



ASSOCIATION FOR INSTITUTIONAL RESEARCH 2009 RESEARCH APPLICATION

Application ID: RG 09- 135

My Contact Information

Name: Ty Cruce

Submission Year: 2009

E-mail: tcruce@indiana.edu

Institution: Indiana University

Address: 400 East Seventh Street
Poplars Building 805
Bloomington, IN, 47405
United States

Phone: 812-856-0865

Fax: 812-856-1209

Institutional Financial Representative

Name: Jim Becker

E-mail: cgadmin@indiana.edu

Address: Office of Research
Administration, Indiana University
P.O. Box 1847
Bloomington, IN, 47402

Phone: 812-855-6538

Fax: 812-855-7494

Institution:
Indiana University

**Is Institutional Financial
Representative
at a US Post-secondary institution?**
Yes

Title of Proposal

The Choice of Formal Learning in the Third Age: The Role of
Postsecondary Institutions in the Personal Development of Older
Adults

Statement of the research problem and national importance

Over the next 40 years, baby boomers will be reaching retirement age in large numbers and the U.S. will be undergoing one of the most significant demographic shifts in our nation's history. According to the U.S. Census Bureau (2008), between 2010 and 2050, the population age 55 or older is projected to increase by 79%, whereas the population under age 55 is projected to increase by only 29%. As a result, older adults will represent an increasing share of the total population, from 25% in 2010 to 31% in 2050. Although this approaching demographic shift has important implications for the current course of public policies and programs in such areas as financial planning (e.g., Social Security, pensions, and retirement saving) and health and wellness (e.g., Medicare and Medicaid), this shift also has important implications for the role of higher education as a provider of lifelong learning and for the changing composition of postsecondary institutions.

Postsecondary institutions have several strong motivations for understanding consumer demand for lifelong learning among this older adult population. The first motivation is that, compared to previous generations entering retirement age, baby boomers are expected to live longer and healthier lives, and they are abandoning traditional notions of retirement for a “third age” of life in which they actively engage in new educational experiences and activities related to personal development and community involvement (ACE, 2007, 2008; Manheimer, 2007). The educational preferences of this generation appear to be well-aligned with the formal learning experiences offered in college settings. Older adults report that they are most interested in learning for personal development or to acquire advanced skills, and they have a strong preference for educational environments in which they engage in experiential learning and face-to-face interaction with teachers and other learners (AARP, 2000).

The second motivation that postsecondary institutions have for understanding the demand for lifelong learning among older adults is that analysts project that the pool of traditional-aged college students will increase at a much lower rate and possibly decrease during the upcoming decades (Toossi, 2006; WICHE, 2008). Similar to the demographic shifts in the late 1970s and early 1980s – when large numbers of baby boomers were moving beyond traditional college age and postsecondary enrollments were anticipated to decline (Hossler, Bean & Associates, 1990) – institutions will again need to act creatively and strategically to tap into new pools of potential students in order to maintain enrollment levels and their current levels of funding. The baby boomer generation, which fueled college growth in prior decades, could be tapped again to increase the future livelihood of postsecondary institutions.

Although college leaders and educational policy makers are aware of the demographic shifts on the horizon, they do not appear to have yet responded to the educational demand of a growing segment of the population. According to a report by the American Council on Education (2007), approximately 40% of colleges in the U.S. do not actively reach out to older adults’ educational needs. Older adults have educational preferences that align with the course content and learning environments of postsecondary institutions, yet over one-half (57%) of these potential students report never enrolling in a postsecondary institution to satisfy their educational demand (AARP, 2000).

One of the potential reasons why postsecondary institutions have yet to respond to upcoming demographic changes is the lack of empirical information regarding the educational preferences of older adults. Research on adult education typically overlooks the learning experiences of older adults by focusing on working-age students who enroll for credit-bearing courses (Pusser, et al., 2007; ACE, 2007; 2008). The small body of research on the educational experiences of older adults is mostly limited to descriptive analyses appearing in policy reports (e.g., AARP, 2000; ACE, 2007, 2008) that do not utilize multivariate statistics to account for the

unique influence of background characteristics and other commitments on enrollment decisions.

