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AUTHOR Borden, Victor M. H.
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ABSTRACT

A student engagement model is proposed to provide a conceptual framework for understanding the bond between student and college. The model focuses on a student's motivation for attending college, the tension that derives from conflicting motivations, and the social context of the student-college bond. The validity of the model was examined in a study that tracked 40% of the freshman classes of 1984 and 1985 at the University of Massachusetts through their first year of college. The Student Information Form (SIF) survey was used to obtain data about the entering students. The SIF data provided only limited support for the engagement model. However, the study was able to establish differing engagement orientations and their associations with students' expectations for college and with their longer-term goals. Data are provided in 10 tables. Contains 41 references. (KM)

Student Engagement in College

Victor M. H. Borden

George Mason University

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Victor M. H. Borden
George Mason University

Introduction

In this paper, a student engagement model is proposed to provide a conceptual framework for understanding the bond between student and college. The model focuses on a student's motivation for attending college, the tension that derives from conflicting motivations, and the social context of the student-college bond. The validity of this model is examined in a study that tracks entering students through their first year in college.

Researchers and practitioners often acknowlege that motivational and social factors strong influence students' outcomes from college, but there have been few successful attempts to identify and measure such factors. The present engagement model is set forth, then, with two broad objectives: first, to identify important motivational and social determinants of the student–college bond, and second, to provide a framework for measuring these determinants.

Assessing students' motivation for attending college is part of the broader-based effort to assess student outcomes. The student outcome assessment movement is sweeping across college campuses with unprecedented momentum. For many public institutions, legislative bodies are demanding increased accountablility for the use of public funds. For both public and private institutions college "consumers" are demanding a demonstration of the return for the large investment of time and money that a college education requires.

With its broad focus, outcome assessment requires a range of conceptual frameworks; a range that crosses disicplinary boundaries and levels of analysis. This is demonstrated in the conceptual framework developed by researchers at the National Center for Research to Improve Postsecondary Teaching and Learning (NCRIPTAL) at the University of

Michigan (c.f.,Stark & Mets, 1988). Figure 1 summarizes their "macro" level model for outcome assessment.

