

THE CONSTRUCT VALIDITY OF INSTITUTIONAL COMMITMENT: A Confirmatory Factor Analysis

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The present study examined the underlying structure of the variable Institutional Commitment by testing for the convergence, or lack thereof, among different indicators of the construct as represented by three theoretical frameworks (Tinto, 1975, 1987; Bean, 1985; Huselid and Day, 1991). Confirmatory factor analyses revealed that Institutional Commitment could be decomposed into two multiple indicators of the same latent construct: a general factor that groups items related to institutional quality, practical value of an education, utility of an education, fit between student and institution, and loyalty to the institution and another factor represented by items indicating similarity of values (Affinity of Values). Moreover, the study established the predictive validity of each subcomponent on different outcomes related to student persistence. While Institutional Commitment was found to have a significant direct effect on both students' intents to persist and actual persistence behavior, Affinity of Values was not as equally predictive of measures of student retention.

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Although the two leading theories of college persistence (Tinto, 1975, 1987; Bean, 1985) presume that students' institutional commitments to their respective institutions play a major role in shaping students' intentions to persist and persistence decisions, research has provided mixed results when testing the impact of this construct in quantitative models. These mixed results have been attributed to the nature of the institution (e.g., two-year versus four-year, residential versus commuter [Pascarella, Duby, and Iverson, 1983; Pascarella and Chapman, 1983]) as well as to the nature of the student populations (e.g., males versus females, minorities versus nonminorities [Pascarella and Terenzini, 1979; Stage, 1989, Nora, 1987]).

However, differences in research findings may also stem from inconsistencies in the measurement of the construct itself. Measures of institutional commitment have ranged from indicators assessing satisfaction of student interac-

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tions with faculty, development of work skills (Munro, 1981), and satisfaction with the social and intellectual lives of the institution (Williams and Stage, 1989) to indicators assessing perceptions of institutional quality (Pavel and Reiser, 1991). As noted by Cabrera, Stampen, and Hansen (1990), little evidence, with the exception of Pascarella and Terenzini (1979, 1980), is provided regarding the extent to which measures employed are consistent with the definition of the construct under analysis.

The importance in substantiating the construct validity of institutional commitment becomes necessary when testing the nomological network underlying the theory (Hom and Griffeth, 1991). Resulting parameter estimates may overestimate or underestimate the true relationships of that construct with other constructs (Hom and Griffeth, 1991; Thacker, Fields, and Tetrick, 1989), which means that without appropriate identification of the underlying dimensionality of the construct, subsequent analyses on the role of the construct in structural models can bias results, leading researchers to falsely reject valid theoretical propositions or to accept invalid propositions if overestimated. The purpose of this paper is to document the underlying structure of institutional commitment and to establish the predictive validity of each subcomponent of the construct on intent to persist and on persistence decisions.

THEORETICAL FRAMEWORK

To date, the two most dominant theories of college persistence are Tinto's Student Integration Model (1975, 1987) and the Student Attrition Model (Bean, 1980, 1982a, 1982b; Bean and Vesper, 1990) that has drawn on the organizational commitment literature (Price, 1972; Bentler and Speckart, 1979, 1981; Mowday, Steers, and Porter, 1979) in conceptualizing aspects of the persistence model. Both theorists argue that institutional commitment plays a key role in explaining decisions to persist in college. According to the Student Integration Model, institutional commitment is the end result of the successful match between an individual's motivation and academic ability and the institutions' academic and social characteristics. The theory asserts that, other factors being equal, the academic and social integration of the individual into his or her environment at their respective institutions helps to shape two underlying commitments: educational commitment (the goal of attaining a college degree) and an institutional commitment to the college itself. Accordingly, the higher the level of institutional commitment and/or educational commitment, the greater is the probability of completing college.

Although the Student Integration Model does not offer a clear definition of the different components of the institutional commitment construct, the model implies that institutional commitment and perceptions of institutional prestige are intertwined. According to Tinto (1975), a student will be committed to

remain at an institution to the extent that future benefits associated with earning a degree from that institution more than compensate for the amount of effort, time, and resources invested in securing such a degree. Support for the view that institutional commitments are associated with the prestige of the institution is provided by Nora (1987) and Cabrera, Castaneda, Nora, and Hengstler (1992). These studies note that students perceive indicators of both institutional commitments and institutional quality similarly and not as separate constructs or questions (items) requiring different kinds of information.

Bean (1980, 1982a, 1982b, 1983, 1985, 1990) and Bean and associates (Bean and Metzner, 1985; Bean and Vesper, 1990) have advanced an alternative model to explain the college persistence process. Their work builds on models of organizational turnover (Price, 1972) and models of attitude-behavior interactions (Bentler and Speckart, 1979, 1981). Accordingly, Bean and associates have argued that student attrition is analogous to turnover in work organizations, and stress the importance of behavioral intentions (to stay or leave) as predictors of persistence behavior. In this context, the Student Attrition Model presumes that institutional commitments (or institutional fit) and perceptions of institutional quality/prestige are two separate constructs each represented by different indicators. While institutional commitment (fit) is presumed to embody feelings of belonging, loyalty, and assessments concerning the practical value or future benefits associated with securing a degree from the institution, institutional quality is believed to represent perceptions about the overall quality of the institution and that of the education offered by the institution. Moreover, the Bean and Vesper model hypothesizes that institutional quality/prestige perceptions have a causal effect on institutional commitment (fit).

