WHAT ABOUT MASTER'S STUDENTS?
THE MASTER'S STUDENT PERSISTENCE MODEL

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Institutions have been paying attention to student persistence and their subsequent graduation rates even before national attention about the effectiveness of colleges and universities became the topic of presidential campaigns, accreditation reviews and national college rankings. As colleges and universities began to understand that their economic and reputational well-being is tied to the level of enrollment, the effectiveness of their institution in the development of their students, faculty and academic programs, and their ability to graduate students from their institutions, retention/attrition studies became more prevalent and complex. Since the early 1970s, scholars have looked at the question of why students leave institutions of higher education (Spady, 1971; Tinto, 1975; Bean, 1980; Bean & Metzner, 1985, Pascarella, & Terenzini, 1979). Individual scholars recognized the importance of obtaining a degree, whether undergraduate or graduate, through the effect on an individual student's life both economically and personally. Retention and graduation rates have begun to be reviewed in minute detail by accreditation agencies, governments, and the students themselves as they make the choice of where to go to school.

A multitude of persistence studies have focused on students at the undergraduate level and doctoral level. However, very few studies have focused on students at the master's level. The cause for this neglect is not well known. Is it because retention or degree completion at the master's level tends to be viewed

as not a problem? Master's programs tend to be shorter and more compact than at the undergraduate or doctoral level (Glazer-Raymo, 1987). Students seeking a master's degree are generally older than undergraduate students (O'Brien, 1992). Are they better prepared, more motivated to complete the degree, understand that they need the degree to get a job or advance in their career? Do they not have the same life or academic pressures as the doctoral student? Because they are not generally required to complete a major research project, such as a dissertation, are the roadblocks to success apparent in doctoral programs not found at the master's level?

Currently, the national six-year graduation rate for undergraduate students is 55.9% while doctoral student's ten-year graduation rate is 47-64%, depending on the field of study (U.S. Department of Education) While no national databases track the actual degree completion rate for master's degree students, the few studies of master's student persistence have found that degree completion rates for master's students range from 63% to 78% , depending on the number of years of study and the type of academic program (Girves & Wemmerus, 1988; Luan, 1992; Xiao, 1998).

While a small number of studies cannot make a national trend, they found that while master's degree students finish their degrees at slightly higher rates than doctoral or undergraduate students, a third to a quarter of the students are likely to drop out of their programs before completing their degree. Thus, the

assumption that a problem does not exist for master's students is found not to be valid.

Master's programs began early in the history of higher education institutions and were the first post-baccalaureate degree offered in the United States. Over the centuries the master's degree programs have evolved into a varied and diverse set of academic programs offered in nearly every discipline within higher education.

From the perspective of the institutional mission, master's programs serve the educational needs of students and society that are not being served by the baccalaureate degree programs. They address "needs that can be met only by more advanced and specialized study in a particular field" (Borchert, 1994). Beyond meeting societal needs of students and employers, master's education can play an important role in the enrollment growth of the institution as well as providing an inexpensive workforce in the form of teaching and research assistants as well as in overall income generation for the college or university.

With an increase in enrollment comes an increase in tuition revenue for the institution. Master's students tend to cost the institution little money in financial aid dollars as nearly two-thirds of students in master's degree program study on a part-time basis and part-time students generally are not eligible for institutional aid. Overall, students in master's degree programs tend to be funded by themselves, their families or their employers (Borchert, 1994). Because so few of these students receive support directly from the institution itself, the

majority of the tuition and fees collected from these students can be used by the institution to meet its financial obligations. In addition, master's degree programs tend to offer classes much larger in size than doctoral level programs and master's level students require less individualized attention than doctoral students as large-scale research projects are not required or may be optional in the completion of the degree requirements. With the larger class size, fewer dollars invested in institutional grants and scholarships, and the smaller investment of faculty and staff time and resources in the advisement and oversight of master's level students, the net tuition revenue of master's level programs to the university is significant enough that the fiscal importance of master's education cannot be ignored (O'Brien, 1992; Borchert, 1994; Glazer-Raymo, 2005).

Master's education has already been shown to be important for employment in a particular field, advancement within a career, or acceptance into a doctoral program as well as providing an important service to society overall. However, on a more practical level, the master's degree has also been shown to improve an individual's earning potential. U.S. census data clearly shows that students who have earned a master's degree earn substantially more over their lifetime than those who have only obtained a baccalaureate or high school degree. (O'Brien, 1992)

Master's degree program enrollments have been growing at a substantial rate. About one-third of the colleges and universities in the United States offer the master's degree and there are over 800 different types of programs. With the

movement of undergraduate education from a meritocracy system to a mass system of higher education, there is an expanding population of individuals within the United States who have earned the baccalaureate degree. As they seek employment in a society that is becoming less dependent on industrial advancement and more dependent on production of services, additional specialized training will continue to increase in importance to those who have earned a baccalaureate degree. Few will need or desire to earn a doctoral degree and thus master's degree programs will be the logical place for students to turn for the development of the skills they need (Borchert, 1994; Conrad et al., 1993).

