inability to integrate socially and intellectually into society. Tinto (1975) viewed

withdrawal from postsecondary education as analogous to suicidal behavior and consequently

postulated that student attrition was due to inadequate social and academic integration into the

institutional culture. As such, Tinto argues that successful students enter college with

background characteristics (e.g., family background, individual attributes, aptitude, and

motivation) that are the basis for their initial contact with the institution. The students then

interact with the institutional environment and these experiences influence their commitments

and intentions. As students become more integrated into the culture of the institution, their goal

commitment increases which fosters their continued enrollment and academic progress. If

students are not able to successfully integrate into the academic and social communities at their

institution, their goal and institutional commitments are diminished, resulting in a greater

likelihood of departure.

Tinto's theory has undergone numerous validation efforts (e.g., Terenzini & Pascarella, 1980; Pascarella & Terenzini, 1980; Terenzini, Lorang, & Pascarella, 1981; Pascarella & Chapman, 1983; Tinto, 1982; Knight, 2002) and has been shown to perform reasonably well in predicting student attrition. For this reason, both the survey and institutional variable phases of this research project will be guided by Tinto's model.

Description of Variables

The dependent variable to be used in both phases of this study will be operationalized as being enrolled during the spring semester of 2005. For this variable, each student in the study cohort will be identified as either continuously enrolled in their second semester, or withdrawn from the institution. The spring enrollment status of each student will be determined through analysis of the spring 2005 student data file (SDF). Additional demographic variables common to both phases of the research project include gender, racial/ethnic origin, and initial program of enrollment, and will be obtained from the fall 2004 SDF.

The survey portion of this research project will employ the Institutional Integration Scale developed by Pascarella and Terenzini (1980) to measure the various dimensions identified by Tinto as corresponding to the likelihood of persistence. This scale was found to be generally supportive of the major dimensions of Tinto's theory of student integration. The Institutional Integration Scale contains thirty items arrayed in five subscales covering peer-group interactions, interactions with faculty, faculty concern for student development and teaching, academic and intellectual development, and institutional and goal commitments. Pascarella and Terenzini (1980) used principal component factor analysis, multivariate analysis of covariance, and discriminate analysis to verify the predictive validity of this instrument. In this study, summative

scores for the instrument subscales will serve as independent variables in the survey-based model of student retention.

For the institutional database phase of this research project, eleven independent variables having a bearing on the dimensions of Tinto's retention theory have been identified in institutional databases. Seven of these variables (certainty of major, intention to participate in co-curricular activities or programs, working during first semester, contact with someone from the study institution prior to enrollment, highest degree intended, how many colleges applied to, and parent's educational attainment) will be obtained from the First Year Student Survey administered to all incoming first year students during summer orientation. The remaining four variables (number of hours carried in first semester, first semester GPA, weighted HS GPA, and total SAT) will be obtained from the fall 2004 SDF.

Weighted high school GPA and total SAT provide insight into the potential academic performance of the student and have been shown to have a strong, positive effect on persistence (Nelson, Scott, & Bryan, 1984; Terkla, 1985; Porter, 1999; Porter, 2002; Tinto, 1993). Similarly, first semester GPA has been shown in the literature on institutional departure to positively reflect the academic integration of the student into the institution's intellectual community (Mallette & Cabrera, 1991; Horn & Carroll, 1998). Tinto (1987, 1993) demonstrated that academic integration is a key component in his theory of student integration and, through these metrics, will therefore be represented in the analysis.

Another variable, parent's educational background, has also been widely used in the research literature. Porter (2000) as well as Horn and Carroll (1998) demonstrate a significant positive effect of this variable on retention, hypothesizing that students with parents who had a collegiate experience were more likely to receive encouragement and support from their families

which, in turn, increases the likelihood of persistence. Thus, students' self report of their parents' educational background will be included as a dependent variable in this study.

Tinto (1987, 1993) argues that institutional and goal commitment are also significant factors in a student's decision to persist in their academic career and this assertion has been supported by numerous studies (e.g., Terenzini, Lorang, & Pascarella, 1981; Pascarella & Terenzini, 1983; Cabrera, Nora & Castaneda, 1993). Undecided students may not have the strength of goal commitment as students who are certain of their career path. Thus, certainty of college major, highest intended degree, credit hours carried in the first semester, and the number of colleges to which the student applied are included in this analysis as measures of these factors. In addition, a student's intention to work in the first semester of college will influence their academic goal commitments and this variable has been shown to heavily influence student interactions with the social and academic environment of the institution (Tinto, 1987, 1993).

