DOCUMENT RESUME

ED 465 877 CE 083 503

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TITLE A Structural Examination of Academic Integration, Perceived Stress, Academic Performance, and Goal Commitment from an Elaborated Model of Adult Student Persistence.

PUB DATE 2002-04-00

NOTE 25p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 1-5, 2002).

PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS *Academic Achievement; *Academic Persistence; *Adult Learning; Adult Students; College Programs; College Students; Continuing Education; Definitions; Educational Attitudes; Educational Policy; *Goal Orientation; Grade Point Average; Higher Education; Influences; Literature Reviews; Models; Policy Formation; Predictor Variables; Socioeconomic Background; *Stress Variables; *Student Attitudes; Student College Relationship; Student Motivation; Undergraduate Study

ABSTRACT

The effects of selected variables on the academic persistence of adult students were examined in a study of a random sample of 469 adult students aged 24 years or older enrolled in a four-year college. The survey questionnaire, the Adult Student Experiences Survey, collected data regarding 12 endogenous variables and 13 exogenous variables pertaining to student background. A two-step data analysis that included measurement and structural stages was conducted. The following four focal variables emerged: academic integration (students' feelings about being part of the institution's academic life); perceived stress; academic performance; and goal commitment. Eleven endogenous path relationships were identified. Adult student academic integration, perceived stress, cumulative grade-point average (GPA), and goal commitment attitudes were explained through the dynamic interplay of the theory of planned behavior. Perceived stress had significant total effects on 7 endogenous variables above the effect size of 0.10 and cumulative GPA had significant total effects on 6. The findings were said to suggest that the academic and social systems of the adult undergraduate experience must be more attuned to adult students' percepts of academic performance and perceived stress and that higher education institutions must offer curricula and services that are challenging, supportive, and relevant to adult students. (Contains 54 references.) (MN)

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A Paper Presented Before the
American Educational Research Association
2002 Annual Meeting

New Orleans, LA.

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Abstract

Of the 25 variables in the nonrecursive path model investigated, the explained variance of four focal endogenous variables is examined with the sociostructural effects of thirteen exogenous variables included. The findings indicate reciprocal path relationships between academic integration and goal commitment and between stress and cumulative GPA that earmark new active subsystems of engagement for adult students in a student-learner context.

As a response to the problem of nontraditional student attrition at two year and four year urban colleges, an elaborated model of student persistence was identified that builds upon the synthesis of Cabrera et al. (1993) and of Sandler (1999, 2000a, 2000b). An elemental conceptual allegiance to the student integration model of Tinto (1975; 1987; 1993) and the student attrition model of Bean and Metzner (1985) is charted with new theoretical considerations that remain akin to a recent call by Braxton (2000) to reinvigorate theory and research on the "departure puzzle." With financial aid included as an endogenous variable (Bean and Eaton, 2000), a focal emphasis on the explained variance of four focal endogenous variables, that of academic integration, perceived stress, academic performance, and goal commitment is assessed with critical attention given to sociostructural effects that include: gender, ethnicity/race, relatives/dependents, parents' educational level, hours employed, student type, academic aspirations, and commuting time. Although there has been an awareness of the problem of attrition within undergraduate degree programs, research efforts at examining this trend affecting adult students have been only moderately successful (Kasworm, 1990; Kasworm & Pike, 1994).

The cross-sectional survey research reported in this investigation identifies a variable, perceived stress, permitting a richer explanation of the process of student persistence (attrition's antonym) and in particular emphasizes the interconnected path relationships between academic integration and goal commitment and perceived stress and academic performance. Empirical considerations of Sandler (1999, 2000a, 2000b) are explored to produce an innovative path analysis with reciprocal interactions.

CONCEPTUAL FRAMEWORK AND RELATED LITERATURE

In light of the findings of Kasworm and Pike (1994) that challenged the appropriateness of the inclusion of academic performance in a traditional model of student satisfaction, careful attention was given, in the development of a new model, to the five perceptual "domains of reality" of Kasworm (1990). By means of content analysis, five domains of perceptual reality were nominally cited by Kasworm (1990) about past adult undergraduate research: 1) image of implied deficiency, 2) image of student entry and adaptation, 3) image of description and characterization, 4) image of psychosocial development, and 5) image of equity and outcome. The nominal listing of the five domains gives a brief explanation of the perceptual categories addressed. Readers may refer to Kasworm (1990) for definitional reference regarding each.

Accordingly, the integrated model of student retention of Cabrera et al. (1993) and the integrated model of student persistence of Sandler (1999, 2000a, 2000b) were modified in this research investigation to include new constructs germane to nontraditional students. With the testing of a new structural model, an attempt is made "to capture the reality of the transactional relationship between adult students and the undergraduate institution," by examining adult development in a student learner context (Kasworm, 1990). An emphasis of nontraditional student adjustment (Bean & Metzner, 1985;

Bean & Eaton 2000; Chartrand, 1992) to person-environment fit experiences encountered at the institution is examined. In turn, relationships are drawn between the undergraduate experience and other key life roles that adult students endure involving work and family.

The elaborated model investigated unfolds as a system of twelve variable constructs and their purported relationships while including for the effects of thirteen exogenous variables. The testing of the new model reexamines the conclusions Kasworm and Pike (1994) make regarding academic performance and the meta-analysis of the theory of student departure by Braxton et al. (1997). Empirical evidence addressed by Adelman (1999), Baker and Velez (1996), and Desjardins et al. (2002) regarding sociodemographic background and access are evaluated with new findings.