Master's enrollment and program growth was maintained well into the early 1990s as the baby-boom generation filtered through the educational system. Based on figures received from the U.S. Department of Education, Conrad (1993) found a 48% growth in master's education during the 1970s and 1980s and that by the late 1980s and early 1990s "nearly one-fourth of all academic degrees awarded each year were master's degrees" (p.18). Little is known about the success rate of students in master's degree programs. No national database or clearinghouse exists to track master's level students separately from doctoral students.

Theoretical Foundation

The purpose of this study was to develop and test a model of master's student persistence. Many of the variables that affect whether a student persists or drops out have been studied and developed into persistence models for many

years; although most of these studies have focused on undergraduate and doctoral student persistence.

Retention at the undergraduate level has been studied extensively over the past three decades. Early retention models focused on student-institution fit with the expectation that variables such as background characteristics (socioeconomic variables, sex, ethnicity, father's educational level, mother's educational level, parental support and encouragement, and peer support and encouragement), academic integration, social integration, academic performance, and goal commitment all would impact the student's likelihood to persist to the degree (Spady, 1971; Tinto, 1975; Bean, 1980).

The first scholar to explore the relationship of the student to the institution was Spady (1971) who developed his model on Durkheim's theory of suicide. In this theory, Durkheim proposed that the more integrated a person is into society, the less likely they are to commit suicide. Spady applied the theory to the undergraduate student experience, suggested that those students who are most closely integrated into the culture (both academic as well as social) of the college or university, the more likely they will persist and obtain their degree (Spady, 1971; Sadler, 1997).

Many of the variables Spady (1971) analyzed in his model have been incorporated into subsequent studies and models. Variables such as Social and Academic Integration, Institutional Commitment, and Student's Background are all variables used in nearly every subsequent retention and persistence study.

The model most often studied and tested is Tinto's Student Integration Model (1975; 1987). Tinto (1975; 1987) provided a predictive model of student integration in which he emphasized the constructs of goal and institutional commitment that students gain through their experiences both prior to joining the college or university as well as those they gain while in college. These experiences determined whether the student is integrated into the institution (Sadler, 1997; Tinto, 1975; Tinto, 1987). Integration refers to the "extent of shared normative attitudes and values of peers and faculty in the institution and abides by the formal and informal structural requirements for membership in the community" (Pascarella & Terenzini, 1991). Within the Tinto model (Tinto, 1975) several variables were identified that can help or hinder a student's ability to become integrated in the institution. The variables included background characteristics including: family background, individual attributes and pre-college schooling; initial goal and institutional commitments, the academic and social system; academic and social integration and later goal and institutional commitment all leading to whether the student decides to dropout (Tinto, 1975).

While the most prominent and well studied models of the student attrition process (Spady, 1970; Tinto, 1975, Pascarella, 1980) have focused predominantly on socialization within the college experience to explain attrition, Bean and Metzer's (1985) non-traditional student model was developed to specifically address the student who is "not greatly influenced by the social environment of the institution; and is chiefly concerned with the institution's academic offerings

(especially courses, certifications and degrees). (Bean and Metzner, 1985, p. 489). Since one of the defining characteristics of the non-traditional student is the lack of social integration, Bean and Metzer (1985) focused on theories such as Price's (1977) model of turnover in work organizations – with the assumption that students leave institutions of higher education for reasons similar to those that cause employees to leave work organizations. In addition, Bean and Metzner (1985) link Bentler and Speckhart's (1979) model relating past behavior to attitudes and intentions and then to future behavior and Locke's (1975) theory associating attitudes with an appraisal of past behavior, which the researchers suggest connect pairs of variables "such as outside encouragement to attitudes such as goal commitment." (Bean and Metzner, 1985, p. 18). In addition, Bean and Metzner (1985) use Lewin's (1935) theory that behavior "is a function of both person and environment. Nontraditional students interact with the college environment, but they spend considerable time in the external environment while enrolled in college." (Bean & Metzner, 1987, p. 18).