For colleges to effectively respond to the rising demand for education during the third age of life, it is imperative that they understand how older adults seek out educational opportunities and make choices among various educational providers. This study will use data from the 2005 National Household Education Survey (NHES) program to explore the characteristics of older adults who choose to participate in formal coursework for personal development at postsecondary institutions. The results of this study will inform the higher education community about this emerging student market segment as a way to help colleges respond to their unique enrollment demands and to their potential barriers to accessing lifelong learning at these institutions.

Review the literature and establish a theoretical grounding for the research

Literature Review

Reviews of the literature conducted over the past several decades have illustrated with a high degree of consistency that students' propensity to attend college generally (or a college type specifically) differs systematically by such demographic and academic characteristics as the students' age, gender, race/ethnicity, and prior academic achievement; by such socioeconomic characteristics as their parents' income, occupation, and educational attainment; and by such cost constraints as distance, tuition and fees, and the availability and types of financial aid awarded (Braxton, 1990; Heller, 1997; Hossler & Gallagher, 1987; Hossler, Braxton, & Coopersmith, 1989; Leslie & Brinkman, 1987, 1988; Paulsen, 1990, 1998; Perna, 2006). These differences in college attendance are often attributed to such barriers as academic underpreparedness, a broken financial aid system, and differential access to and accuracy of information on the benefits and costs of a college education (Perna, 2006).

Although much of the theoretical and empirical literature on the college choice process of prospective students was designed and conducted with traditional-age students and within the context of residential four-year institutions, many of the same demographic and socioeconomic characteristics and cost constraints historically studied in the college choice research may serve to inform us of similar information asymmetries and other barriers to higher education faced by older adults. Baby boomers approaching retirement age presumably have different motivations for and expect different returns from taking coursework at postsecondary institutions than traditional-age students, yet limited evidence suggests that some of these same differences in the propensity to attend postsecondary institutions found among traditional-age students hold for older adults. For example, older adults' reliance on postsecondary institutions as providers of instruction appears to be a function of gender, age, educational

attainment, and income (AARP, 2000). Based on a review of the literature, the American Council on Education (2007) adds race/ethnicity and geography to this list of predictors of older adults' participation in postsecondary education. These findings, however, are based on descriptive analyses of survey data, and further multivariate analysis is necessary to confirm these results and to understand the unique influence of these factors on participation in formal coursework for personal development among older adults.

Despite a recent wave of calls for more empirical research on the college choices and educational experiences of nontraditional college students (e.g., Pascarella, 2006; Perna, 2006), the academic community has yet to fully embrace scholarship on adult students. In a content analysis of articles appearing in seven of the most widely circulated peer-reviewed higher education journals published between 1990 and 2003, Donaldson and Townsend (2007) found that only 1% of the 3,219 articles discussed adult learners. This study seeks to reduce this gap in the literature by using a nationally representative dataset and multivariate analysis to examine the characteristics of older adults who choose to participate in formal coursework for personal development at postsecondary institutions.

Conceptual Framework

Following a long line of inquiry within college choice research (e.g., DesJardins, Ahlburg, & McCall, 2006; Long, 2004; Manski & Wise, 1983; Radner & Miller, 1975; Toutkoushian, 2001; Weiler, 1994), the decision among older adults to pursue formal coursework for personal development is examined in this study under the premises of consumer preference (or utility) theory. In general terms, consumer preference theory is a rational decision-making model based on the available alternatives to an individual (i.e., his or her choice set) and his or her preferences among the alternatives (DesJardins & Toutkoushian, 2005). The individual's formation of preferences among the alternatives is based on the individual's expectations about the utility – or well being – that he or she will derive by selecting an alternative. The alternatives that the individual has available to him or her are based on the particular constraints (e.g., time, budget, or ability) either perceived or realized by the individual. The decision rule that guides the decision-making process is the maximization of utility under constraint.

In this study, the alternatives available to older adults are possible combinations (or bundles) of time per year devoted to formal personal development coursework and to a composite good representing other activities. Formally, the model of consumer behavior assumes that an individual selects a particular bundle representing some combination of personal development coursework and the composite good when the utility derived by that alternative is greater than the utility derived by choosing any of the other available bundles. For this study, the utility that an individual derives from a particular bundle of personal development coursework and the composite good is a function of his or her demographic characteristics, socioeconomic characteristics, and a set of constraints. Although

utility is not directly observable, the maximization of utility is inferred by an observed choice. In this study the observed choice is the number of hours that the individual participates in formal coursework for personal development.