Tinto's (1987, 1993) theory of student integration also highlights the importance of social integration for improving retention. Thus, the institutional database phase of this research project will also include intended participation in co-curricular activities and programs. While contact with peers is important, research has shown that contact with faculty is also vital for improved retention (Pascarella, 1980; Terenzini & Pascarella, 1980). Thus, student contact with faculty after admission to the institution will be included among the independent variables in this phase of the research.

Variable Limitations

While the Institutional Integration Scale used in the first stage of this research project has been shown to be a reasonable predictor of retention, the power of this scale is limited by the nature of the sample of respondents. Though an important first step, this project concentrates on

a single cohort at a single institution and the ability to generalize regarding the findings of this proposed research will require additional study beyond the current project. The variables selected for use in the second stage of this study were chosen based upon their theoretical relationship to student retention as demonstrated in the literature. However, it is important to note that these variables are not based on survey items designed to measure respondent perceptions, feelings, and motivations. In addition, some of these variables are obtained from existing survey activities of the study institution and may not be available at other institutions. However, most institutions do collect similar data on an ongoing basis and these institutions are encouraged to use this study as a reference in conducting their own institution-specific studies.

Profile of the Study Institution

The study institution for this research project is North Carolina State University, a public, land grant, doctoral research institution situated in Raleigh, North Carolina. The institution focuses heavily on science, technology, and engineering with historical strengths in programs for which it is the unique provider in the state (e.g., agriculture, forestry, and textiles). In the Fall of 2003, NC State enrolled a total of 29,854 students, 77% of which were undergraduates (N=22,971). The Fall 2003 new freshman cohort of 3,931 students represented 13% of the total institutional enrollment. Freshman one-year retention for the fall 2001 cohort was 89.9%.

Proposal of Work

The purpose of this study is to empirically determine the comparability of traditional survey-based retention research methodology with an alternative approach that relies on data commonly available in institutional student databases, thereby dictating a two-stage research design. In the first stage, the fall 2004 cohort of new freshmen at the study institution (NC State University) will be asked to complete a survey designed to predict the likelihood of persistence.

Survey respondents' enrollment status will be determined based on the spring 2005 student data file.

The survey phase of this project entails the development of a web-based survey to be administered to all new freshmen in the fall 2004 at the study institution. Access to the survey will be limited to fall 2004 new freshmen by requiring each participant to provide their university user name and password. This strategy will also work to ensure only one response is received from each eligible new freshman. Monetary incentives to participate will be provided via a lottery of all respondents. Survey respondents' identities will be safeguarded by the use of secure computer firewall systems. In addition, reporting only aggregate descriptive statistics of the data will prevent the identification of individual survey responses. The institutional student data used in this research project will be obtained from annual data files generated by the University Planning and Analysis office for the purpose of institutional decision making and federal and state reporting requirements. The data contained in these files are considered protected information subject to the Family Educational Rights and Privacy Act (FERPA, or known alternatively as the Buckley Amendment). Similarly, the survey responses solicited in the course of this research project will also subject to the restrictions of FERPA.

After data collection is complete, a multivariate logistic regression analysis using the institutional integration subscales and basic demographic variables will be used to predict the likelihood of spring enrollment for the survey respondents. In the second stage of the research, the institutional variables identified as having a relationship to Tinto's (1987; 1993) theory of student integration along with the basic demographic variables from the first stage of the project will be used as predictors in a second multivariate logistic regression model designed to predict student retention. Logistic regression is an appropriate analytical tool for this research project

because of this method's ability to describe the relationship between a categorical dependent variable and a number of both interval and categorical independent variables (Hosmer & Lemeshow, 2000). As an application in higher education, logistic regression is considered superior to other methods (e.g., linear discriminant function analysis) when the dependent variable is categorical (Peng, So, Stage, & St. John, 2002).