In Price's Model of Employee Turnover (1977), the underlying theory is that "organizational determinants are expected to affect satisfaction, which in turn is expected to influence dropouts" (Bean, 1980, p. 157). By extending this theory to higher education, Bean developed a number of organizational determinants that he felt would affect student satisfaction and by extension, dropout decisions. Organizational determinant variables such as routinization, or the degree to which the role of being a student is viewed as

repetitive, development, the degree to which a student believes that he/she is developing as a result of attending the institution of higher education; practical value which is the degree to which the student perceives that his/her education will lead to employment; institutional quality, is the institution of higher education providing a good education; integration, the degree to which a student participates in primary or quasiprimary relationships (has close friends); university GPA; goal commitment, is earning the degree important to the student; communication, or the degree to which information about being a student is viewed as being received; distributive justice which is the degree to which a student believes that he/she is being treated fairly by the institution; centralization, or the degree to which a student believes that he/she participates in the decision making process; advisor, the degree to which a student believes that his/her advisor is helpful; staff/faculty relationship, or the amount of informal contacts with staff or faculty; campus job which is the necessity to have a campus job to stay in school; the student's major and their certainty of what he/she is majoring in; housing; campus organizations, the number to which the student is involved; opportunity for transfer, job, home, a variable that looks at which alternative roles the student has (student, employee, or dependent) in the external environment are all variables that have an impact on the student's satisfaction and institutional commitment with the institution of higher education (Bean, 1980).

For the first time, a model of student attrition looked at satisfaction as an important factor in a student's likelihood to leave an institution. The results of

Bean's analysis found that satisfaction did have an impact on a student's decision to leave the institution of higher education (Bean, 1980). This new variable, combined with the theories of social integration and academic integration put forward by Tinto and others, resulted in a new model that was the basis for Bean & Metzner (1985) conceptual model of non-traditional student attrition.

The only group that has been studied extensively at the graduate level is doctoral students and their retention and/or persistence toward the doctoral degree. Most doctoral student retention studies have found that attrition rates vary tremendously from discipline to discipline. The types of retention studies done at the doctoral level fall into three categories: a) external factors that influence persistence, b) admission variables that can help to predict persistence and c) student satisfaction which can encompass internal support and/or barriers to completion of the degree. External factors include current age, age when initially enrolled, family income and marital status, student motivation, student goal directedness, self-concept and well-being (Bair & Haworth, 1999; Bauer, 1997; Carlson, 1995; Girves & Wemmerus, 1988). Bair & Haworth (1999) found that, in addition to field of study, departmental culture affected doctoral student persistence and that the degree and quality of the student/faculty advisor relationship had a strong positive relationship to completion of the doctorate. Other factors that had a positive influence on persistence or degree completion were: financial support, peer interaction, student satisfaction with their program,

and student involvement in department, program, institutional and professional activities.

In Girves & Wemmerus's (1988) model of graduate student degree progress, the authors developed conceptual models of both master's student and doctoral student degree progress. In the master's degree model, they found that grades were related to degree progress only at the master's level and that involvement in one's program was only significant at the doctoral level. Satisfaction/alienation was not related to degree progress at either the master's or doctoral level, however, department characteristics were found to be related to degree progress at both the master's and doctoral level.

Many of the variables that have made up the undergraduate and doctoral persistence models will be appropriate for the master's student persistence model being developed in this study. However, many of the variables found in these studies will not. For example, in many of the undergraduate persistence models, they include in the academic construct the variable of major certainty or opportunity to transfer (Bean and Metzner, 1985); neither of these variables will be appropriate in the Master's Student Persistence Model. Other variables often included in doctoral persistence studies, such as early identification of a dissertation topic will also not be appropriate for a master's student model.

Models that have been developed to understand the persistence of different types of students have generally included variables such as background characteristics, academic variables, environmental variables, social integration,

psychological outcomes and intent to leave as important predictors of persistence or attrition (Spady, 1971; Tinto, 1975; Bean, 1980; Bean & Metzner, 1985; Girves & Wemmerus, 1988).

METHODOLOGY

This study explored factors impacting a master's student's ability to maintain enrollment in a master's degree program and ultimately to complete his/her degree. Through this exploration, a conceptual model of master's student persistence was developed and tested. The primary focus was to describe the extent to which certain variables contributed to a master's student's ability to persist to the degree.

The population for this study was master's students enrolled in degree programs at a large-sized University in the Northeast section of the United States. As of the Fall 2008 semester, this university enrolled nearly 4,000 graduate students with three-quarters enrolled part-time and one-quarter enrolled full-time. Master's students who were enrolled in the spring 2009 semester were invited to participate in this study. Populations excluded from this study included students enrolled in doctoral, certificate, certification programs or as non-degree students.

2,240 master's students were invited to participate in this study. A total of 413 master's students completed the survey; for an 18% response rate. A sample size of 340 students was the goal of this study as that number provided a confidence level of 95% and a confidence interval of 5 (Creative Research

Systems, 2008). Of the 413 responses, 13 were excluded from analyses due to large amounts of missing data. The final sample included four hundred (400) master's students. The four hundred cases were representative of all three types of graduate programs.