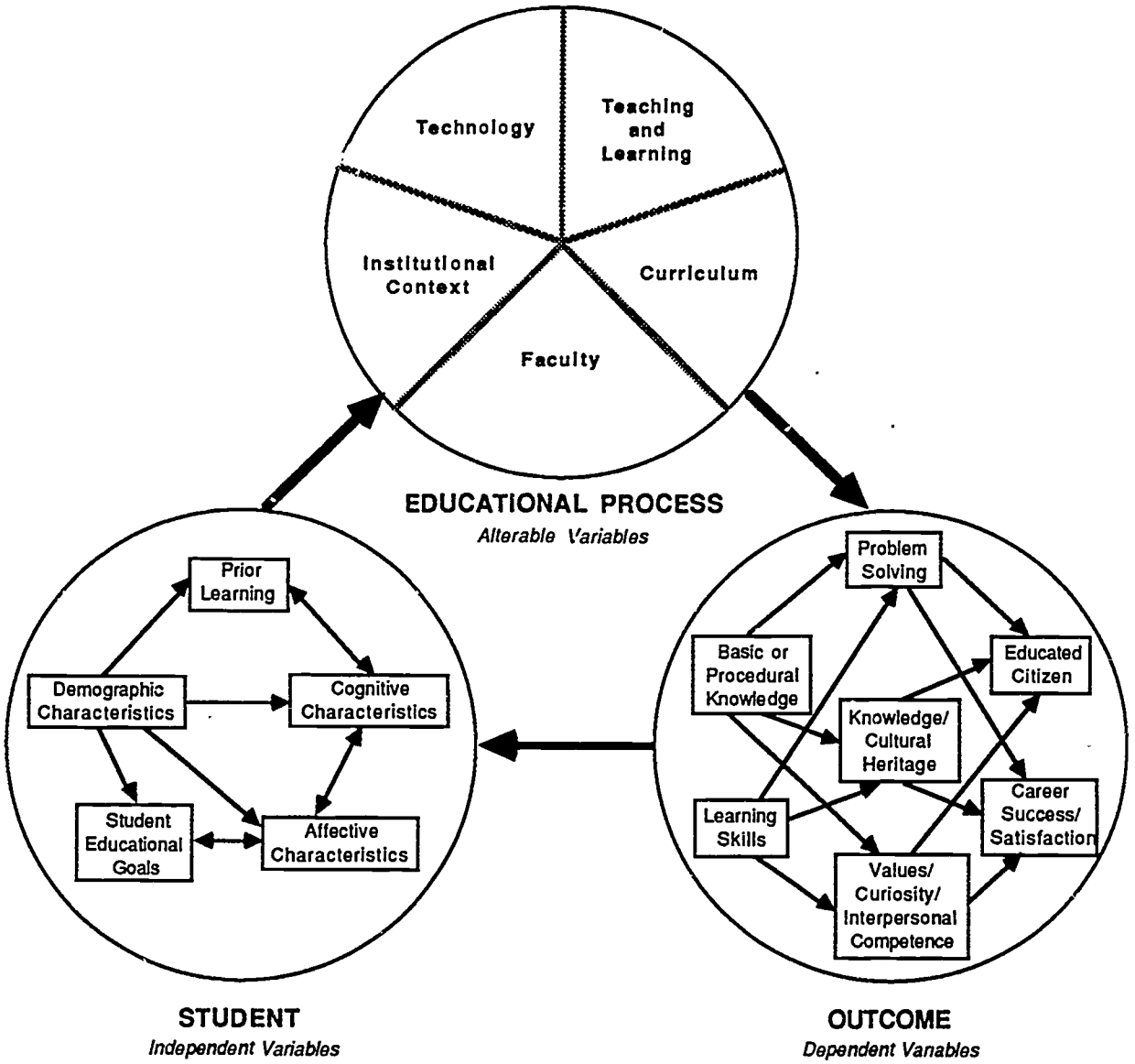

Figure 1. The NCRIPTAL Model for Student Outcome Assessment (From Stark & Mets, 1988, p. 3.).

The NCRIPTAL model focuses on aspects of college that can be altered in order to improve the learning environment. Stark and Mets (1988) provide a concise summary of this model.

> Students cognitive and affective characteristics . . . are modified when students encounter these aspects of the college environment. the results are educational outcomes, ranging from basic skills (short-range outcomes) to career and life accomplishments (long-range outcomes). (p. 2-3.)

The student engagement model, then, represents a "micro" level model for conceptualizing students affective characteristics, including their educational goals; more specifically, their motivation for attending and persisting in college.

The impetus for developing the student engagement model originates from examining the literature on college student retention and attrition. This literature also provides many parallels to the issues that are now being raised for assessing student outcomes.

The Problem of Student Attrition

The number of 18 – 22 year olds was expected to decline 25% between 1980 and 1990 (Breneman, 1982). Although the impact of this decline on college enrollments has not been as severe as originally expected, the warnings came at a time when many colleges were already battling for economic survival. As a result, there arose a renewed interest in retaining students through graduation in order to maximize tuition revenues and avoid the increasing costs of attracting new students from a dwindling population. But, well before these demographic projections renewed interest in the issue, student attrition was a popular subject of study. Summerskill (1962), for example, reviewed the extensive literature going back to the late 1920's. The American Association of University Professors' (1926) bibliography on the subject traces studies back to 1901.

Attrition has primarily been viewed as a waste of student talent and college resources. There is no question that a significant number of students leave college before graduating. There is a question, though, as to the precise nature of the problem this may entail. For college administrators, the problem may be students withdrawing from their particular college. While for educational advocates, the problem may be students dropping out from

the higher education system. For professional counselors and the students, the problem may not be attrition or retention *per se*, but how either relates to personal maturation.