Data analysis will commence by developing a set of candidate models based on Tinto's (1975; 1987) theory of student integration. Thus, an a priori set of candidate models will be generated with some based wholly on the subscale scores of the Institutional Integration Scale (Pascarella & Terenzini, 1980) and the demographic variables collected via the web-based survey process and others developed using only the independent variables from the institutional databases that have theoretical relevance to Tinto's theory of student integration. From this set of candidate models, a best approximating model will be determined.

Following the guidance of Burnham and Anderson (2002), model selection techniques using an information-theoretic approach will be employed to rank the candidate models relative to each other. The comparative evaluation of the candidate models will be based on the Akaike Information Criterion (AIC) (Akaike, 1973) which uses the Kullback-Leibler distance between models concept to determine the best approximate model (Burnham & Anderson, 2002). A consideration of whether the best approximate model is of survey data or institutional database origin will offer guidance to institutional researchers on the most effective approach to model development in institution-specific retention research (i.e., traditional survey-based methods or the use of institutional datasets as sources of data). The SAS System, Version 8.02 will be utilized for the data analysis in this study.

Dissemination Plan

Because the findings of this research project will be of value to institutional researchers interested in conducting institutionally-specific retention research, the results from this study will be disseminated through publication in a leading journal on higher education (e.g., *Journal of Higher Education, Research in Higher Education, Review of Higher Education*) and via a scholarly paper presentation at the 2005 Association for Institutional Research Annual Forum in San Diego, California and at a National Postsecondary Education Conference in either 2005 or 2006.

Description of Policy Relevance

Nationally, retention has become a key measure of institutional effectiveness as higher education institutions strive to operate in an environment of constrained resources and increasing willingness by stakeholders to make economic and policy decisions based upon performance measures (McLaughlin, Brozovsky, & McLaughlin, 1998). Higher education has become a key factor for prospective students in establishing economic security and achieving social mobility (Pascarella & Terenzini, 1991). However, rising tuition costs have accentuated the need for these students to carefully consider their postsecondary education plans. In an effort to maximize the value of their tuition dollar, many are concerned about attending an institution that will afford them the best chance of accomplishing their goals. For this reason, measures of student success such as retention rates have become key factors in the public evaluation of four-year colleges and universities. This public awareness of retention rates, coupled with fundamental institutional commitments to facilitate student success have resulted in the emergence of retention as a key issue of concern for higher education institutions, leading

numerous institutions to initiate programs designed to meet the needs of students at risk of withdrawal prior to graduation (Lang, 2001-2002).

Reliable identification of students at-risk of withdrawal is a key factor in developing targeted, efficient intervention programs. This is vital given researchers (e.g., Nelson, Scott, & Bryan, 1984; Wang & Grimes, 2000) have noted that quality retention programs can produce improved retention rates even though a considerable portion of students who withdraw during their first year of enrollment do so during the first few weeks of their first semester. Based on the findings of this research project, institutional researchers will be able to appropriately select retention research methods that offer the greatest predictive ability, and armed with knowledge of who most needs assistance, higher education professionals can then develop or adjust retention programs for maximum effect.

Innovative Aspects of the Project

Research on retention typically relies on surveys of student perceptions in relation to the factors believed to theoretically influence persistence decisions. However, this resource-intensive methodology is not always feasible for retention research at individual institutions. Yet, for institutional, state, and federal reporting purposes, all institutions do maintain student data files that address many of the factors identified as important determinants of persistence in retention theory. Porter (1999; 2002) and Antley (1999) have used this type of data to develop models designed to predict student attrition; however, the comparability of this approach and that of the traditional survey-based analyses has not been ascertained. This study will address this deficiency by comparing multivariate logistic regression models based on a single dataset and representing these two approaches to retention research. Results will address the relative predictive ability of the two methodologies and guide researchers in future retention research.