The current study's sample was comprised of 317 (79.2%) part-time and 83 (20.8%) full-time students. This population slightly overrepresented part-time students as the percentage of total population of part-time students at the University was 75%. The number of credits earned at the University at the time of this study ranged from 3.0 to 107.0 with 51.6% (n=205) earning between 3.0 and 20.0 credits. 51% (n=203) of the students had been admitted in the 2008-09 academic year, therefore a majority of survey respondents had been admitted to the university the same year that this study took place. The largest proportion, 62.3% (n=248), of the respondents were between the ages of 20 to 29 years old. 78% (n=307) of the population was white with the next largest group being Hispanic at 7.9% (n=31). Family income ranges from less than $10,000 to $100,000 or more, with three-quarters of the population (n=273) with family incomes less than $100,000. More than half of the respondents (n=202) had a family income between $40,000 and $99,999. Mother and father's education levels were fairly evenly distributed across all the categories (see Table 6), while a majority of the respondents reported that they were single/never married (56.8% or 226 participants). Over three quarters of the respondents (n=303) were not a parent. An overwhelming majority of those that were parents (88 participants

reported that they were parents) had between 1-3 children in the household (n=82). Nearly half of the respondents (n=167) lived between 10 and 20 miles from campus with the next largest percentage (24.9% or 99 participants) living more than 20 miles away.

At the time of the study, 80% (n=320) of the respondents were identified as having been retained. The variable retained was defined as either graduated or enrolled in the fall 2009 semester. Table 3 contains the demographic characteristics of the study participants.

Statistical Analysis

In order to explain variations in master's student persistence as a function of the relationships between and among the remaining measures: Age, graduate grade point average, academic influences, program influences, professional integration, psychological influences and intent to persist, multiple regression analysis using ordinal least square function was utilized as the statistical analysis procedure.

Master's student persistence is thought to be influenced by students' environmental factors, academic factors, program factors, and professional and psychological characteristics. However, to truly understand these variables' impact on student's persistence it is also necessary to become familiar with the interrelationships between these various influences.

Table 3. Demographic Characteristics of Participants (N=400)

Characteristic		n	%
Age (mean = 33.67)			
	20-29	248	62.3
	30-39	75	18.8
	40-49	43	10.8
	50 or older	28	7.0
Race/Ethnicity			
	Asian	19	4.8
	Hispanic	31	7.8
	African American	17	4.3
	Caucasian	307	77.1
	Prefer not to respond	19	4.8
Family Income			
	Under $10,000 - $19,999	22	5.6
	$20,000 - $39,999	49	12.3
	$40,000-$59,999	85	21.4
	$60,000-$79,999	52	13.1
	$80,000-$99,999	65	16.3
	$100,000 or over	100	25.1
Father's Education			
	Some high school	39	9.8
	High school graduate	84	21.1
	Some college	58	14.6
	Bachelor's degree	92	23.1
	Graduate or professional degree	109	27.4
Mother's Education			
	Some high school	33	8.3
	High school graduate	101	25.4
	Some college	82	20.6
	Bachelor's degree	98	24.6
	Graduate or professional degree	71	17.8
Marital Status			
	Married	142	35.7
	Widowed	2	0.5
	Separated	6	1.5
	Divorced	18	4.5
	Single/Never Married	226	56.8
Parent			
	Yes	91	22.9
	No	303	76.1
If a parent, how many children in household (N=91)			
	1-2	6	6.6
	3-4	50	54.9
	5 or more	35	38.5
Distance from home to campus (miles)			
	Less than 1- 5	61	15.5
	6-9	67	17.0
	10-20	167	42.4
	More than 20	99	25.1

This study utilized multiple regression to identify the predictors of master's student persistence among variables such as age, graduate grade point average, study habits, department culture, faculty advisor relationship, responsibilities, convenience, peer interactions, course relevancy, finances, employment, encouragement, involvement in departmental and professional activities, satisfaction, alienation, goal commitment, utility and intent to persist. The present study has attempted to demonstrate the pattern of interrelationships between constructs and variables. To best answer the question about what factors most affect master's student persistence, multiple regression analysis was the most appropriate statistical technique to analyze the data in the current study.

The Bean and Metzner model of non-traditional undergraduate student attrition was the one that most closely resembled the population that was being studied. The non-traditional undergraduate student attrition model looked at older students who had life commitments outside their roles as students in a college or university. Unlike traditional-aged undergraduate students, non-traditional undergraduates were more likely to study part-time, have families, and work full-time while earning their degree. These external factors made the non-traditional undergraduate more closely resemble the master's degree student. Therefore, this study was intended to determine if the Bean & Metzner non-traditional student attrition model was a good fit for a study on master's student persistence.

FINDINGS AND DISCUSSION

The purpose of this study was to explore factors that impact a student's ability to maintain enrollment and earn a degree in a master's program. The ultimate goal of this study was to test a conceptual model of master's student persistence and degree attainment.