As previously noted, the conceptualization of the institutional commitment construct in Bean's Student Attrition Model is based on theoretical propositions from the organizational commitment literature. It was believed, therefore, that the theoretical framework to be tested should incorporate all aspects (factors) related to the issue of commitment from organizational commitment studies. The literature on organizational commitment (Huselid and Day, 1991; Mowday, Steers, and Porter, 1979) views commitment to an organization (institution) as being affective and normative in nature. Commitment is defined in terms of: (a) congruency between an individual's values and goals and those of the institution (affinity of values) or the normative component, (b) certainty in the choice of institution, (c) loyalty to the institution, and (d) a sense of belonging or maintaining membership in the institution.

While Bean and associates (1985, 1990) have incorporated all but the normative or Affinity of Values component in the development of their items in measuring the construct, the present study introduces the normative component (Affinity of Values). Like the Student Integration Model and the Student Attrition Model, the body of literature on organizational behavior also presumes that

levels of commitment lead to intents to remain with the organization and in turn these intents lead to actual turnover behavior (Price, 1972). Substantial research has validated these theoretical propositions (e.g. Blau and Boal, 1987, 1989; Huselid and Day, 1991; Hom and Griffeth, 1991; Farkas and Tetrick, 1989).

The quantification of the construct institutional commitment in the persistence literature, in view of the above theoretical framework, has been varied. Pascarella and Terenzini (1979), while combining measures of goal commitment with those of institutional commitment, operationally defined the latter in terms of the degree of confidence in the selection of the student's institution. The study found that a measure of institutional commitment discriminated between persisters and nonpersisters for males but not for females. In subsequent studies, Pascarella and associates (Pascarella and Chapman, 1983; Pascarella and Terenzini, 1980; Pascarella, Terenzini, and Wolfle, 1986; Pascarella, Duby, and Iverson, 1983) operationalized institutional commitment in terms of importance of graduating from the institution that the student was originally enrolled in and confidence of institutional choice. In two of those studies employing path analysis (Pascarella and Chapman, 1983; Pascarella, Terenzini, and Wolfle, 1986), the authors found significant direct effects between this measure of institutional commitment and persistence, while in a separate study, Pascarella, Duby, and Iverson (1983) found no significant path between institutional commitment and persistence. In a study relying on discriminant analysis, Pascarella and Terenzini (1980) found that this measure of institutional commitment separated persisters from nonpersisters.

While the previous four studies were consistent in the measurement of the construct, other studies (e.g., Munro, 1981; Getzlaf et al., 1984; Williams and Stage, 1989) have employed an array of operational definitions. Getzlaf and associates (1984) used two measures of institutional commitment: (a) comparability of assessments between the institution selected by the student and the students' institutional preference and (b) "atmosphere reasons" reflecting the importance of decisions to withdraw. The authors found that these measures discriminated between dropouts and persisters among undergraduates. Munro (1981) employed two items, satisfaction with faculty and satisfaction with the development of work skills, to measure the construct. Munro found no significant path between institutional commitment and persistence decisions. Williams and Stage (1989) operationalized institutional commitment as the degree of satisfaction with the social and intellectual lives of the institution. The authors found that institutional commitment significantly predicted persistence to graduation for a national sample of college students.

Although substantial progress has been made in the measurement of the construct, there remain questions regarding whether or not institutional commitment is a multidimensional construct as hypothesized by Bean and associates or a unidimensional construct as operationalized by researchers following the stu-

dent integration framework. Moreover, the question remains as to the predictive validity of multiple components of institutional commitment on both students' intents to persist and withdrawal decisions.

Research Design

Subjects and Survey Process

The research design used in the present study was longitudinal in nature. The student population was drawn from the Fall 1988 entering freshman class at a large commuter urban institution. Sixty-one percent of the students in the study sample lived in housing other than residential halls and 67 percent had off- or on-campus part-time jobs. These job-related and housing figures were representative of those reported by the commuter institution (70 and 75 percent, respectively). Only full-time, first-time freshmen who were U.S. citizens, under twenty-four years of age, and not married were selected. The total number of freshman students meeting these criteria was 2,453.

In Spring 1989, freshmen meeting the selection criteria were mailed a questionnaire containing 79 items. The items were identified from several instruments that were developed by Bean (1982, 1985), Metzner and Bean (1987), Pascarella and Terenzini (1980), and Nettles, Gosman, Theony, and Dandridge (1985). The literature on organizational behavior was also examined in order to provide additional measures of institutional commitment represented in organizational commitment studies (Mowday, Steers, and Porter, 1979; Pierce and Dunham, 1987) and goal commitment (Dunham, 1984). A pilot study was conducted on a representative sample of undergraduate students to help in refining the items. An initial survey and a follow-up survey yielded 466 usable surveys for a 20-percent response rate. In order to establish the enrollment status (persistence versus nonpersistence) at the beginning of the 1989 Fall semester, institutional transcripts were consulted after the 12th class period in the Fall 1989 semester.