Perceived Stress

Perceived stress examines the stress experienced by adult students. As a psychological/attitudinal variable, it measures the amount of stress adult students perceive due to the energy they expend and due to the amount of work that college requires (Cabrera, 1988). The stress experienced by adult students may have a positive or negative impact, as the terms "eustress" and "distress" imply (Bandura, 1997; Bean & Metzner, 1985; Bray et al., 1999; Dill & Henley, 1998, Lazarus & Folkman, 1984; Munoz, 1987; Selye, 1974). Although the definition employed by Cabrera (1988) provides an operational basis for exploring student stress in this investigation, Selye (1976) offers a richer definitional lexicon in which perceived stress is embedded. The definition employed here is akin to the related sub-specialty of adult adjustment and social adaptation of Mechanic (1983). Perceived stress gains conceptual clarity within the larger definitional framework of stress proposed by Selye (1974) from the empirical evidence encountered in this investigation. The notions of "distress" and "eustress" emerge as important adjectival references that are particularly illustrative with the structural path analysis examined in this article. That is, the observed negative and positive total effects of perceived stress explicated among two of the four focal variables in the elaborated model examined acquire larger meaning close to the brushstroke definition that Selye (1976) proffered.

> Stress *is the* nonspecific response of the body to any demand, whether it is caused by, or results in pleasant or unpleasant conditions. . . We must, however, differentiate within the general concept of stress between the unpleasant or harmful variety, called "distress" (from the Latin *dis* = bad, as in dissonance, disagreement), and "eustress" (from the Greek *eu* = good, as in euphonia, euphoria). . . However, the fact that eustress causes much less damage than distress graphically demonstrates that it is "how you take it" that determines ultimately, whether one can adapt successfully to change.

The cognitive or attitudinal component of perceived stress was introduced in this investigation due to evidence of Chartrand (1992) with regard to the mediating effects of the "absence of psychological distress" variable among the constructs of the student attrition model of Bean and

Metzner (1985), due to evidence regarding stress-related coping strategies of Bray et al. (1999), and finally due to elements of the integrated model of student persistence of Sandler (1999; 2000a; 2000b). As these three lines of evidence show within an evolutionary context of increased understanding concerning adult adjustment and social adaptation (Mechanic, 1983), perceived stress fits within the expanded context of theoretical inquiry explored here in a most important way. That is, perceived stress couples conceptually with the theory of planned behavior (Ajzen, 1991), the parallel notion of self-efficacy (Bandura, 1997), the financial attitudes of difficulty and satisfaction, and unmet need explored with the disbursement of financial aid and family encouragement in this investigation.

The Theory of Planned Behavior–A Conceptual Bridge for Model Integration

The theory of planned behavior acts as a conceptual overlay or bridge for model integration with the elaborated structural model of adult student persistence presented here. With a new exploration of adult adjustment, conceptual variables are theoretically related in a structural model by means of the social cognitive theory of planned behavior and the embedded notions of perceived behavioral control and non-volitional control (Ajzen, 1991). As an update to the theory of reasoned action of Fishbein and Ajzen (1975), the theory of planned behavior merges the notion of perceived behavioral control with a spectrum of resource considerations that can influence attitude-behavior relations (Bentler & Speckart, 1979). "Perceived behavioral control is in turn determined by control beliefs, which are beliefs about the likelihood that one possesses the resources and opportunities thought necessary to execute the behavior or attain the goal" (Eagly & Chaiken, 1993). Relative to Bean and Eaton (2000), elements of the theory of reasoned action (Fishbein and Ajzen, 1975), a precursor to the theory of planned behavior (Ajzen, 1991), act as a conceptual analog to the theory of self-efficacy purported by Bandura (1986, 1997) and are included in the model investigated as an explanation for attitude-behavior relations in a student-learner context (Sandler, 2000a; 2000b; 2001).

Perceived Stress and an Elaborated Model of Student Persistence: Hypothesized Effects on Academic Integration, Perceived Stress, Cumulative GPA, and Goal Commitment

By elaborating the integrated model of student retention of Cabrera et al. (1993) and the integrated model of student persistence of Sandler (1999; 2000a; 2000b) with the constructs of financial aid and perceived stress, an attempt is made to better explain the variance observed of adult students regarding four focal endogenous variables: academic integration, perceived stress, cumulative GPA, and goal commitment. In light of the emergence of two subsystems of adult student engagement, that of stress/performance and integration/commitment, focal attention is made on the explained variance of these four component endogenous variables within the theoretical and empirical structural frameworks examined. The respective reciprocal interactions between academic integration and goal commitment and perceived stress and academic performance are assessed.

RESEARCH DESIGN AND METHODS

Population and Sample

The population for this research investigation was composed of students 24 years of age or older studying on a part-time or full-time basis in a two year and four year degree bearing program for adult students. A survey questionnaire was distributed to a randomly selected sample of 937 adult students. After a 63 percent survey response and listwise deletion, the sample for data analysis comprised 469 adult students. From these data sources, a total of 25 variables were included in this research study in an effort to ascertain their relationship to persistence. Degree program, one exogenous variable, differentiates between two-year and four-year degree programs and serves as a control.