Under the premises of consumer preference theory, individuals are not expected to derive the same utility from a particular bundle of goods, have the same marginal rate of substitution between bundles of goods, or face the same set of constraints that determine the bundles of goods that are available to them (DesJardins & Toutkoushian, 2005). Given an older adult's particular constraints and the rate at which he or she is willing to exchange personal development coursework for other activities, in some instances the individual may only be able to maximize his or her utility by choosing bundles that contain no personal development coursework. This particular scenario – what economists refer to as a “corner solution” when diagramming utility functions (Pashigian, 1998) – is an important concept for understanding why some older adults never participate in formal coursework for personal development, even when they are not opposed to the idea of participation. Taking the individual's preferences as given, movement off of the corner can only be altered by lessening the constraints imposed on the individual. This change in the constraints introduces alternatives that allow the individual to maximize his or her utility by devoting some time to personal development coursework.

Describe the research method that will be used

Research Questions

This study will address two research questions:

1. How does the time per year that older adults participate in formal coursework for personal development vary by their demographic and socioeconomic characteristics and other constraints?
2. Conditional on having participated in formal coursework for personal development, how does the propensity among older adults to select a postsecondary institution as an educational provider vary by those same background characteristics and constraints?

Sample

The sample for this study is comprised of adults between the ages of 55 and 79 (N = 3,090) who participated in the Adult Education Interview of the 2005 National Household Education Survey (NHES) program. Persons eligible for participation in the Adult Education Interview were those individuals 16 and older who were not enrolled in high school, not institutionalized, and not on active duty in the U.S.

armed forces (Hagedorn, Montaquila, Carver, O'Donnell, & Chapman, 2006a). Interviews were completed by 8,904 individuals for an unweighted interview response rate of 75.3%. The sample of older adults employed in this study represents 34.7% of the total number of respondents.

Variables

The first outcome under study is the total number of hours over the past 12 months in which the individual participated in formal courses for personal development. Although some courses for personal development are offered for college credit, this type of formal learning is taken primarily on a non-credit basis and is not intended to be a part of a degree program. Examples of such courses include personal finance, home computing, dance or music, health or fitness, or foreign languages. Respondents could list as many as 20 courses taken for personal development, but only as many as two were sampled for more in-depth questioning by the interviewer. NCES staff derived this variable by applying a personal development course weight to the number of hours that the individual participated in the subset of courses that were sampled by the interviewer (Hagedorn, Montaquila, Carver, O'Donnell, & Chapman, 2006b). Among the unweighted sample, 73.7% of older individuals had zero hours of participation in personal development coursework. The median number of hours of participation among those who participated in at least one personal development course is 30.

The second outcome under study is an indicator of whether or not a postsecondary institution was a provider of at least one of the personal development courses taken by the individual. This variable was derived by the researchers using three items from the interview. The first two items ask the respondent to indicate the type of provider for the subset of courses sampled by the interviewer. Possible responses for these items are "Postsecondary school," "Other school or school district," "Private business/company/hospital," "Government agency," "Professional association/organization/union," "Public library," "Nonprofit community or religious organization," and "Other." The third item asks if any of the other personal development courses not sampled for the interview were taught by a college or university, with responses coded "Yes" and "No." If an individual selected "Postsecondary school" for either of the sampled personal development courses or selected "Yes" regarding the non-sampled personal development courses being taught at a college or university, this variable was coded '1,' and it was coded '0' otherwise. Among the unweighted sample, 14.9% of older adults who participated in at least one course for personal development used a postsecondary provider.

Following the conceptual model for this study and past research on the college choice process, variables representing demographic characteristics (i.e., gender, ethnicity, immigrant status, primary language, age, marital status, and locale) socioeconomic characteristics (i.e., education level, employment status, household income, and household size) and other commitments or constraints (i.e., health,

informal learning, other formal learning) are included as predictors in this study. A list of the study variables and their sources within the NHES 2005 data file is provided in section 2d of this proposal.