Research on college persistence (Terenzini and Wright, 1987; Cabrera, Stampen, and Hansen, 1990) has suggested that the application of the surveys should parallel those periods of time when institutional and personal characteristics are most likely to exhibit their strongest effects on college persistence. Studies by Pascarella and associates (1980, 1986), Cabrera and associates (1988, 1990), Terenzini and associates (1981, 1987), and Nora (1987, 1990) have found that most attrition occurs between the end of the first year and the beginning of the second year. For the institution under consideration, the highest attrition rate (17%) occurs at the end of the freshman year, and consequently it was decided that the instrument should be administered by the end of the second academic semester.

Because the response rate (20%) was not higher, comparisons of characteristics between students responding to the questionnaire versus nonrespondents were made and results indicated that the sample mirrored the target population in most factors. The study sample slightly overrepresented the proportion of whites (63.9% versus 58.5%), slightly overrepresented the proportion of students that had graduated from the top tenth percentile of their high school class (38.8% versus 33%), slightly overrepresented the proportion of aided students (57.5% versus 51.0%), and slightly underrepresented the Spring attrition rate (15.5% versus 17%).

Measures

The following represent the operationalization and quantification of the construct Institutional Commitment as measured in the Student Attrition Model (Bean, 1982, 1985; Bean and Metzner, 1987), the Student Integration Model (Pascarella and Terenzini, 1980), and organizational commitment studies (Mowday, Steers, and Porter, 1979; Pierce and Dunham, 1987).

Certainty of Choice. Two items were used to measure this component: "I am confident I made the right decision in choosing to attend this institution" (X1) and "I am certain this institution is the right choice for me" (X2). The first item was selected from an institutional/goal commitment scale developed by Pascarella and Terenzini (1979, 1980) while the latter was identified from Bean (1982a).

Institutional Quality/Prestige. Two measures of the perceived prestige and quality of an institution by the student included "My close friends rate this institution as a quality institution" (X3) and "I am satisfied with the prestige of this institution" (X4). These measures were adapted from conceptualizations of the construct by Bean (1980).

Belonging. A sense of belonging at an institution was measured by: "I feel I belong at this institution" (X5). This item was adapted from the Organizational Commitment Questionnaire (Mowday, Steers, and Porter, 1979) and is consistent with the item employed by Bean and Vesper (1990) to measure fit at the institution and with construct definitions used by Pierce and Dunham (1987).

Practical Value. Two items were used to provide a measure of the student's perception of the utility of an education from his/her institution: (1) "My education at this institution will help me get a better job than an education from another institution" (X6) and (2) "My education at this institution will help me secure future employment" (X7). Both items represented construct definitions provided by Bean (1980, 1982a) and are consistent with sample items provided by Bean and Vesper (1990).

Loyalty. One item provided a measure of the degree of loyalty to the institution by the student: "It is very important for me to graduate from this institution

as opposed to some other school" (X8). The item was adapted from the sample item provided by Bean (1982a).

Affinity of Values. Student assessments of the degree of congruency between their values and attitudes and those of members of their institutions were measured by: (1) "Most students at this institution have values and attitudes similar to my own" (X9) and (2) "Most faculty, academic advisors, and college administrators at this institution have values and attitudes similar to my own" (X10). These items were adapted from the Organizational Commitment Questionnaire by Mowday, Steers, and Porter (1979).

Intent to Persist. A student's intent to reenroll at the respective institution in the Fall 1989 semester while still enrolled in the Spring 1989 semester provided a measure of intent to persist. The item was taken from Pascarella and Terenzini (1979, 1980).

Persistence Behavior. Student persistence was measured as a dichotomous variable. Students who reenrolled in Fall 1989 were coded "1". Those students who voluntarily withdrew from the institution between the Spring 1989 and Fall 1989 period were coded "0".

DATA ANALYSIS

LISREL VII's weighted least squares (WLS) procedure for handling categorical and ordinal data was used to test the relative goodness of fit (Joreskog and Sorbom, 1989) between several factor structures underlying the institutional commitment construct. Following recommendations by Joreskog and Sorbom (1989), PRELIS was employed to produce a polyserial/polychoric correlation matrix and to assess the extent to which violations to the assumption of bivariate normal distributions were present in the data. To correct for these violations, the asymptotic variance-covariance matrix was estimated and used in the estimation of the confirmatory factor analysis (CFA) models.¹ Previous studies on student persistence have relied on exploratory factor analysis (principal components analysis with varimax rotation) to ascertain the factor composition of constructs under consideration. The literature on measurement has suggested the use of confirmatory factor analysis (CFA) to validate the presence of factor structures (Long, 1983; Thacker, Fields, and Tetrick, 1989; Joreskog and Sorbom, 1989).