Students were asked to complete a survey of questions related to factors within the persistence model. In order to create single factors from multiple questions, confirmatory factor analysis and reliability analysis were performed to reduce the number of variables (Tabachnick & Fidell, 1996). Variables with a factor score greater than 0.40 and/or produced Cronbach's alpha scores greater than 0.60 were retained (Garson, 2006; Helmstadter, 1964; Messick, 1989). Once the variables were reduced, a factor score was produced within the confirmatory factor analysis using the maximum likelihood function.

Once the individual variables were reduced into factors, a reliability analysis on the constructs was performed to ensure that each factor within the construct was appropriate for the model. Table 4 contains the Cronbach's alpha scores for each factor and whether or not that factor was retained in the construct. For measurements that did not initially meet the 0.60 alpha score minimum, bivariate correlations between the individual factors and the dependent variables of persistence and intent to persist were analyzed to determine whether they should be retained in the master's student persistence model. It was determined

by examining the correlations with persistence and intent to persist to retain the academic construct.

Table 4. Factor Analysis and Cronbach's Alpha Score

Factor	Number of Variables	Cronbach's Alpha Score	Retained ?	Factor Loading
Study Habits	1 (from 2)	---	Yes	--
Department Culture	5 (from 6)	.834	Yes	.731/.546/.771/.774/.668
Course Availability	3	.563	No	.421/.434/.707
Faculty/Advisor Relationship	4	.829	Yes	.479/.791/.840/.837
Responsibility	2 (from 4)	.469	No	.667/.464
Convenience	3 (from 13)	.746	Yes	.857/.822/.448
Peer interaction	2 (from 4)	.875	Yes	.912/.846
Course relevancy	3	.740	Yes	.571/.723/.803
Finances	3 (from 6)	.797	Yes	.545/.999/.644
Encouragement	3	.761	Yes	.611/.757/.740
Involvement in departmental and professional activities	8 (from 10)	.697	Yes	.446/.488/.412/.468/.404/.558/.558/.548
Satisfaction	9 (from 10)	.884	Yes	.625/.737/.625/.762/.616/.499/.768/.738/.729
Alienation	5	.833	Yes	.631/.807/.766/.677/.667
Goal Commitment	2	.527	No	--
Utility	4	.775	Yes	.722/.614/.758/.626
Intent to Persist	3	.742	Yes	.794/.837/.433

*When removing individual variables did not improve the alpha score sufficient to meet the standard of a .60 score, the factor was not retained.

In order to increase the reliability score, the academic program construct was reduced to one variable, study habits, which had the most significant level of correlation with either persistence or intent to persist. The study habits variable was reduced to the question that had the highest correlation with retention. For the measurement of environmental influences, the factor with the most significant

level of correlation with the dependent variables was encouragement. For the measurement of professional integration, the peer interaction construct had a significant relationship with intent to persist, while involvement in professional and departmental activities had a significant correlation with persistence. Therefore it was decided to retain both factors but break them out into two separate constructs of professional integration 1 and professional integration 2.

Three factors, responsibility, course availability and goal commitment, were found not to meet the reliability standard of .60. Because these two factors did not have strong correlations with persistence and did not provide additive value to the measurements of program influences (in the case of course availability) or environmental influences (in the case of responsibility), they were removed from analysis for the next stage of data review.

Final Model Analysis

Once the analysis of the individual constructs was completed and the model reduced to include only those variables that met the level of reliability required for inclusion, the final model was developed. Variables used in the final model, as well as a brief description of the questions used in the survey instrument is listed in Table 5.

In the master' student persistence model, where multiple items were combined to form a single construct, all items loaded above .4 in a confirmatory factor analysis for the construct.

Table 5. Description of the Factors

Variable	No of items	$\bar{X}$	SD	Sample Items
Age	1	2.62	.932	Age as of last birthday
Cumulative Graduate Grade Point Average	1	3.74	.310	Cumulative Grade Point Average at time of study
Study Habits	2	4.33	.559	I generally get the work required for the course done prior to the due date
Department Culture	6	3.64	.622	My department is open to suggestions made by master's students
Faculty/Advisor Relationship	3	3.57	.913	My advisor has concern for me as a person
Course Relevancy	3	4.15	.581	For the most part, the courses I am required to take for my degree are worthwhile.
Encouragement	2	4.48	.662	I receive encouragement from my family to continue pursuing my degree.
Peer Interaction	2	3.71	.906	Since coming to this university, I have developed close personal relationships with other students.
Involvement in Department and Professional Activities	8	.252	.239	Do you participate in research projects?
Satisfaction	8	3.94	.571	I am satisfied with the learning environment in my department.
Utility	4	4.34	.569	I believe that my degree will be useful for gaining future employment.
Intent to Leave	3	4.59	.586	I intend to enroll for course(s) in the next semester.
Persistence	1	.80	.399	Enrolled spring 2009, not enrolled fall 2009 = 0, enrolled spring 2009 and either graduated or enrolled fall 2009 = 1

Each of the constructs within the model were evaluated using reliability analysis resulting in a Cronbach's Alpha score. Cronbach's Alpha is commonly used to establish internal consistency and reliability, with 0.60 considered acceptable for exploratory purposes (Garson, 2006; Helmstadter, 1964; Messick, 1989). Table 6 contains the Cronbach's Alpha scores for each of the factors within the model that met the .60 minimum.