Ewell (1983) addresses this very same issue with regard to defining the problems to be addressed when assessing student outcomes.

> Research scholars . . . have used *student outcomes* to describe a wide range of phenomena, from short-term cognitive development to long-term changes in behavior. College and university administrators have used the term for the most part in promoting claims of individual institutional success . . . Student-personnel professionals have used the term diagnostically and descriptively to refer to the successes and failures of individual students . . . Most recently, state governing boards and legislatures have shown an increasing interest in outcomes as a judgmental concept—as an element in allocating scarce resources according to demonstrated institutional effectiveness. (p. 3)

Approaches to The Attrition Problem.

Most early approaches to the study of attrition were aimed at identifying differences between students who persist in college and those who withdraw. It is apparent from several reviews of these approaches (e.g., Pantages & Creedon, 1978; Ramist, 1981; Sexton, 1965; Summerskill, 1962) that colleges and their student populations differ so much as to make generalization of descriptive research results difficult at best.

Later approaches tended to go in either of two directions. Some researchers have adopted conceptual approaches, basing their empirical studies on a popular theoretical framework. Tinto's (1975) theory of student integration has probably generated the most research, but these conceptually based efforts have met with limited success. Many administrators, on the other hand, have adopted a "business-like" approach known as enrollment management to ensure "the steady supply of qualified students to maintain institutional vitality" (Kemerer, Baldridge, & Green, 1982).

In some ways, the student outcome assessment movement represents the culmination of both the attrition/retention and enrollment management perspectives. After all, student

persistence and withdrawal behaviors are related to important outcomes of the college process although the focus on just these behaviors is very limiting. And, whereas enrollment mangement focuses on the efficiency of moving students through an institution,. it largely fails to demonstrate an institution's educational effectiveness which is a central goal of student outcome assessment.

Approaches to outcome assessment also range from descriptive to conceptual. Examples of popular descriptive approaches are the outcome classification schemas offered by Astin, Panos, and Creager (1967) and by Lenning, Lee, Micek, and Service (1977). These schemas help to organize the descriptive literature much like the descriptive reviews of the attrition literature. The NCRIPTAL framework discussed briefly above exemplifies the conceptual approach that goes beyond describing what constitututes student outcomes, and begins to explain the system of relationships between student, institution, and society.

Conceptual Background for the Engagement Model

In spite of all its problems, the attrition/retention literature has yielded several consistent findings that focus on the student-college bond. These findings are summarized from several reviews of the literature as well as a few broad-based empirical studies (Astin, 1975; Beal & Noel, 1979; Cope & Hannah, 1975; Iffert, 1957; Knoell, 1960; Panos & Astin, 1968; Pantages & Creedon, 1978; Summerskill, 1962).

Persistence in college has been positively associated with participation in extracurricular activities, employment on campus, living in a campus dormitory, having friends at college, and maintaining a full-time course load. Conversely, withdrawal has been associated with involvement in few social activities, employment off campus, living off-campus (especially as a commuter), having significant relationships with individuals at

other locations, and being enrolled as a part-time student. Finally, it is much more common for students to withdraw between semesters, when they are away from college, than during semesters. All these findings concern the degree to which students' lives revolve around the college environment.

These findings have led researchers to apply several relationship–oriented perspectives to the study of student attrition. Two perspectives have been most popular: "student–college correspondence" (Astin & Holland, 1961; Holland, 1973; Moos, 1973; Pace, 1969; Pace & Stern, 1958; Stern 1970) and "student integration" (Spady, 1971; Tinto, 1975). Recently, Astin (1985) suggested another perspective called "student involvement."

Student–College Correspondence

The theoretical basis of the student–college correspondence theory is Lewin's (1951) proposition that human behavior is a joint function of personality and environment —represented by the formula **B = f (P,E)**. From this basic proposition, Murray (1951) developed the Need x Press theory, according to which behavior is determined by how one's need states coincide with the opportunities in the environment for satisfying those needs. Pace and Stern (1958) developed a set of scales for assessing students' need states (the Activities Index [AI]) and the college environment's press (the College Characteristics Index [CCI], revised, by Pace (1969), as the College and University Environmental Scale [CUES]).