CFA represents an improvement over exploratory factor analysis procedures in that it allows the researcher to dictate constraints consistent with theoretically based hypothesized factor structures and to test statistically how well the correlations among the observed variables are explained given those theoretical constraints. Hom and Griffeth (1991) note that through comparisons of competing measurement models, CFA can introduce more parsimonious conceptualizations by merging redundant concepts. According to Hom and Griffeth (1991),

“CFA might reveal that a purportedly unitary construct is multidimensional (an alternative measurement model) and that its constituent dimensions are sufficiently distinct to warrant existence as separate constructs” (p. 362).

In addition to examining the parameter estimates (factor loadings) of each manifest variable in the different measurement models, several measures of goodness of fit were employed to further substantiate the overall fit of the particular factor structure under consideration. One indication of the goodness of fit of the overall factor structure is the chi-square measure. Not only is a nonsignificant probability value desired (indicating that the proposed model is true in the total population), but a more appropriate indicator of the relative fit between models is the ratio of chi-square to degrees of freedom (Joreskog and Sorbom, 1989; Thacker, Fields, and Tetrick, 1989). If the chi-square value is close to the degrees of freedom for a specific model, the overall fit is considered to be a good fit.

However, Hom and Griffeth (1991) warn against the use of the chi-square as the sole criterion for the selection of a particular confirmatory factor model. The chi-square is sensitive to sample size and, consequently, can lead to falsely rejecting a model (Satorra and Saris, 1985). Bagozzi and Yi (1990) recommend the use of the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the root mean square residual (RMR), the analysis of the standardized residuals, and the analysis of improper estimates (i.e., small and nonsignificant loadings). The GFI and the AGFI are measures of the relative amount of variance and covariance that are jointly accounted for by the model. The AGFI differs from the GFI by adjusting for the degrees of freedom in the model. These two measures range from zero to one,² where values close to one indicate a good fit.

The RMR represents a measure of the average residuals when the hypothetical correlation matrix is subtracted from the sample correlation matrix. Values less than .1 indicate that the model reproduced a sample correlation matrix closely resembling the underlying population correlation matrix. Mulaik et. al (1989) suggest the use of the Type 2 adjusted normed fit index (NFI2) because both the GFI and the AGFI may be sensitive to sample size when the number of observations in the data set are under 200. The NFI2 (Mulaik et. al, 1989) involves a comparison of the fit of a given model to the null model when all of the observed variables are constrained to be independent of each other. To the extent that the difference in the fit function is large relative to the fit function of the null model, the NFI2 will approach one, signifying that most of the sample correlation matrix has been accounted for. Although in the present study the number of subjects exceeded 200, the GFI, the AGFI, and the adjusted normed fit index (NFI2) were all included in providing measures of the overall fit of the models in the study.

Seven factor structure models were tested in the study. An exploratory factor

TABLE 1. Exploratory Factor Results: Varimax Rotation

Item:	Factor Loadings		Communalities	Specific Variances
	F1	F2		
X1	0.824	0.059	0.683	0.317
X2	0.854	0.189	0.765	0.235
X3	0.627	0.127	0.409	0.591
X4	0.669	0.112	0.460	0.540
X5	0.707	0.285	0.581	0.419
X6	0.649	0.143	0.442	0.558
X7	0.681	0.100	0.474	0.526
X8	0.739	0.236	0.602	0.398
X9	0.179	0.815	0.696	0.304
X10	0.141	0.842	0.728	0.272
Eigenvalue:	4.670	1.160		
% Variance:	46.7	11.7		
Cumm. % Variance:	46.7	58.3		

analysis utilizing a varimax solution on the 10 items was conducted. The first analysis (model) determined the extent to which conventional methods replicate more rigorous statistical analyses, which are confirmatory in nature. The second model, or the uncorrelated (null) model (Mulaik et. al, 1989), was used in the computation of the NFI2, which in turn constituted the basis of comparisons of alternative confirmatory factor structures. Subsequent models (model 3–model 5) tested for competing underlying factor structures within the construct of institutional commitment. In formulating competing models, both the correlations among the constructs, the magnitude and significance of the loadings, as well as theoretical considerations relating to the relationships among the subconstructs, were considered.

RESULTS

Exploratory Factor Analysis

The exploratory factor model yielded a two-factor solution accounting for 58.4 percent of the variance observed in the correlation matrix. Table 1 reports loadings and proportion of variance accounted for by each factor. In each factor, items had loadings in excess of .6. The first factor revealed that items relating to Certainty of Choice, Institutional Quality/Prestige, a Sense of Belonging, Practical Value, and Loyalty to the Institution (X1–X8) underlie a single factor. This finding suggests that the proposition that Institutional Commitment and Institutional Quality/Prestige are separate constructs as postulated

by the Student Attrition Model does not hold. Rather, these preliminary results indicate that perceptions of Institutional Quality/Prestige and Institutional Commitments (Perceptions of Belonging, Certainty of Choice, importance of maintaining an affiliation with the institution) are measures of the same construct as hypothesized by the Student Integration Model and substantiated by Nora (1987) and by Cabrera et. al (1992). Moreover, exploratory results indicated that, indeed, Affinity of Values (X9,X10) is a separate construct, independent of or orthogonal to Institutional Commitment.