Table 6. Reliability of Major Model Factors

Construct	Number of Factors within the Construct	Cronbach's Alpha Score
Academic	1 (Study Habits)	---
Program	3 (Department Culture, Student/Faculty/Advisor Relationship, Course Relevancy)	.644
Environmental factors	1 (Encouragement)	.761
Professional Integration1	1 (Peer Interaction)	.875
Professional Integration 2	1 (Involvement in Departmental and Professional Activities)	.697
Psychological factors	3 (Satisfaction, Alienation, Utility)	.635

The Master's Student Persistence Model

In the master's student persistence model, the measurement model depicts the nature of the relationship between a number of latent variables (factors) and the manifest indicator variables that measure those latent variables. The master's student persistence model consisted of thirteen observed factors corresponding to the seven constructs hypothesized to directly and/or indirectly affect master's

student persistence. The model investigated in this study consisted of background characteristics (two constructs both with one indicator), academic influences (a construct with one indicator), program influences (a latent construct with three indicators), environmental influences (a construct with one indicator), professional integration (a latent construct with two indicators), psychological effects (a latent construct with three indicators) and intent to persist (a construct with one indicator). As presented in Figure 1, this model used squares to present direct effect constructs and ovals to represent latent constructs. A line connecting variables implies that a direct effect is hypothesized.

In figure 1, the models depicts that each of the background constructs has a direct effect on the constructs: academic influences, program influences, environmental influences, professional integration, and psychological influences. The model also hypothesizes that the constructs of academic influences, program influences, environmental influences, professional integration and psychological influences will have a direct effect on intent to persist and an indirect effect (mediated by intent to persist) on persistence. Finally intent to persist will have a direct effect on persistence. Using multiple regression (OLS) analysis to analyze the model for the entire sample, direct and indirect relationships were examined between the various constructs, the results can be found in Table 8.

Figure 1. Master's Student Persistence Model

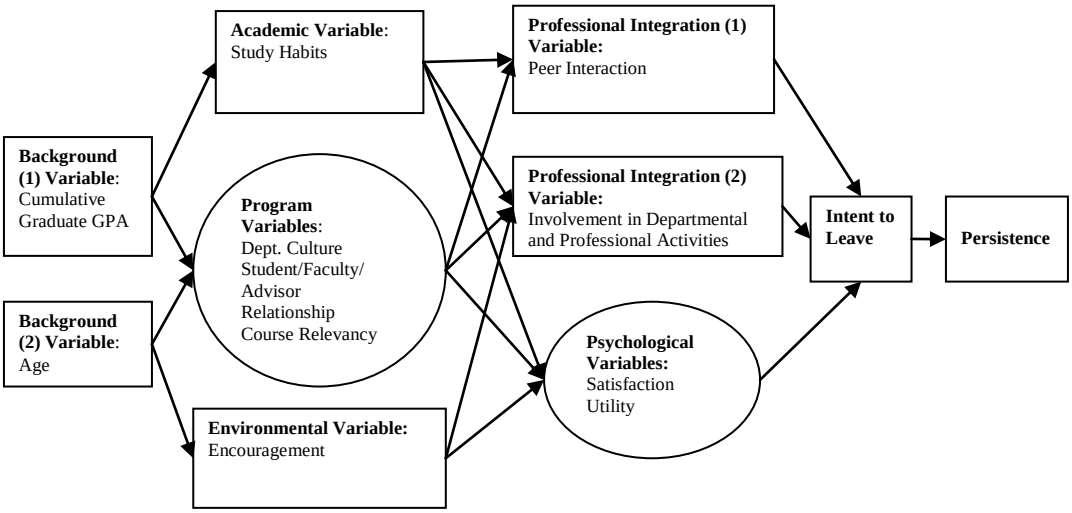

Table 8. All Students Standardized Regression Coefficients For Persistence to Master's Degree (Total N=398)