Typically, regression analysis based on maximum likelihood methods has relied on hypothesis testing to determine the best model for the given data; however, these approaches rely on arbitrary α levels (e.g., 0.05, 0.01, or 0.15) and model selection should not be based on such subjective measures (Akaike, 1974). Similarly, goodness-of-fit tests rely on subjective α levels to test whether the model is a good fit for the data, and the choice of this level can lead to overfitted models (Burnham & Anderson, 2002). The adjusted coefficient of multiple determination (R^2) is commonly used in multiple linear regression for model selection (i.e., the best model is the one with the highest R^2) and in multivariate logistic regression, the Hosmer and Lemeshow (2000) goodness-of-fit statistic ($\hat{C}$) is widely used. Such measures are considered by Burnham and Anderson (2002) to be good descriptive statistics, but are poor measures for use in model selection. Considering these pitfalls, this study will employ the Akaike Information Criterion (AIC) within an information theoretic paradigm for model selection. The AIC offers the researcher an estimate of the relative distance between the fitted model and the unknown "true" model that represents the phenomenon under study which thereby allows for the selection of the model which most closely approximates the phenomenon under study (Burnham & Anderson, 2002). Thus, the researcher can empirically identify the best approximate model from the set of candidate models constructed through a priori consideration of theory and existing research. Though employed in epidemiological and biological studies, this information-theoretic approach has not been widely used in higher education research, thereby making this proposed project innovative from not only a design perspective but also from an analysis perspective.

Audiences to Whom the Project Will be Important

The results of this project will be useful as a methodological guide in designing future research on student persistence. Thus, the primary audiences for whom the results of this

research project will be important include higher education scholars and institutional researchers

at postsecondary institutions who are interested in conducting institutionally-specific retention

studies. Such research is vital for decision support and programmatic improvement in

institutional student retention efforts.

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Biographical Sketch

Amy L. Caison, Ed.D.

Amy Caison is the Coordinator for Planning and Comparative Studies with the office of University Planning and Analysis at North Carolina State University where she has conducted research in support admissions, enrollment, and strategic planning. Her interest in student retention emerged when she served on the university's Undergraduate Retention and Graduation Rate Task Force which was charged with identifying recommendations for the improvement of these key institutional indicators. In addition, Dr. Caison is an adjunct assistant professor in the Department of Adult and Community College Education where she has taught courses in program planning for adult learners and quantitative research methodology focusing on survey research designs. Prior to her current position, Dr. Caison was employed as a statistician with the Center for Urban Affairs and Community Studies at NC State University. In this role, she conducted program evaluation research for a statewide substance abuse treatment program and a program for individuals with developmental disabilities.

Dr. Caison earned a bachelor's degree in anthropology from the University of North Carolina at Wilmington (*cum laude*) before pursuing her graduate studies at NC State University in higher education administration. Her graduate program focused on research methods for studying issues of importance in postsecondary education. As a supplement to her coursework, Dr. Caison held a graduate research assistantship with the National Initiative for Leadership and Institutional Effectiveness (NILIE). In this role, she worked with numerous colleges in both the United States and Canada to conduct organizational climate research for the purpose of assessing and improving student outcomes. Thus, she designed survey items, sampling strategies, data collection procedures, and data analysis plans in conjunction with college representatives in

order to ensure the successful fulfillment of the colleges' research goals. To better serve the needs of NILIE's clients, she also managed the design and implementation of a web-based survey process that allowed NILIE to deliver climate surveys in a secure and cost-effective manner.

Recently, Dr. Caison has served as a consultant for the Adult and Community College Education department at NC State in designing and analyzing a survey of recent departmental alumni. In addition, she consults on survey design and data analysis with a project on developing sustainable communities through the General Henry H. Shelton Initiative for Leadership Development at NC State, an effort to identify, prepare and educate leaders at the university and in the community.

The proposed study will extend Dr. Caison's work on issues related to student retention and categorical data analysis methodologies. She has broad experience in conducting survey research and data analysis as well as seven years of experience using SAS to address a wide range of research questions. These qualities will allow Dr. Caison to authoritatively address the research problem of this proposal and contribute meaningfully to the practice of institutional research and ultimately, retention practice in higher education. A summary of Dr. Caison's scholarly activities follows.

Refereed Articles

Caison, A.L. (in press). Determinants of systemic retention: Strategies for improving retention practice in higher education. Journal of College Student Retention: Research, Theory & *Practice.* (Scheduled for publication in volume 6 issue 4, July 2005)

Caison, A.L. (2002). Tenure trends in public four-year colleges and universities. Planning for Higher Education, 31(2): 15-25.