Confirmatory Factor Analysis

The following subsections present the results of systematically testing alternative hypotheses regarding the underlying composition of the construct.

Six-Factor Structure

The first confirmatory factor model tested for the validity of an underlying six-factor structure representing all the different components for the construct, Institutional Commitment, as dictated by the Student Integration Model, the Student Attrition Model, and the literature on organizational commitment (see Figure 1). The model hypothesized the six components as separate but interrelated. These six subcomponents consisted of: (1) Certainty of Choice, (2) Institutional Quality/Prestige, (3) a Sense of Belonging, (4) Practical Value, (5) Loyalty to the Institution, and (6) Affinity of Values.

Table 2 displays the measures of goodness of fit for the models tested. All measures of goodness of fit for the overall model provided support for the hypothesized structure (see Table 2). The resulting measurement model obtained the following: $\chi^2 = 29.24$, $\chi^2/df = 1.33$, GFI = .995, AGFI = .987, and the RMR = .029. Furthermore, the NFI2 (.998) indicated that the six-factor model provided a better fit as compared to the null or uncorrelated model. The factor loadings indicated that the respective items for each subcomponent provided appropriate measures for each of the components in the measurement model (see Figure 1). However, with the exception of Affinity of Values, the structural correlations between each subcomponent revealed that a high degree of interrelation existed, suggesting considerable overlap among the subcomponents. The correlations ranged from .58 to .79 (see Figure 1).

Tetrick, Thacker, and Fields (1989) point out that a high degree of interrelationship among subcomponents provides evidence that subcomponents may be representative of a single dominant factor. Consistent with Bean and Vesper's (1990) theoretical perspective that Institutional Fit is a single factor composed of Feelings of Belonging, Perceptions of Practical Value, and Loyalty (and substantiated by the high degree of intercorrelation among these three subcom-

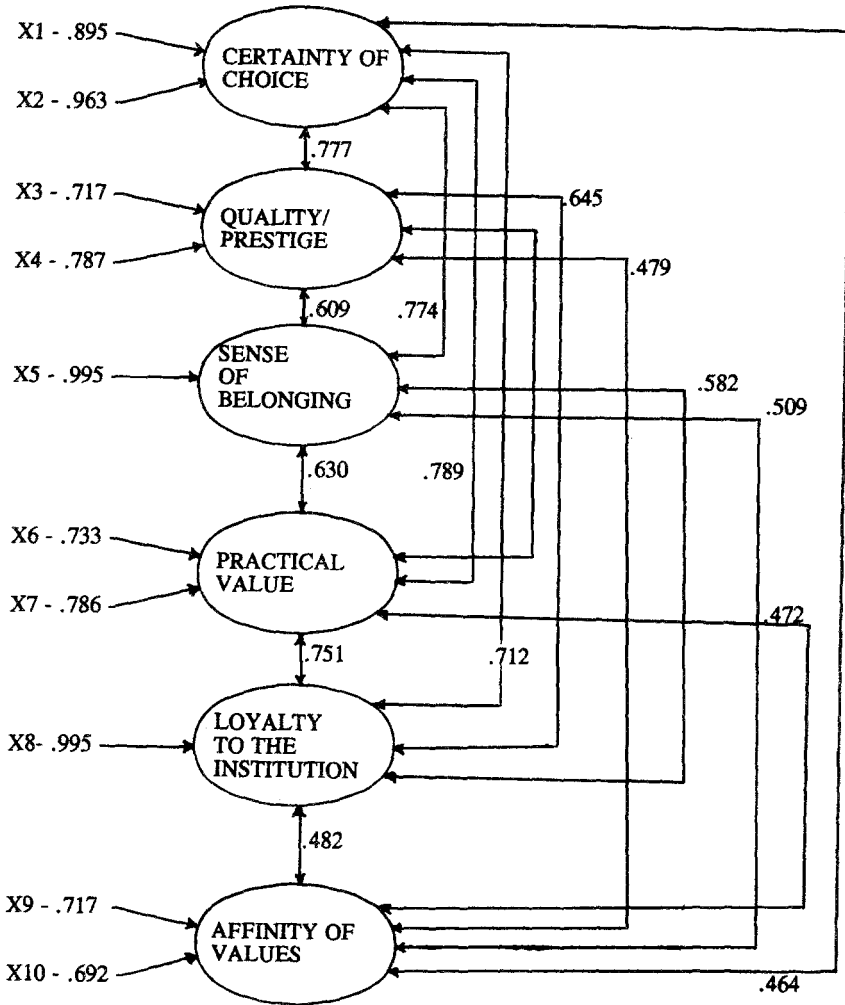


FIG. 1. Six-factor structure model.