	Block I	Block II	Block III	Block IV
Constant	.568*	.415	.175	-.174
Background 1				
Age	-.169**	-.174**	-.161**	-.162**
Background 2				
Cum Graduate GPA	.088	.079	.091	.070
Academic Influences				
Study Habits		.036	.032	.009
Program Influences				
Department Culture		-.066	-.098	-.067
Student/Faculty/Advisor Relationship		.050	.016	.009
Course Relevancy		.059	.017	-.016
Environmental Influences				
Encouragement		.010	-.011	-.028
Professional Integration1				
Peer Interactions			-.040	-.069
Professional Integration 2				
Involvement in Professional and Department Activities			.102*	.120*
Psychological Influences				
Satisfaction			.055	.016
Utility			.117*	.036
Intent to Persist				.309***
R^2	.035	.042	0.63	.141

*p<.05, **p<.01, ***p<.001

Overall, the thirteen variables in the total student group models accounted for 14% of the variance in persistence, but ranged from 17% to 25% when analyzed in separate groups. These results are somewhat smaller than other studies of student persistence (Bean & Metzner, 1987, Girves & Wemmerus,

1988, and Cabrera et al. 1992) which had results of 29% (Bean & Metzner, 1987) and 33% (Girves & Wemmerus, 1988). This study found that 80% of the students who participated in this study were retained. The definition of retention included returning for the next semester (fall 2009) or graduating. The best predictors of persistence were the student's age, involvement in professional and departmental activities, and intent to persist. Like the Bean and Metzner (1987) study, intent to persist had the strongest direct effect on persistence (standardized regression coefficient = .309, $p < .001$). This finding suggested that for master's students as a whole, the commitment to the degree, their commitment to earning the degree at MSU and their commitment to returning to the same program the next term, had the strongest positive effect on retention.

The factors of age and involvement in professional and departmental activities had their most significant effect on persistence as mediated by the intervening variable of intent to persist. The model suggests that students who are younger and are involved in activities outside the classroom had a greater likelihood of persisting and earning their master's degree – as long as they had a high level of self-efficacy (as identified by intent to persist).

Understanding that the students who participated in this study were retained at 80%, which was a retention rate greater than was found in earlier studies, the result of this study found that when master's students had a strong intent to persist, the likelihood of earning the master's degree was enhanced. Like prior studies that found that intent to persist was the dominating variable in

determining persistence, this study found that the background, academic, institutional and psychological variables examined had their greatest effect when intent to persist was the intervening variable.

Unlike prior studies that found that good advisor relationships, a feeling that the courses were relevant and their department was concerned about the students and treated them fairly had a significant and positive impact on student retention, this study found that the relationship of these variables to persistence was not significant.

For the variables that had the weakest reliability, they also had the weakest relationship with persistence. Graduate grade point average, study habits, department culture and peer interactions were found to have no direct impact on persistence master's students.

Student self-efficacy, especially as represented by intent to persist, was able to overcome some significant negative effects on persistence that were felt from the age and peer interaction factors. As prior studies have found, when students were committed to earning the degree, they were able to overcome obstacles that other students found insurmountable.

CONCLUSION

The purpose of this study was to learn about the factors that influenced a master's student's ability to persist in their graduate program and eventually earn the master's degree. Given the understanding of retention, persistence and

attrition at the undergraduate and doctoral levels, a model was designed and tested to understand those influences that can affect a master's student persistence. Many studies have focused on doctoral and undergraduate students, however master's student persistence was an area of study that had received little attention prior to this study.

Why had master's programs not been studied before? It was speculated, earlier in this study, that perhaps retention of students in master's programs wasn't a problem that needed additional study. That perhaps, since the programs were much shorter and students knew what benefit they were likely to receive by earning a master's degree, that students would simply stay and complete the degree without institutional intervention.

Colleges and universities have been examining student enrollment trends for over four decades. We know that master's student enrollment is important to colleges and universities for both meeting the institution's academic mission, to help recruit and retain faculty, as well as increase the economic health of the institution. Master's programs are also becoming increasingly important to students who seek to advance their careers, enter new professions or prepare for future graduate level work. For these reasons, one would expect to see a substantial amount of research on master's students in the literature of university student persistence. However, it was discovered that little research had been done on this topic.

When the Master's Student Persistence Model was studied, the factor that had the greatest effect on persistence was intent to persist, as could be expected based on the research on persistence that has come before (Bean & Metzner, 1987; Girves & Wemmerus, 1988). Age being the second most significant, and negative, factor in the persistence of master's students was also not surprising. Students who are younger were expected to have fewer life commitments that would get in the way of obtaining a master's degree. While not impossible, it is likely that younger students were not parents or involved in significant relationships that would pull their attention away from the master's program. In this study, nearly 57% of the students were single, and only 23% of the students had children living in their household, so they did not have the conflicts that parents have in scheduling classes and being involved in activities that their department offered to them.

At the beginning of this study, it was theorized that the population studied in Bean and Metzner's (1987) model of non-traditional undergraduate student attrition would have similar characteristics to the master's student population. At the conclusion of this study, it was found that the Bean and Metzner (1987) model had similar results to the model of master's student persistence developed in this study.