Analysis

The first outcome, the number of hours spent participating in personal development coursework, will be estimated with a zero-inflated negative binomial regression model. The excess in the share of older adults who did not participate in such coursework (73.7% in the unweighted sample) is under-predicted by more common methods of analyzing count data, such as Poisson regression or negative binomial regression (Long, 1997; Long & Freese, 2003). Specifically, Poisson regression and negative binomial regression assume that all older adults have a positive probability of participating in personal development coursework. This assumption that older adults do not participate “by chance only” does not make sense theoretically given the “corner solution” of the consumer preference model in which some older adults can *only* maximize their utility under constraints by choosing no units of personal development coursework. The zero-inflated negative binomial regression model allows for the possibility that older adults can have a perfect probability of having zero hours of participation in personal development coursework by assuming two latent groups. The first group has a perfect probability of having zero hours of participation in personal development coursework (i.e., the “Always 0” group), whereas the second group has a nonzero probability of having a positive number of hours of participation in such coursework (i.e., the “Not Always 0 group”) (Long, 1997; Long & Freese, 2003).

Membership in these latent groups is estimated by two simultaneous equations. The first equation estimates the individual’s probability of being in the “Always 0” group versus the “Not Always 0” group using a binary logit model. In other words, this equation provides the impact of particular characteristics and constraints on the individual’s probability of not participating in personal development coursework. To aid in the interpretation of the binary logit model, results of this equation will be converted to discrete changes in probability (i.e., Cruce, in press; Long, 1997; Long & Freese, 2003) and estimated probabilities of not participating in personal development coursework will be provided via simulation. Conditional on not being in the “Always 0 group,” the second equation estimates the expected number of hours of participation in personal development coursework using a negative binomial regression model. For this second equation, the negative binomial regression model is preferred over the Poisson regression model because the data are overdispersed – i.e., the conditional variance is much greater than the conditional mean. Results of this model are interpreted as *ceteris paribus* factor changes in the number of hours of participation in personal development coursework given a one-unit change in the independent variable (Long, 1997; Long & Freese, 2003).

Conditional on having taken at least one personal development course, the second outcome, the choice of a postsecondary institution as a provider, will be estimated with a binary logit regression model. Again, to aid in the interpretation of the logit model, results of this equation will be converted to discrete changes in probability (i.e., Cruce, in press; Long, 1997; Long & Freese, 2003) and estimated probabilities of selecting postsecondary providers for individuals with different characteristics and constraints will be calculated via simulation.

Both models will be estimated with Stata Intercooled, Version 10. This version of Stata has introduced new survey (i.e., 'svy:') commands that allow for the requirements of complex survey designs – such as those procedures used in the sampling for the 2005 administration of NHES – in the estimation of both zero-inflated negative binomial regression models (i.e., the 'svy: zinb' command) and binary logit regression models (i.e., the 'svy: logit' command). Survey commands in Stata produce variance estimates using balanced repeated replication, jackknife, or Taylor linearization, all of which are recommended as methods for computing sampling errors for 2005 NHES data (Hagedorn, Montaquila, Carver, O'Donnell, & Chapman, 2006a).

Will you use a NCES target dataset?

Yes

Will you use a NSF target dataset?

No

Please select the datasets that you intend to use:

NCES-National_Household_Education_Survey_(NHES)

**Explain why each dataset best serves this research.
Include a variable list for each dataset used.**

This study will employ data from the Adult Education Interview of the 2005 administration of the National Household Education Survey (NHES) program to examine older adults' (i.e., ages 55 to 79) participation in formal coursework for personal development. Only those data provided in the public-use data file will be used in this study. A list of all study variables and their sources within the NHES 2005 data file is provided below.

Whereas other national postsecondary data sets are concentrated on the experiences of traditional-aged and middle-aged adults within credential programs, the NHES 2005 Adult Education Interview provides perhaps the most comprehensive view of both the credit- and non-credit-based educational

experiences of older adults at postsecondary institutions. This data set is uniquely relevant to the research questions in this study, as commonly employed national datasets on postsecondary education and many postsecondary institutions themselves fail to recognize the formal lifelong learning experiences of older adults on their campuses (American Council on Education, 2007, 2008).