TABLE 2. Goodness-of-fit for Models Tested

Model	df	X ²	X ² /df	GFI	AGFI	RMR	NFI2
<i>Null (Uncorrelated) Model</i>							
1. No factor structure	45	3,232.04	71.82	0.407	0.275	0.424	
<i>Six Factors</i>							
2. Oblique	22	29.24	1.33	0.995	0.987	0.029	.998
<i>Four Factors</i>							
3. Oblique	29	57.81	1.99	0.989	0.98	.040	.991
<i>Two Factors</i>							
4. Orthogonal	33	524.86	15.9	0.904	0.839	0.169	0.864
5. Oblique	34	102.83	3.02	0.981	0.969	0.054	0.987
<i>One Factor</i>							
6. One factor	35	165.90	4.74	0.970	0.952	0.070	0.959

Note: Fit indices provided by LISREL VII: GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; RMR = root mean square residual. NFI2 = type 2 normed fit index (Mulaik et al., 1989).

ponents in the six-factor structure model), an alternative four-factor structure model was formulated.

Four-Factor Structure

The four-factor structure model (see Figure 2) tested the verity of the proposition that Institutional Fit is comprised of Feelings of Belonging, Practical Value, and Loyalty as hypothesized by Bean and Vesper (1990). The model also tested the relative independence of this component vis-à-vis Affinity of Values, Certainty of Choice, and Institutional Quality/Prestige. All measures of goodness of fit for the overall model provided support for the hypothesized structure. The resulting measurement model obtained the following: $\chi^2 = 57.81$, $\chi^2/df = 1.99$, GFI = .89, AGFI = .98, and the RMR = .04. Furthermore, the NFI2 (.991) indicated that the four-factor model provided a better fit as compared to the null model.

Bean and Vesper's (1990) proposition that Loyalty, Belonging, and assessments of Practical Value are measures of a single factor (Institutional Fit) was substantiated. Loadings for the corresponding items ranged from .66 to .90 (see Figure 2). However, the proposition in the Student Attrition Model regarding the independence of Institutional Fit and Institutional Quality/Prestige was not confirmed. The structural correlation ($\phi = .77$) revealed a substantial overlap (see Figure 2). Moreover, parameter estimates further revealed a high degree of overlap between Certainty of Choice, an operationalization of Tinto's (1975,

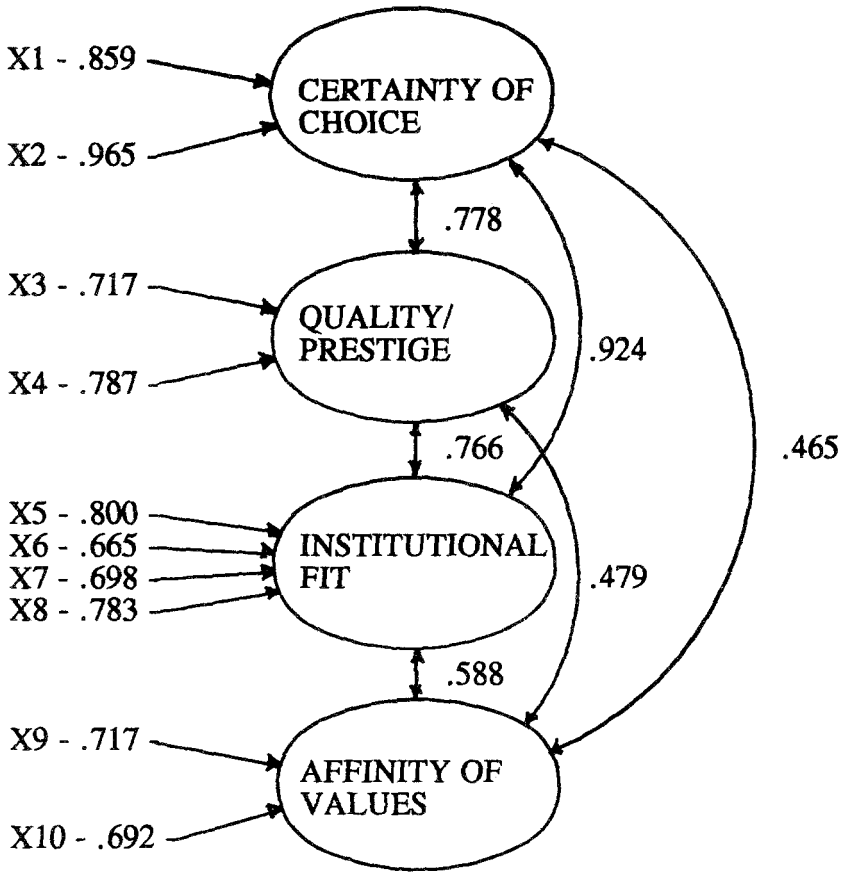


FIG. 2. Four-factor structure model.

1987) Institutional Commitment construct by Pascarella and Terenzini (1980), and Institutional Fit ($\phi = .924$). Given that Institutional Fit, Certainty of Choice, and Institutional Quality/Prestige were highly correlated, a new two-factor structure model was tested (see Figure 3).