Based on Linton's (1945) view that personality is transmitted through culture, Astin and Holland (1961) developed a different measure of student–college correspondence, the Environmental Assessment Technique (EAT), by which correspondence is assessed according to the similarity between a student's own personaility and that of a "typical" student in the same program of study. Astin (1968) later moved from Holland's personality

orientation and toward Pace and Stern's (1958) activity orientation when he developed the Inventory of College Activities (ICA) which measures the frequency with which students engage in specific activities.

More recently, Moos (1973, 1974) employed a personality orientation similar to those of Stern (1970) and Holland (1973). He and his colleagues developed several scales to measure social climates. Among those relevant to colleges and universities are the University Residence Environment Scale (URES) (Moos & Gerst, 1976) and the Classroom Environment Scale (CES) (Moos & Trickett, 1976).

Student Integration

The basic premise of student integration is that "the successful assimilation of college students into the full life of their institiution [is] problematic, rather than . . . given" (Spady, 1971, p. 38). Spady's (1971) and Tinto's (1975) models have three important similarites. First, students' backgrounds are viewed as the primary determinants of their initial experiences in a college's social and academic milieus. Second, integration occurs through interaction with other students and through performance in the classroom. Third, successful integration results in commitment to the institution and in persistence.

Student integration models were specifically intended to explain why students withdraw from or persist in college. Although they attend to the student–college bond, they focus merely on attrition and retention, ignoring a broader and important array of student outcomes.

Student Involvement

Astin's (1985) "student involvement" concept focuses on the student–college bond and its implications for a broad array of outcomes. According to Astin, "student involvement refers to the amount of physical and psychological energy that the student devotes to the

educational experience" (p. 134). Astin states his theory quite simply: "Students learn by becoming involved" (p. 133).

Although withdrawal is not his primary focus, Astin does cite several of the research findings discussed earlier as evidence for the validity of his theory. The lower attrition rates associated with living on campus, participating in extracurricular activities, and working in a part-time campus job are all attributed to the high involvement that these activities allow.

Astin's concept of student involvement focuses especially on the student–college bond. Its focus moves away from attrition since a wide variety of student outcomes can be related to involvement. The concept is limited, however, by its concentration on only the internal environment of a college, and ignores the fact that students' involvement in a college is influenced in important ways by the external environment. This includes the influence of their families, as well as alternative opportunities outside of college.

Social Cohesion and the Concept of Social Motivation

The social cohesion literature focuses on interpersonal motivation; that is, on motivations for maintaining or desolving relationships. Interestingly, this literature has the same basic root as the student-college correspondence theories—Lewin's (1951) field theory of social science.

Lewin (1951) characterized social motivation as consisting of psychological forces that move individuals through their life space. He identified two general kinds of forces in the psychological field: *driving forces*, which either attract individuals toward or repel them away from objects or regions of the psychological field, and *restraining forces* that derive from barriers around or between regions, which impede one's progress through the field. Following this framework, Festinger (1950) defined social cohesion as "the resultant of all forces acting on members to remain in the group" (p. 275).

Levinger (1965, 1976) subsequently drew on this conception of social cohesiveness to analyze the determinants of marital stability and dissolution. His model focuses on the forces that attract and repel intimate partners to and from each other, as well as the barriers that inhibit pair members from breaking off their relationship. Furthermore, he suggested that the attractiveness of a relationship may be weighed against that of alternative possibilities. His model does not assume that marital stability is necessarily assoicated with strong positive feelings about the relationship. Poor alternatives or strong barriers may keep a person in a relationship despite negative feelings about his or her partner. Similarly, students who continue to stay in college need not necessarily be satisfied with their college experience; they may simply have no alternatives or face strong barriers to leaving (e.g., fear of dealing with their partents objections. Levinger's intersection schema a provides a starting point for the present model of student engagement in college

The Student Engagement Model

The term *engagement* was chosen to characterize the student–college bond so as to emphasize students' psychological and social commitments to a college. Psychologically, students commit their emotional and behavioral energies to college for a significant period of time. Socially, students make commitments to remain in a college to their families, teachers, and friends. The engagement model provides a framework for understanding these commitments and how exposure to a college's social environment influences them.