Akroyd, H.D., Caison, A.L., & Adams, R.D. (2002). Burnout in radiation therapists: The predictive value of selected stressors. International Journal of Radiation Oncology, Biology, Physics, 52*(3): 816-821.*

Akroyd, H.D., Caison, A.L., & Adams, R.D. (2002). Patterns of burnout among U.S. radiographers. Radiologic Technology, 73*(3): 215-224.*

Book Chapters

Akroyd, H.D., & Caison, A.L. (in press). A profile of part-time community college faculty in the United States: An application of the 1999 National Study of Postsecondary Faculty. In Wallin, D. (Ed.) Adjunct Faculty in the Community College: Recruiting, Supporting, and Retaining Great Teachers. Bolton, MA: Anker Publishing.

Conference Presentations

Caison, A.L., (February, 2004). An Application of National Student Clearinghouse (NSC) Data in Student Retention Research. Paper to be presented at the annual meeting of the North Carolina Association of Institutional Research, Sunset Beach, NC.

Caison, A.L. (April 1, 2002). Shifts in Power: Tenure in American Higher Education. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.

Akroyd, H.D., Adams, R.D., & Caison, A.L. (April 10, 2001). Levels of Burnout in Radiation Therapists and the Ability of Selected Stressors, Social Support and Workload to Predict Them. Paper presented at the Annual Meeting of the American Educational Research Association, Seattle, WA..

Other Publications

O'Brien, G.W., Ambrose, J.T., Banks, A.J., Caison, A.L., Conway, T.E., Esbenshade, K.L., Hunt, L.D., Mallette, B.I., Mitchell, T.L., & Mustafa, M.M. (2003). Task force report on undergraduate retention and graduation rates at NC State. Raleigh, NC: NC State University.

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McNeely, M., Caison, A.L., & Eller, A. (2001). <u>Mortality report: Report on deaths that occurred fiscal year 1996-1997 through fiscal year 1999-2000 for the population identified in the Thomas S. class action lawsuit.</u> Raleigh, NC: North Carolina Department of Health and Human Services Division of Mental Health, Developmental Disabilities and Substance Abuse Services.

Proposed Budget

A. Senior Personnel
  Amy Caison (1 month)   3,385

B. Other Personnel
  Graduate student   15,500

C. Fringe Benefits
  Faculty (23%)   779
  GRA (17%)   2,635

E. Travel
  Domestic (incl. Canada, Mexico, and US posses.)
    2 forum trips (Caison, Graduate Student)   3,000

F. Participant Support Costs
  Other
    Incentives for survey responses   500

G. Other Direct Costs
  Computer services (computer network storage fee)   500
  Other
    Tuition (includes 10% inflationary increase on 03-04 base)   3,479

Total Project Cost   **$29,778**

Proposed Budget Justification

A. Senior Personnel: $3,385

Funds are requested for one month of salary for the principal investigator for time spent overseeing and coordinating the research project, data analysis, writing, and supervising graduate student. Because this project is within the scope of her official duties, NC State will accommodate Dr. Caison on the additional time she will need to ensure the success of the project.

B. Other Personnel: $15,500

Funds are requested to hire a doctoral-level graduate research assistant to assist with the research project's operation and data analysis. The student will contribute to the project's library research activities and help in the preparation and dissemination of the project reports and presentations.

C. Fringe Benefits: $3,414

The fringe benefits requested in this budget are listed at rates equal to NC State's established fringe rates of 23% of total salary for faculty and 17% of total salary for the graduate research assistant.

D. Travel: $3,000

Travel funds are requested to support one trip for both the principal investigator and the project's graduate research assistant to the 2005 AIR Forum in San Diego ($1,500 each) in order to disseminate research results.

E. Participant Support Costs: $500

Funds are requested for ten $50 prizes to encourage participation in the survey portion of the study. All survey respondents will be entered into a drawing for the monetary awards.

F. Other Direct Costs: $3,979

Funds are requested to cover computer network storage fees for hosting the web-based survey. In addition, tuition funding is needed for the project's graduate research assistant. Because tuition for the 2004-05 academic year has not been set by the state legislature, the requested amount is set at an estimated 10% increase over the 2003-2004 tuition rate for full-time graduate students.

Current and Pending Support

The principal investigator has no current or pending support from external sources.

Facilities, Equipment and Other Resources

The proposed research project will be conducted at NC State University using the equipment and facilities readily available to the principal investigator through the office of University Planning and Analysis. Existing infrastructure that currently powers the institution's on-going survey projects will be utilized in this study.

Special Information and Supplementary Documentation

Not applicable