Over ninety five percent of the students in the sample were commuter students. The sample included students who began their studies at the institution as freshman (41.2%) and transfer students (58.8%). Approximately half the students in the sample were studying for an Associate degree (50.3%), whereas the remaining students were studying for a Bachelor degree (49.7%). Approximately one-third of the students were majors in the liberal arts and humanities combined, whereas the remaining students were majors in business, the health professions and the social sciences combined. White students were in the majority (51.0%); non-white students were in the minority by a small margin (49.0%). Female students were predominant (71.2%), whereas male students were smaller in number (28.8%). The persistence rate for the sample population was 79.5% between the fall and spring semesters.

Instrumentation

A survey questionnaire, the Adult Student Experiences Survey (ASES) was administered to collect attitudinal data and self-reported background characteristics. The ASES was adapted from the "Student Experiences Survey" of Cabrera (1988). As tested, the reliability of scales employed in large part matched or surpassed the levels reported by their respective developers. Institutional data was merged for analysis after the ASES was administered.

Variables in the Study

The predictor endogenous (independent) variables included: financial attitudes/difficulty, family encouragement, financial aid, financial attitudes/satisfaction, academic integration, perceived stress, social integration, institutional commitment, cumulative GPA (Grade Point Average), goal commitment, and intent to persist. The exogenous variables of the model included thirteen variables that pertained to student background: gender, race/ethnic affiliation, relatives/dependents, parents' educational level,

household income, hours employed, unmet need, academic degree aspirations, student type, degree program, curriculum hours, commuting time, and hours studied/week. The criterion (a dependent endogenous variable) was persistence, a dichotomous outcome. Definitions of the variable constructs and related information are provided below:

Academic Integration concerns the feelings students' express about being a part of the academic life of the institution. By examining the perceptions of adult students regarding their 1) academic performance, 2) their satisfaction with the curriculum, and 3) their feelings of being a part of the academic institution, the research examined the degree to which students become involved in the academic system and intellectual life of the university (Cabrera et al., 1993). A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the three-item scale for academic integration was .57.

Background Variables are data or specific information collected about students prior to their enrollment at the institution. The background data originate from institutional records and by means of the Adult Student Experiences Survey (ASES). The background variables investigated include thirteen exogenous variables: 1) gender, 2) race/ethnic affiliation, 3) relatives/dependents, 4) parents' educational level, 5) household income, 6) hours employed 7) unmet (financial) need, 8) academic degree aspirations, 9) student type, 10) degree program, 11) curriculum hours, 12) commuting time, and 13) hours studied/week. Race and gender were included to ascertain the sociostructural impact of these critical background characteristics on the adult learner. Five exogenous variables listed above numbered three, four, five, six, and eight served as controls of the socioeconomic background of the adult population examined. Hours employed, a self-reported variable, examined the impact that employment had on adult learners. Unmet need concerns students' declared budget of monetary resources minus the cost of tuition and related expenses. Unmet need is an algebraic derivative of price as defined by St. John et al. (1994, 2000). Student type, variable number nine above, controlled for the presence of both freshman students, first-time undergraduates at the institution in which the research was conducted, and transfer students. Degree program, variable number ten above, controlled for the presence of adult students studying for two-year and four-year degrees respectively. Curriculum hours, variable number eleven above, served as an institutional measure representing adult students' investment or involvement in their program of study. Commuting time, variable number twelve above, concerned the number of minutes it took a student to travel to a university location from home or work for classes. Hours studied/week examined the amount of time students worked on a program of study per week during the semester.

Cumulative GPA (Grade Point Average) means academic performance as a continuous measure (0.000-4.000). Cumulative GPA was obtained from institutional records to examine the academic performance of adult students.

Family Encouragement was comprised of two items and explores the construct of

encouragement from family of Cabrera et al. (1992b; 1993) within the specification of an elaborated model introduced here. A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the two-item scale for family encouragement was .84.

Financial Aid was an actual dollar figure dispensed with the awarding of need and non-need based grants and loans.

Financial Attitudes/Difficulty was comprised of two items and involved the "experience of financial difficulty" while at the institution (Cabrera et al., 1992b) and the difficulty in financing a college education (Cabrera, 1988; Mallette & Cabrera, 1991). A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the two-item scale for financial attitudes/difficulty was .69.

Financial Attitudes/Satisfaction was comprised of two items that involved the satisfaction with the amount of financial support (grants, loans, family and jobs) received while attending the institution (Cabrera et al., 1992b, Cabrera et al., 1993) and the satisfaction with financial aid programs at the institution as expressed by students (Mallette & Cabrera, 1991). A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the two-item scale for financial attitudes/satisfaction was .84.

Goal Commitment was comprised of two items. It concerned the importance students ascribe to a college degree and the "importance of completing program of study" (Pascarella & Terenzini, 1979, 1980; Cabrera et al., 1993). A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the two-item scale for goal commitment was .66.

Institutional Commitment was comprised of four items regarding the student integration model and involved the confidence students have in their institutional choice, and their perceptions of "institutional fit and quality" (Pascarella & Terenzini, 1979, 1980; Cabrera et al., 1993). A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the four-item scale for institutional commitment was .78.

Intent to Persist was comprised of four items and involved the likelihood in re-enrolling at the institution as expressed by students (Cabrera et al., 1993). A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the four-item scale for intent to persist was .69.