Dependent Variables

Personal Development Coursework: *satime*

Postsecondary Provider: *saprtyp1, saprtyp2, saocoll*

Independent Variables

Gender: *sex*

Race: *raceeth2*

Immigrant Status: *amoveage*

Primary Language: *ibspeak*

Age: *aage2004*

Marital Status: *amarstat*

Education Level: *educlevl, ibgrade*

Employment Status: *aelabor*

Household Income: *hincome*

Household Size: *hhundr18, hh18over*

Locale: *zipurb*

Region: *cenreg*

Disability: *lrndisb, vishear, adisab05*

Informal Learning Index: *picomp, piself, pimag, piclub, pishow, pioth*

Other Formal Coursework Index: *eslang, bspartic, crdipart, apprenti, wracty*

Will you address the NPEC focus topic?

Yes

If yes, please briefly describe:

Research on the educational demand of older adults using these data will contribute to our understanding of student flow by focusing on the potential reemergence of a large segment of the adult population on our campuses. This research will serve as an impetus for changes to IPEDS data regarding refinements in the collection of both non-credit based enrollment and the enrollment of older individuals at postsecondary institutions.

Provide a timeline of key project activities:

2009

June - July: Commence research project. Clean and prepare data. Conduct analysis and interpret results.

August - September: Prepare AIR forum presentation proposal. Begin drafting manuscript for academic journal. Solicit manuscript feedback from colleagues in field.

October 1: Submit AIR forum presentation proposal.

October - November: Refine and complete manuscript for journal submission. Prepare Indiana AIR forum presentation proposal.

December 22: Submit mid-year report. Submit manuscript to academic journal.

2010

January - February: Submit Indiana AIR forum presentation proposal. Prepare Indiana AIR conference presentation material.

March: Present research at Indiana AIR conference, location TBA. Write article for practitioner magazine (e.g. Change).

April - May: Prepare AIR conference presentation material. Submit article to practitioner magazine. Receive feedback from academic journal: revise/resubmit or submit to new journal based on editorial board decision.

May 29 - June 2: Present research at AIR forum, Chicago, IL.

June 1: Submit final research paper to AIR and NCES staff.

List deliverables such as research reports, books, and presentations that will be developed from this research initiative:

This project will result in six specific deliverables. The first deliverable will be the mid-year report due to AIR and NCES in December, as stipulated by the grant requirements. The second deliverable will be a manuscript prepared for an academic journal (as described in the dissemination plan). The third deliverable is a presentation of our findings at the Indiana AIR annual research conference in March of 2010, and the fourth will be a presentation at the AIR annual forum in May, 2010. The fifth deliverable will be a magazine article submitted to a practitioner-oriented magazine in the spring of 2010, and the final deliverable will be a research report for AIR and NCES staff no later than June 1, 2010. Taken together, these deliverables include: internal reports highlighting the progress of our work, Power Point slides and manuscripts for the Indiana AIR and AIR audiences, a magazine article for practitioner audiences, and a peer-reviewed article in an academic journal.

Describe how you will disseminate the results of this research:

The results of this study will be presented in several formats and for multiple audiences. Abiding by the grant proposal guidelines for dissemination, the researchers will submit a proposal to present the results of this study as a scholarly paper at the 2010 forum of the Association for Institutional Research. To reach other professionals who do not attend the national forum, the researchers will also submit a proposal to present the study results at the 2010 forum of their regional affiliate, Indiana Association for Institutional Research. Upon completion, the study manuscript will be submitted to a highly regarded research journal in higher education, such as the *Journal of Higher Education*, *Research in Higher Education*, or *Review of Higher Education*, and a less technical overview of the study results with a stronger focus on implications will be submitted to a pertinent professional journal or magazine with wide circulation such as *Change Magazine* or *Continuing Higher Education Review*.

Provide a reference list of sources cited:

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Statement of Institutional Review Board approval or exemption

Given the use of an existing and publically accessible national database in which individual participants or locations cannot be identified, the researchers submitted an application to the university's institutional review board requesting an exemption from review. As of January 8, 2009, exemption has been granted for this study. All paperwork related to this exemption is on file at the Indiana University Human Subject Office under protocol #09-13727.

Statement of Use of Restricted Datasets

This study will rely only on the publically accessible dataset of the Adult Education Interview from the 2005 National Household Education Survey (NHES) program.