Two-Factor Structure

The two-factor structure model tested for the validity of Tinto's theoretical view that perceptions of Institutional Quality/Prestige are intertwined with other perceptions of Institutional Commitment (Institutional Fit and Certainty of Choice). The model further tested for the proposition that Affinity of Values is

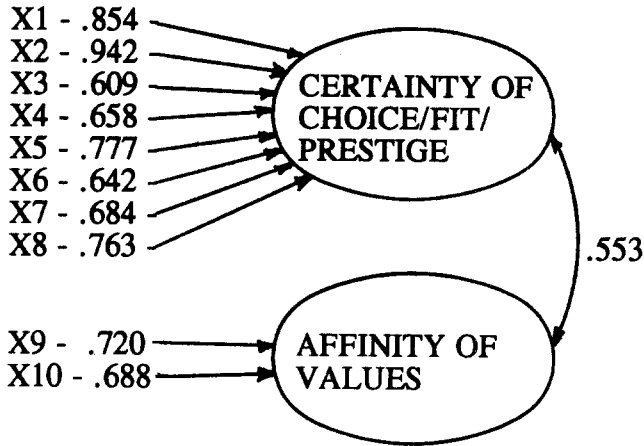


FIG. 3. Two-factor structure model.

an interrelated component of Institutional Commitment as suggested by Mowday et. al (1979). An oblique two-factor structure model was formulated to test for this hypothesis. Because the previous findings from the exploratory factor analysis suggested the presence of two orthogonal factors, an alternative orthogonal two-factor structure model was also tested.

As displayed in Table 2, the oblique factor model was robust as compared to the orthogonal factor model. The ratio of χ^2/df was lower for the oblique model ($\chi^2/df = 3.02$) as compared to that of the orthogonal model ($\chi^2/df = 15.9$). The RMR is substantially lowered for the oblique model (.05) as compared to that of the orthogonal model (.169). Finally, the NFI2 indicated that the oblique model (NFI2 = .978) better reproduced the underlying correlation matrix. The resulting measurement estimates for the oblique model (see Figure 3) indicated that the factor loadings for items measuring Choice/Fit/Quality and Affinity of Values were good indicators of the latent factors in the model. The structural correlation between Affinity of Values and Choice/Fit/Quality was .553.

In order to further substantiate the validity of a two-factor model, a single CFA model was tested. As shown in Table 2, the two-oblique-factor solution was more robust vis-à-vis the one-factor model. The chi-square value for the one-factor model ($\chi^2 = 165.9$) was higher than that of the two-factor oblique model ($\chi^2 = 102.83$). The oblique two-factor model had a lower χ^2/df ratio (3.02 versus 4.74) and the RMR indicated that the two-factor oblique model

(.054) reproduced the underlying correlation matrix better than the one-factor structural model (.07).

Predictive Validity

Measurement literature suggests that construct validation should not merely document the dimensionality of the construct under study but should also examine the extent to which that construct is able to predict other constructs in a manner consistent with theory (Campbell and Fiske, 1959; Messik, 1989). Because both theories of college persistence and organizational commitment literature hypothesize that Institutional Commitment shapes intentions to remain at an organization and actual withdrawal behavior, the following section reports the results of the predictive validity of each subcomponent of Institutional Commitment on Intent to Persist and on actual Persistence Behavior.

Figures 4 and 5 display both the measurement and structural models for the causal models testing the predictive validity of each subcomponent of Institutional Commitment on Intent to Persist and Persistence Behavior. In both measurement models the factor loadings for items measuring Choice/Fit/Quality and Affinity of Values were found to be valid indicators of the latent constructs. These loadings ranged from .60 to .94 in Figure 4 and from .61 to .94 in Figure 5. For both structural models, only Choice/Fit/Quality significantly predicted students' Intent to Persist and Persistence Behavior. The hypothesized models were supported by the GFIs, the AGFIs, and the RMRs.

DISCUSSION

Past research has employed exploratory factor analysis (principal components analysis) to establish the construct validity of factors utilized in quantitative causal models. In so doing, these analyses may have fallen short of uncovering the true dimensionality of the constructs under consideration. In the present study, confirmatory factor analyses revealed the presence of two interrelated dimensions. A comparison between factor loadings from the exploratory factor analysis (orthogonality imposed) and the final two-factor oblique model indicated that Institutional Commitment and Affinity of Values were not separate constructs but, rather, components of the same phenomenon, much like in Tinto's (1975, 1987) model of student attrition, Nora's (1987) study, and Cabrera's et al. (1992) study on the convergence between Tinto's (1975, 1987) Student Integration Model and Bean's (1985) Student Attrition Model.