Perceived Stress, measures the amounts of stress adult students perceive due to the energy they expend and due to the amount of work that college requires. A two-item scale was included that originated with a survey developed by Cabrera (1988). A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the two-item scale for perceived stress was .85.

Persistence, the principal variable of this inquiry, is determined by the actual re-enrollment at

the institution for the following term of study.

Social Integration was comprised of two items. The scale examined the experience adult students have in making "close personal friendships" and their "ease of meeting and making friends" in college (Cabrera et al., 1993). A five-category Likert scale, strongly agree to strongly disagree was employed. The Cronbach Alpha reliability coefficient of the two-item scale for social integration was .73.

Tests for Univariate and Multivariate Normality

Upon prescreening, PRELIS 2.30 revealed a moderate level of kurtosis and skewness among the variables to be investigated. (Joreskog & Sorbom, 1993; Joreskog et al., 1999). An alternative estimator was utilized by employing the weighted least squares (WLS) method to serve as an adjustment for the multivariate non-normal conditions encountered (Bollen, 1989).

Data Analysis Procedures

A two-step data analysis was conducted that included measurement and structural stages. The measurement stage was performed separately by means of a principal components data reduction procedure with SPSS 9 (SPSS, Inc., 1999). Following data reduction, PRELIS 2.30 produced data transformations among ordinal and continuous variables and provided appropriate covariance matrices that included the asymptotic covariance matrix; the structural parameter estimation procedures and path analytic protocol of LISREL 8.30 followed (Joreskog & Sorbom, 1993; Joreskog et al., 1999). A full hypothetical model is presented in Figure 1. An examination of four focal endogenous variables follows with the paths outlined in Figure 2. Ten hypothesized relationships are represented.

Insert Figure 1 about here

Insert Figure 2 about here

RESULTS

The total effects among four focal endogenous variables of the elaborated model of student persistence are summarily provided in Figure 3 above an effect size criterion of .10 (Pedhazur, 1996; Stevens, 1996; Hoyle, 1995; Loehlin, 1992; Cohen & Cohen, 1983). Eleven endogenous path relationships are depicted. In addition, effects on the endogenous variables of the exogenous variables

were included and controlled. The standardized total effect size criterion of .10 suggests that a unit change in the total effect of a given endogenous or exogenous variable is associated with at least a ten percent change (or more) on a given endogenous variable (or dependent outcome) examined.

Insert Figure 3 about here

Goodness of Fit Statistics and Stability Index

As a structural model, the elaborated model of student persistence has a "perfect fit," (Chi-square = 151.401 with 219 degrees of freedom, p = 1.00) (Joreskog & Sorbom, 1993). Other indicators of goodness of fit included: Chi-Square/degrees of freedom ratio (.691), goodness of fit index (GFI = .995), adjusted goodness of fit index (AGFI = .993), and the root mean square residual (RMR = .0540). Largest Eigenvalue of B*B' is the (Stability Index = .728).

The Squared Multiple Correlation (R^2) for Each Endogenous Variable

The explained variance for each endogenous variable was as follows: financial attitudes/difficulty **(5%)**, family encouragement **(8%)**, financial aid **(23%)**, financial attitudes/satisfaction **(36%)**, academic integration **(31%)**, perceived stress **(26%)**, social integration **(10%)**, institutional commitment **(8%)**, cumulative GPA (Grade Point Average) **(45%)**, goal commitment **(15%)**, intent to persist **(48%)**, and persistence **(42%)**.

The Total Effects Explaining Academic Integration

The explained variance in **academic integration** was moderate at **31 percent**. The total effects on academic integration of the endogenous variables were largely direct effects with the exception of cumulative GPA which was comprised of approximately one-third indirect effects: (see Figure 2): 1) family encouragement (total effect = –.448, $p < .001$), 2) cumulative GPA (total effect = .242 $p < .001$), 3) goal commitment (total effect = .210 $p < .001$), 4) institutional commitment (total effect = .137 $p < .001$), and 5) financial aid (total effect = .110 $p < .001$). In addition, the total effects on academic integration of the exogenous variables were: 1) commuting time (total effect = .158, $p < .001$), 2) parents' educational level (total effect = –.142, $p < .001$), and 3) hours employed (total effect = .137, $p < .001$) . The total effects on academic integration of parents' educational level was largely a direct effect whereas the effects of commuting time and hours employed were entirely indirect.

The Total Effects Explaining Perceived Stress

The explained variance in **perceived stress** was moderate at **26 percent**. The total effects on perceived stress of the endogenous variables included two effects above the effect size criterion of .10 (see Figure 2): 1) intent to persist (total effect = .308, $p < .001$), and 2) cumulative GPA (total effect = .158, $p < .001$). The total effect of intent to persist was largely a direct effect whereas the total effect of cumulative GPA was indirect in its entirety. In addition, four total effects on perceived stress of the exogenous variables were largely direct effects in composition: 1) gender (total effect = –.213, $p < .001$), 2) relatives/dependents (total effect = –.204, $p < .001$), 3) ethnicity/race (total effect = .143, $p < .001$), and 4) student type (total effect = –.126, $p < .001$).