Ty Cruce Biographical Sketch

Ty M. Cruce is Senior Policy Analyst in the office of University Planning, Institutional Research, and Accountability at Indiana University. Dr. Cruce earned a Ph.D. in Higher Education Administration from the University of Iowa. Prior to his current employment, Dr. Cruce served as Assistant Research Scientist in the Indiana University Center for Postsecondary Research where he managed the Beginning College Survey of Student Engagement (BCSSE) and acted as a research analyst for the National Survey of Student Engagement (NSSE). In addition to working on these two large-scale research projects, Dr. Cruce has had continuing experience analyzing the datasets from other broad-based studies of prospective and current college students, such as multiple waves of data from the National Study of Student Learning and ACT's National High School Profile.

Dr. Cruce's research is broadly located within the areas of college transitions and the impact of college on students. Much of his research applies consumer preference or utility theory and advanced statistical methods to the study of student decisions so that institutions and organizations may more effectively target their educational services and resources toward students in need. Dr. Cruce's research has appeared in such peer reviewed journals as *The Journal of Higher Education*, *Research in Higher Education*, and *Journal of College Student Development*, and he has an established record of presenting his research at the national forum for the Association for Institutional Research. He currently serves on the editorial board for the *Journal of College Student Development* and he serves on the AIR forum publications committee.

PUBLICATIONS (Abbreviated)

Cruce, T. M. (in press). A note on the calculation and interpretation of the Delta-p statistic for categorical independent variables. *Research in Higher Education*.

Nelson Laird, T. F., & Cruce, T. M. (in press). The individual and environmental effects of part-time enrollment status on student-faculty interaction. *The Journal of Higher Education*.

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AIR PRESENTATIONS

Cruce, T. M., & Nelson Laird, T. F. (2009). What's the score? Diverse experiences among collegiate athletes and non-athletes. Scholarly paper to be presented at the annual meeting of the Association for Institutional Research, Atlanta, Georgia.

Cruce, T. M. (2008). The effects of institutional attributes on the initial choice of college: An analysis of stated and revealed preferences. Scholarly paper presented at the annual meeting of the Association for Institutional Research, Seattle, Washington.

Cruce, T. M., & Moore, J. V., III. (2008). Community service during the first year of college: What is the role of past behavior? Scholarly paper presented at the annual meeting of the Association for Institutional Research, Seattle, Washington.

Cruce, T. M., & Moore, J. V., III (2006). First-year students' plans to volunteer: An examination of the predictors of community service participation. Scholarly paper presented at the annual meeting of the Association for Institutional Research, Chicago, Illinois.

Cruce, T. M., Padgett, R. D., Williams, J. M., & Maxey, E. J. (2005). The effects of ability and willingness to pay on preference and choice of private institutions. Scholarly paper presented at the annual meeting of the Association for Institutional Research, San Diego, California.

Cruce, T. M. (2004). Student characteristics and the choice of college attribute considered most important to initial college selections. Scholarly paper presented at the annual meeting of the Association for Institutional Research, Boston, Massachusetts.

Cruce, T. M. (2003). Studying the characteristics of supplemental ACT score senders. Scholarly paper presented at the annual meeting of the Association for Institutional Research, Tampa, Florida.

Budget

Personnel- Time on Project

Principal Investigator Ty Cruce

17 % (FTE) academic year

0 % (FTE) summer

Personnel- Salary & Benefits

Academic Year \$ 17594

Summer \$ 0

Graduate Assistant

25 % (FTE) academic year

0 % (FTE) summer

Academic Year \$ 15054

Summer \$ 0

Total Salary and Wages

32648

Travel

2010 AIR Forum (presentation at 2010 Forum
required):

3850

930

Other research related travel:

Other research expenses*

(Software, books, copying fees, etc.)

905

Total Requested

38333

*Costs for publishing articles in journals are allowed. The purchase of computer hardware, printing a stand alone book, overhead or indirect costs, and living expenses are not allowable. If you have questions about specific expenditures please contact the AIR Project Manager.

Statement of Prior, Current, and Pending Funding

There is no prior or other current or pending funding to support this research project. The principal investigator has not received prior funding from AIR to support his research.