No evidence was found to support Bean and Vesper's (1990) contentions regarding the structural or causal effect of Institutional Prestige on Institutional

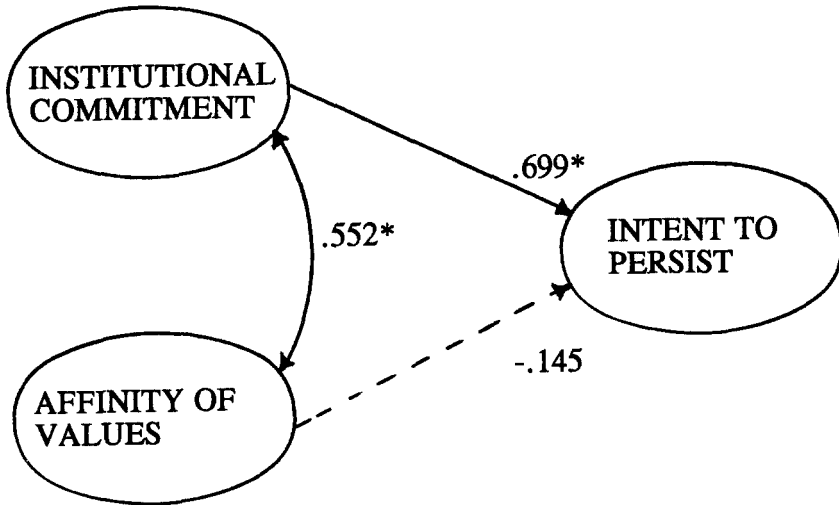


FIG. 4. Predictive validity on intent to persist.

Quality and Fit. In all models, including the exploratory factor analysis, measures of Institutional Prestige and Institutional Quality/Fit were regarded as indicators of the same construct, Institutional Commitment.

Further evidence of the construct validity of the multidimensionality of the construct Institutional Commitment was provided by measures of the overall goodness of fit of the two-factor structure model whereby both separate, but related, dimensions were found to be valid predictors of the student's intent to persist in college and actual persistence behavior. In both instances, Institutional Commitment and Affinity of Values (subcomponents of the same construct) were found to significantly account for the variance explained in students' intents to reenroll the following semester ($R^2 = .398$) and subsequent withdrawal or persistence decisions ($R^2 = .097$).

However, results indicate that these two factors are not equally valid as predictors of student persistence. While Institutional Commitment was found to exert significant effects on both intentions and decisions, Affinity of Values failed to do so. Although in the present study Affinity of Values did not predict either intentions or actual persistence decisions, future research should not exclude this component when validating the theoretical framework. As noted by Tinto (1987), persistence processes are likely to change as a function of the institution and type of student under consideration. Furthermore, Affinity of Values may be important in the study of relevant college-related outcomes other than persistence decisions.

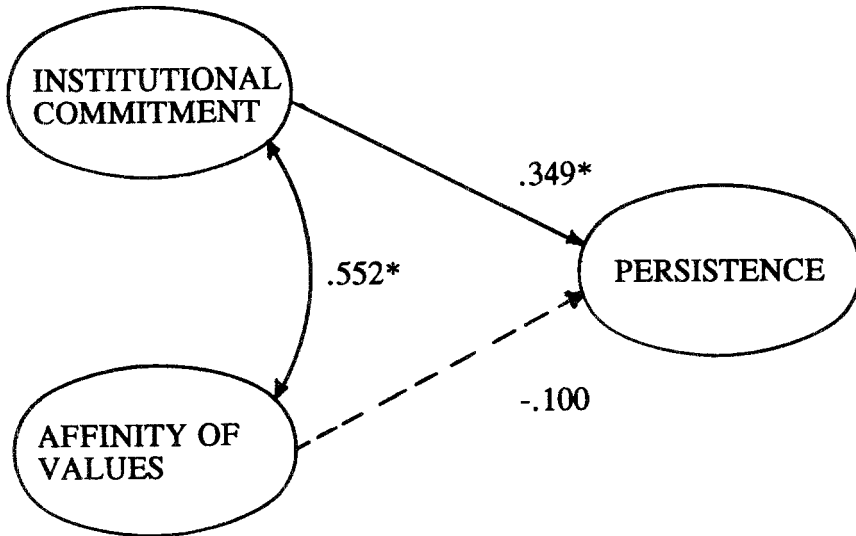


FIG. 5. Predictive validity on actual persistence behavior.

The study stresses the need on the part of future research in documenting the measurement properties of the instruments vis-à-vis the construct under consideration before examining structural paths in hypothesized models (Anderson and Gerbing, 1988). In so doing, it is advisable that future research should depart from the use of exploratory factor analyses with arbitrarily imposed orthogonality among the factors and adopt a rigorous confirmatory factor analysis approach to substantiate the dimensionality of the construct (Anderson and Gerbing, 1988). Otherwise, the use of a single score (indicator), the lack of a consistent measurement model in relation to the construct under study, and the exclusion of relevant indicators for the construct may lead to: (a) the misspecification of the model under study, (b) reduction in the variance explained, and (c) the reduction of valid theoretical propositions (Hom and Griffith, 1991; Thacker et. al, 1989).

NOTES

1. Both the asymptotic variance/covariance and the polyserial/polychoric matrices are available upon request from both authors.
2. While it is possible that negative values may be derived in the computation of the GFI and AGFI, Joreskog and Sorbom (1989) note: "Both of these measures should be between zero and one, although it is theoretically possible for them to become negative. (This should not happen, of course, for it means that the model fits worse than any model at all.)" (p. 27)

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