The Total Effects Explaining Cumulative GPA

The explained variance in **cumulative GPA** was at a moderate to high level at **45 percent**. The total effects on cumulative GPA of the endogenous variables were (see Figure 2): 1) perceived stress (total effect = .346, $p < .001$), and 2) intent to persist (total effect = .101, $p < .001$). The total effects on cumulative GPA of perceived stress was largely direct whereas of intent to persist was entirely indirect. In addition, the total effects on cumulative GPA of the exogenous variables were: 1) hours employed (total effect = .564, $p < .001$), 2) commuting time (total effect = .244, $p < .001$), and 3) gender (total effect = –.219, $p < .001$). The total effects on cumulative GPA of the exogenous variables were largely direct in composition.

The Total Effects Explaining Goal Commitment

The explained variance in **goal commitment** was low at **15 percent**. The total effects on goal commitment of the endogenous variables were (see Figure 2): 1) perceived stress (total effect = –.194, $p < .001$), and 2) academic integration (total effect = –.116, $p < .001$). The total effects on goal commitment of the endogenous variables were largely direct. In addition, the total effects of goal commitment on the exogenous variables were as follows: 1) hours employed (total effect. = .269, $p < .001$), 2) academic aspirations (total effect = – .195, $p < .001$), 3) gender (total effect = .183, $p < .001$), 4) relatives/dependents (total effect = .136, $p < .001$), and 5) ethnicity/race (total effect = –.111, $p < .001$). The total effects on goal commitment of the exogenous variables were largely direct in composition.

DISCUSSION AND CONCLUSION

Through the dynamic interplay of the theory of planned behavior (Ajzen, 1991), adult student academic integration, perceived stress, cumulative GPA, and goal commitment attitudes are comprehensively explained. The reciprocal relationships illustrated in a focal snapshot of the empirical model examined between the variables of academic integration and goal commitment and between

perceived stress and cumulative GPA are noteworthy (see Figure 3) denoting the respective reciprocal subsystems of integration/commitment and stress/performance. Within the full-elaborated model (Sandler 2001), perceived stress and cumulative GPA have the widest range of influence of the endogenous variables. Perceived stress has significant total effects on seven endogenous variables whereas cumulative GPA has significant total effects on six endogenous variables above an effect size of .10 (Sandler 2001). The broad spans of effects of perceived stress and cumulative GPA and the stress and performance subsystem alluded to earlier in this paper are largely new to the literature. These findings stand in contrast to the conclusions of Kasworm and Pike (1994) regarding the efficacy of the deployment of academic performance in models of student satisfaction/persistence.

From these findings, clear policy implications arise. The academic and social systems of adult undergraduate experience must be more attuned to adult students' percepts of academic performance and perceived stress. The empirical evidence presented here complements the definition of Seyle (1976) and the adjectival references of "eustress" and "distress" that he deftly employed. Students need assistance and co-curricular programming to help them develop "stress-related coping strategies" (Bray et al., 1999) attuned to performance and the outcomes borne regarding stress, in particular eustress, where a positive impact has been cited with respect to the effects of stress on academic performance. Negative consequences regarding the effects of stress, commonly referred to as distress, were in evidence on goal commitment. With respect to the underlying factors that determine perceived stress as an endogenous outcome in the student –learner context, adult students attitudes of intent to persist and academic performance produce a positive impact as important eustress determinants. This evidence also complements and enhances the work of Mechanic (1983) with regard to the person-environment-fit framework of adult adjustment and social adaptation that he espoused. "Stress thus constitutes a lack of fit between aspirations, needs, and demands and the ability to respond accordingly" (Mechanic, 1983). Most importantly, as this research elucidates, the operational definition of perceived stress provided by Cabrera (1988) effectively captures the effects experienced by adults persisting in a student-learner context. As an ancillary note, female students, those students who have a lower level of family dependents, are white, and who transferred to the institution experience higher degrees of stress at moderate to low levels.

Ultimately, the observed data and structural path analysis presented confirm the conceptual notion of stress that Mechanic (1983) envisioned in a larger definitional frame. "Stress, therefore, may reside in the nature of demands themselves, the inadequacies of the social institutions and supports that prepare individuals for the vicissitudes of life, developmental failures, or personal defects" (Mechanic, 1983). Accordingly, the findings among the endogenous variables of perceived stress and academic performance suggest that the liberal arts and professional curriculum need to be made relevant regarding the larger environment that affects adult lives by directly linking the curriculum with the world of work and the family (Sandler, 1999; 2000a; 2000b, 2001). With proactive and attuned institutional responses

for adult academic programming, co-curricular academic services, and student life, nontraditional students can perhaps find a less aversive means for social adaptation while they persist for degrees. Higher education institutions must find a means to enhance performance with curriculum and services that are challenging, supportive, and most importantly relevant. As the empirical model indicates, the academic system of the adult undergraduate experience must be more attuned to adult students' percepts of academic performance, perceived stress, and goal commitment while considering other environmental influences that include family and work.

General Conclusions

It is in the spirit of revision and new theory generation (Braxton, 2000) that the elaborated hypothetical and empirical models of student persistence have evolved (Sandler, 2001). New path relationships have been embraced beyond the core of empirically verified relationships that gained acceptance over time with the testing of the study of student departure of Tinto (Braxton et al., 1997; Tinto, 1975; 1987; 1993). The focal examination of part of the elaborated model investigated here unfolds from a system of twelve variable constructs and their purported relationships while including the effects of thirteen exogenous variables (see Figures 1 and 2).