The non-traditional undergraduate student attrition study found that the factor that had the most significant effect on attrition was the intent to dropout factor. This finding suggested that student intent overrides many if not all of the

institutional attributes and interventions as well as the personal characteristics of the individual student (Bean & Metzner, 1987). The master's student persistence study found a similar relationship between intent to persist and master's student persistence. In addition to intent to persist, the current study found that age and involvement in departmental and professional activities also had both a direct and indirect effect on persistence. Bean and Metzner (1987) found that age had a significant negative effect on dropout as mediated by intent to dropout. Bean and Metzner found that when students were older, they were less likely to have a high level of intent to dropout which meant they were more likely to persist. In the current study, age had the inverse relationship, as it had a negative effect on intent to persist as well as on persistence. This finding suggested that when students were younger, they were both more likely to intend to stay in their program as well as actually persist in their master's program.

The non-traditional undergraduate student attrition study found that hours enrolled, study skills, academic advising and absenteeism had a direct effect on dropout (Bean & Metzner, 1987). The present study did not find similar results. In fact, the only variable that had a significant effect on persistence, besides age and intent to persist, was involvement in departmental and professional activities. This finding suggested that for master's students study skills were advanced enough and attendance in classes more consistent. In addition, it may be that advising for a more prescribed and shorter academic program than at the undergraduate level, understanding the requirements of the degree and the

selection between different courses was less necessary. As a result these factors were not as important for master's students. Rather, for master's students, involvement in activities that enhanced their academic experience as well as gave them opportunities to network and develop relationships with academic and professional colleagues were more important than having strong study skills or getting the appropriate level of academic advisement.

As colleges and universities continue to find that state and federal support for higher education is being limited, identifying consistent sources of revenue is increasingly important. Master's programs can provide a significant source of revenue at relatively modest expense. Master's students tend to require 2-3 years of study, a much smaller investment of time on the part of the student or the university in earning this type of degree. Master's students are primarily part-time and as such are not likely to require financial support by the university in order to complete their degree. In some cases, master's students are being funded by their own resources or through their employer. Because master's students require less time, attention, and financial commitment from a university, the percentage of their tuition dollars that can be used by the university to support other more expensive programs is much greater than for any other student population. Consequently, it is in the best interest of the university to support and enhance the quality of the master's student experience as future generation of master's students will select the university that ensures their success in obtaining a master's degree.

Colleges and universities that serve master's students should learn about their students' background and academic characteristics and how those relate to satisfaction with the faculty and institution. Resources could be directed toward facilitating persistence and achievement of the students' educational goals. Institutions can bring together student support services to address retention rather than focusing solely on individual services such as financial aid and academic advising. Administrators should also consider the background and academic characteristics of their master's students; monitor their academic progress, their involvement with their department and their satisfaction with their faculty and advisors, and implement academic and support services that encourage retention and student success.

Institutions cannot change student background characteristics but they can implement services that support master's students who have a variety of non-institutional influences such as family, employment, and other commitments that may impact their persistence. We know from this study that master's students were more likely to be retained if they were younger. This means that master's programs should recognize that older students need additional support to succeed and stay to earn their degree. This could include a recognition of and encouragement of family members participating in campus events, initiatives to encourage setting and achieving educational goals, and providing academic support to help master's students maintain or improve their academic success or grade point average.

One of the constructs that had the greatest effect on persistence of master's students was involvement in professional and departmental activities. When students were engaged in conferences, research with faculty, practica and internships, they were more likely to persist. When students felt that this extracurricular work was going to be useful in their future careers and help them to meet their professional and personal goals, they were more likely to persist. This means that administrators need to understand the role that support systems, small group projects, involvement in activities that connect these students with fellow students, faculty and administrators plays in the persistence of master's students.

The strongest positive effect on persistence was intent to persist. This commitment to earning the degree and advancing to the next stage of the individual's personal and professional life can overcome even the strongest negative experiences. If a student believes in herself and that she can accomplish the goal, this may offset negative experiences she may encounter while in her master's degree program.

The model of master's student persistence indentified the background and academic characteristics of being younger, being engaged in departmental and professional activities, and having a strong internal resolve to obtaining the degree as enhancing retention.

Master's programs can have a significant positive effect on student's personal, economic and intellectual well being. While master's programs do not

have the same level of attrition as doctoral or undergraduate programs, master's students have no guarantees of completing the degree. The advanced training that master's programs provide to students include the ability to analyze situations, identify solutions, develop a cogent and reasoned argument, handle a relatively sophisticated level of research and data analysis and understand the skills necessary to navigate within their chosen career. With research such as this study, colleges and universities can focus more attention and consideration of the needs of the master's student in areas that will specifically enhance their ability to earn the master's degree, become productive managers and executives in the workforce, and enhance their understanding of social, economic and political issues.

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