Important reported relationships have emerged in the empirical model that indicate that the stress/performance and integration/commitment subsystems of engagement are actively negotiated by adult students seeking professional development within a student-learner context in a reciprocal fashion (see Figure 3). These nonrecursive subsystems of negotiation run parallel to environmental demands pressed by various stakeholders to educate and train the sub-baccalaureate labor force (Grubb, 1996). In so doing, by "working in the middle," (Grubb, 1996) with adult students and new subsystems of engagement experienced by them, the elaborated model addresses the call by Braxton (2000) to reinvigorate research regarding the departure puzzle by examining adult degree programming and nontraditional student persistence. That is, continuing professional education earnestly attempts to work in the middle through the adult degree curriculum, satisfying many persistent learners (Sandler, 2001), but unfortunately high degrees of loan indebtedness by students has drawn concern to which Monteverde (2000) and Cofer and Sommers (1999) address the danger of projected loan default scenarios in their respective works.

Other effects among the focal endogenous variables examined are particularly interesting and important providing new insight on adult student academic integration. For every unit increase in academic integration experienced by adult students there is a 45 percent decrease in family encouragement attesting to the solitary road traveled by adult learners regarding their academic development. The positive effects of academic performance and goal commitment combined on academic integration indicate that these positive compensatory values may serve to offset the negative effects of family encouragement.

The findings of this research investigation corroborate the review of the research literature on access and persistence in higher education of Baker and Velez (1996) and further supporting evidence supplied by Adelman (1999), that emphasize the "declining importance of socioeconomic advantage" (Baker and Velez, 1996). In particular, the sociostructural effects on the four focal endogenous variables of this investigation, that of academic integration, perceived stress, academic performance, and goal commitment by gender, ethnicity/race, relatives/dependents, parents' educational level, hours employed, student type, academic aspirations, and commuting time are observed. The findings suggest that sociostructural factors do intervene in the analysis to have an impact on the endogenous outcomes in a manner that is illustrative of a more level sociodemographic playing field for students attending higher education institutions. Accordingly, students with lower parents' educational levels demonstrate higher levels of academic integration. Also students from minority backgrounds exhibit greater goal commitment to a small degree and students with lower academic aspirations are also experiencing greater goal commitment at a moderate level. As Desjardins et al. (2002) elucidate in their reexamination of the findings of Adelman (1999), more appropriate research methodologies are yielding better-informed explanations for the observed data. In a manner similar to "event history analysis" that Desjardins et al. (2002) utilized, the research methodology of structural equation modeling employed in this investigation assisted this researcher to examine data that in large part run parallel to themes addressed by Baker and Velez (1996) and the evidence of Desjardins (2002). The findings suggest not only leveling effects, but also the complexities that moderating influences of sociodemographic factors bring to the analysis of student attitudes and behavior in higher education (Perna, 2000a; 2000b) to further elucidate progress and remaining inequities regarding outcomes observed therein.

With regard to the four focal endogenous variables observed in this paper, the effects of hours employed and commuting time are particularly noteworthy. In a counterintuitive way, greater hours of employment experienced by nontraditional students today in a student-learner context facilitate and strengthen the adaptive functioning of adults, as the effects on three of the four focal variables of this paper presentation indicate. That is, the effects of hours employed are indeed positive coefficients as the findings on academic integration, cumulative GPA, and goal commitment elucidate. The effect of hours employed on cumulative GPA was at a moderate to high level and on goal commitment was moderate; both effects in large part were direct in composition. These effects further earmark the renewed importance of the academic system that Tinto (1993) addressed and his more recent applied notion of the classroom as community (Tinto, 1997). Most importantly, the effective delivery of performance oriented curricula at two and four year colleges ought to be practically linked with the larger environmental influences affecting adult student lives, those of work and the professions (Sandler, 2000b). As a resource at the institution, professional adult student learning moves in a parallel fashion to larger environmental needs that ultimatlely impact the economic development of urban and suburban

communities. In so doing, continuing professional higher education programs are serving the professions and adult students, as the mission, goal, and mantra of lifelong learning so ably connotes.

Another exogenous variable, commuting time exhibits counterintuitive outcomes on academic integration and cumulative GPA respectively. Adult populations attending college who travel greater distances exhibit a greater sense of belonging to the academic life of the institution while continuing their education for a degree. In addition nontraditional learners commuting greater distances to class at campus locations exhibit an enhanced capacity to perform in an academic environment at higher levels when compared to students commuting shorter distances which stands in contrast to a well accepted thesis of Chickering (1974) from an earlier generation. Indeed today's adult students may be more favorably focused on the academic tasks at hand in light of given constraints, in particular, the effects of commuting time on academic integration and academic performance.

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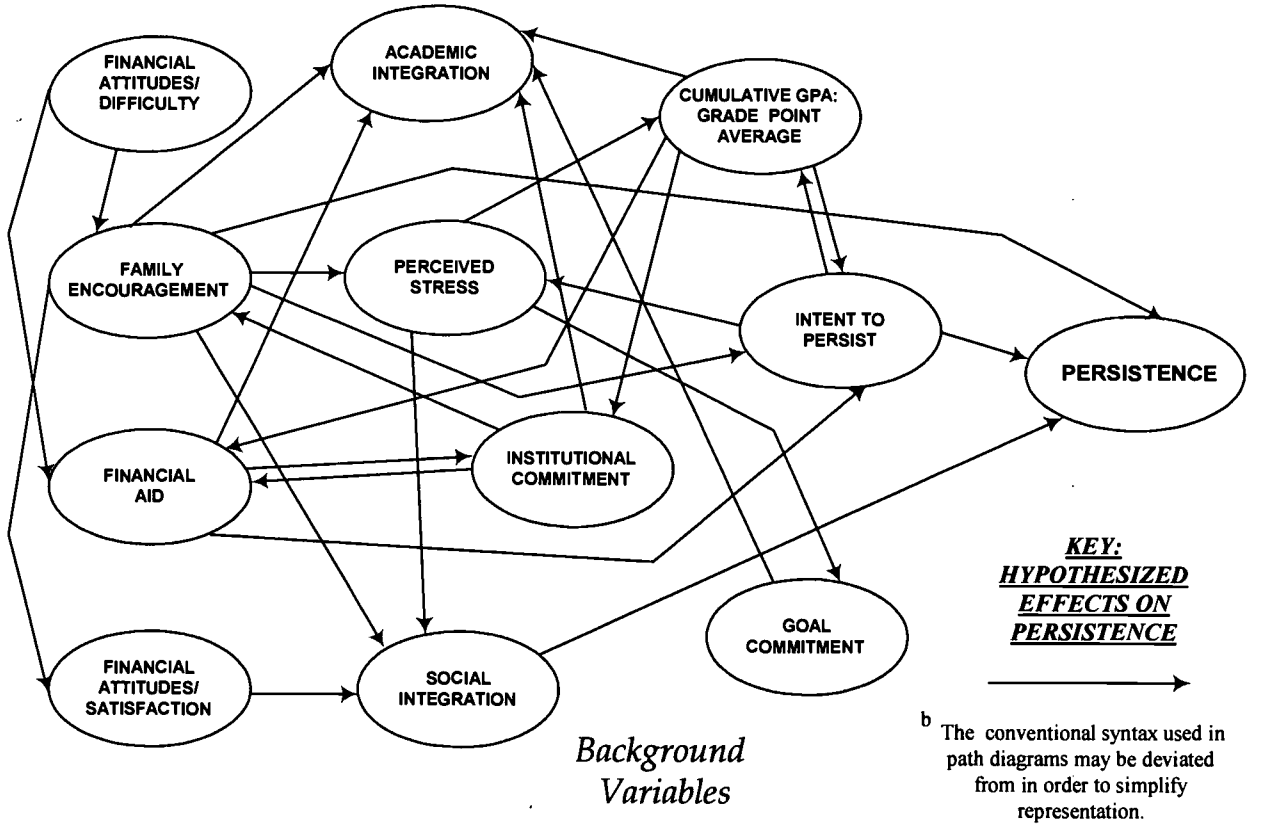


Figure 1: Perceived Stress and an Elaborated Model of Student Persistence: A Hypothetical Model [b]

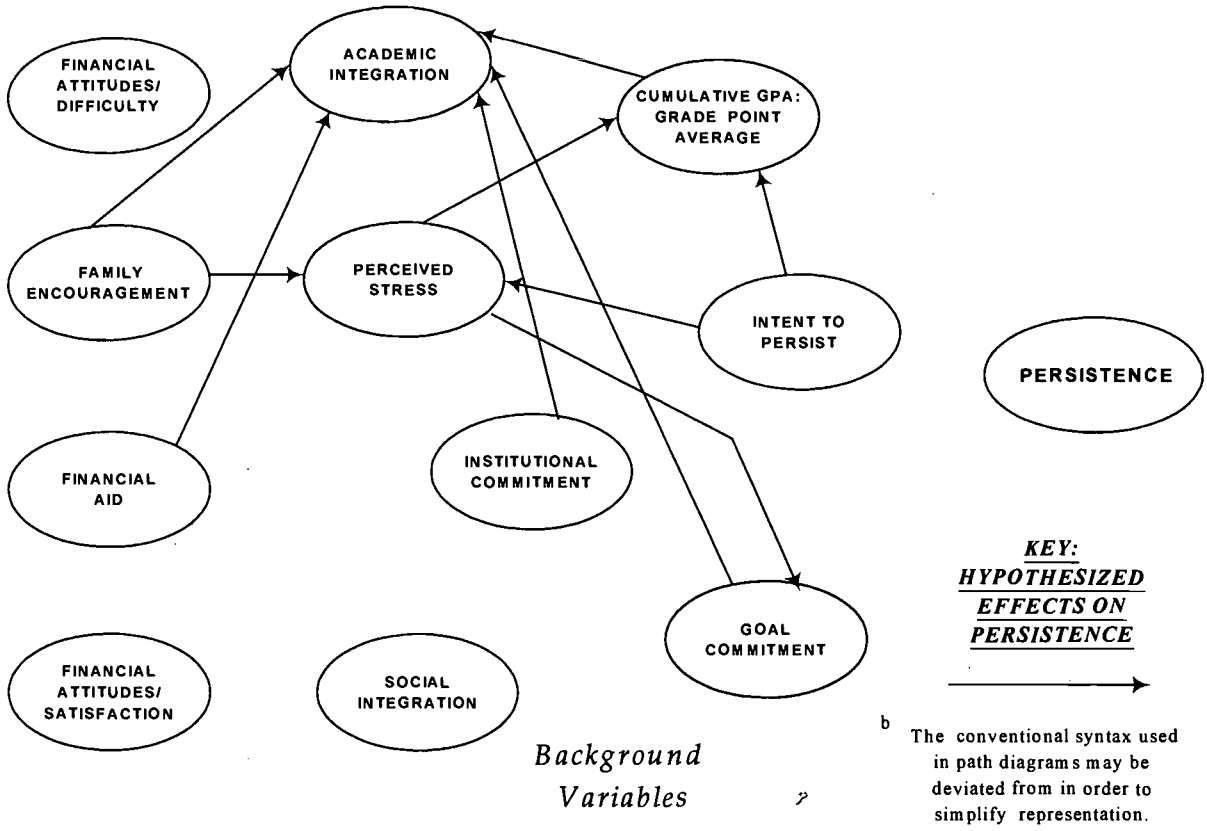
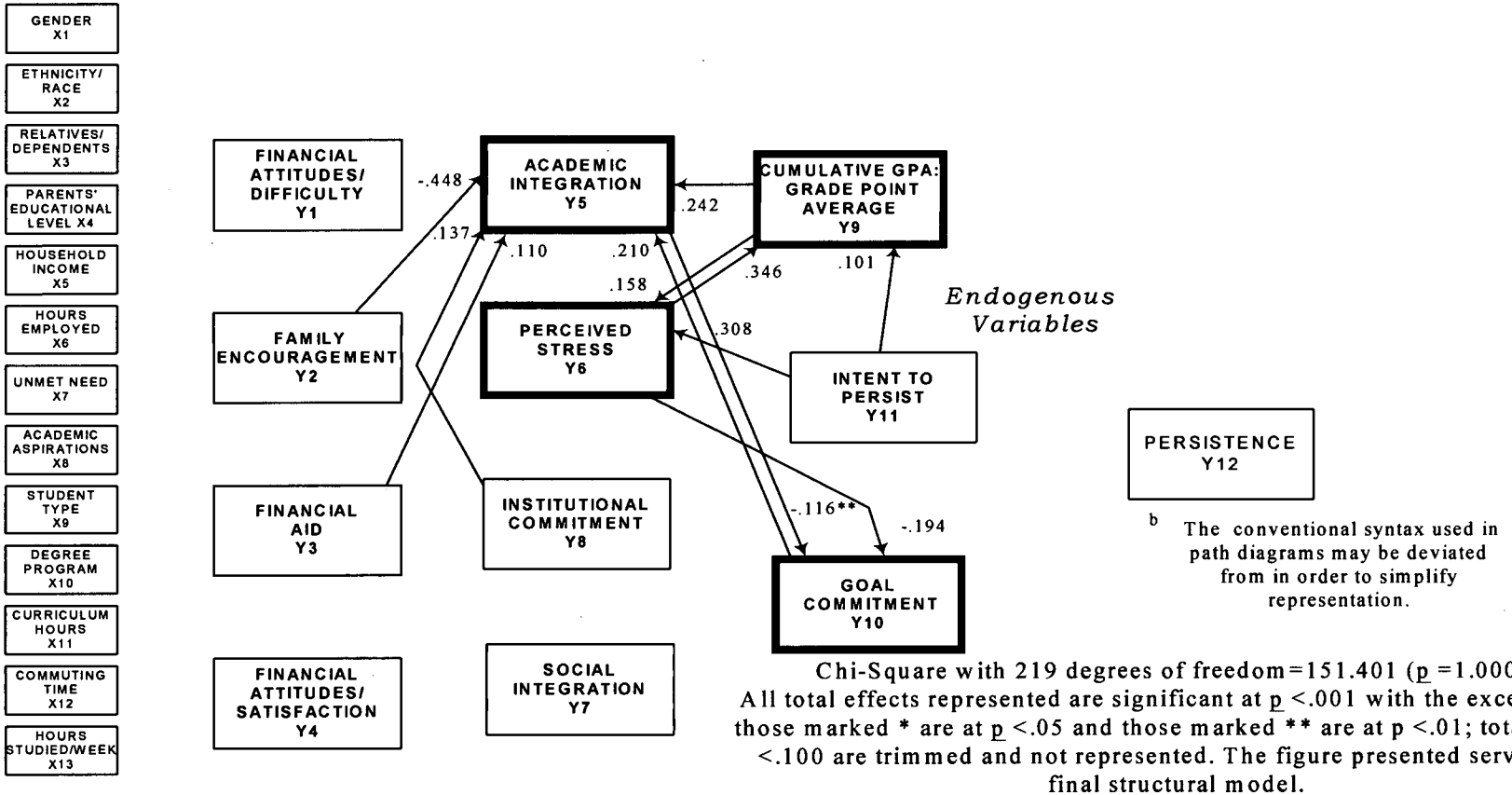


Figure 2: Perceived Stress and an Elaborated Model of Student Persistence: Hypothesized Effects on Academic Integration, Perceived Stress, Cumulative GPA, and Goal Commitment[b]



Chi-Square with 219 degrees of freedom=151.401 ($\underline{p}$ =1.000). All total effects represented are significant at $\underline{p}$ <.001 with the exception of those marked * are at $\underline{p}$ <.05 and those marked ** are at p <.01; total effects <.100 are trimmed and not represented. The figure presented serves as a final structural model.

Figure 3: Perceived Stress and an Elaborated Model of Student Persistence: Total Effects of the Endogenous Variables on Academic Integration, Perceivied Stress, Cumulative GPA, and Goal Commitment Within a Trimmed Display of the Model[b]

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