The engagement model is composed of two components. The *engagement schema*, derived from Levinger's (1976) intersection schema, depicts students' psychological attachment to a college. The *social context*, derived from social correspondence and student integration theories, denotes the social factors that influence psychological attachment. The two components each yield two dimensions of engagement. The four

resulting dimensions facilitate the measurement of student engagement in college.

The Engagement Schema

Following Levinger's intersection schema, students' psychological commitment to a college is here viewed according to driving and restraining forces. Figure 2 displays the engagement schema. The arrows marked "f+" indicate forces toward further engagement and those marked "f-" reflect forces toward disengagement. The arrows marked "b" represent the barriers or restraining forces.

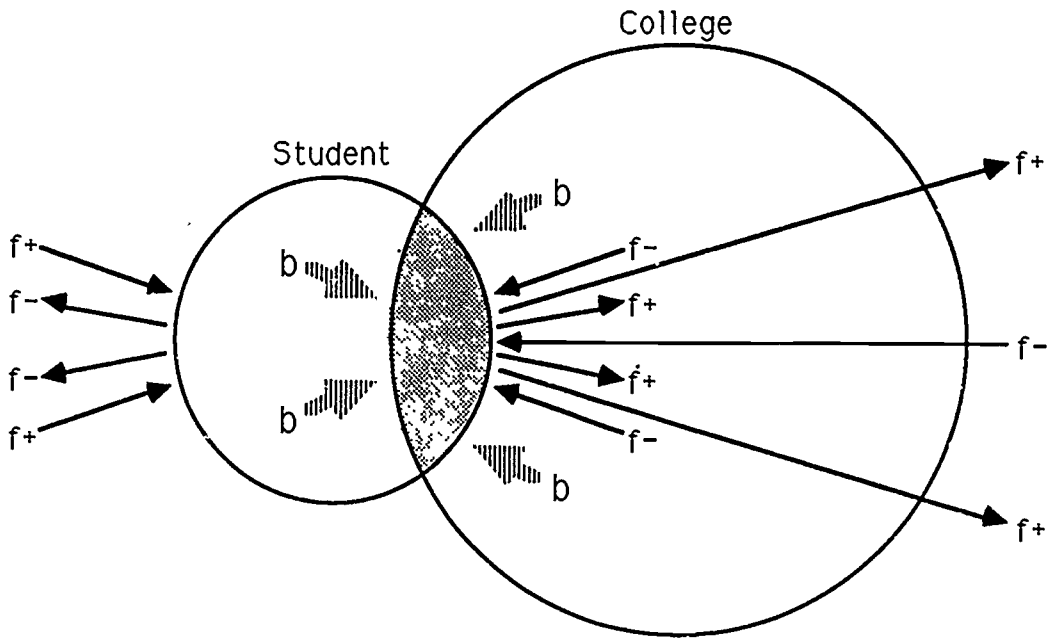

Figure 3. The engagement schema.

The engagement schema characterizes forces according to their direction—toward either engagement or disengagement—and their source—either internal or external. To reflect the instrumental value of a college education, the engagement schema further distinguishes between *current* and *prospective* external forces. Current external forces

reflect students' alternative options, which may promote either engagement or disengagement. Prospective external forces reflect the perceived instrumental value of a college education; they represent attractions to elements external to college, that one can only approach by going through college. They generally heighten engagement, but can possibly work in the opposite direction, as when a student fears making the career choices that a college education affords. Table 1 provides examples of driving forces, categorized according to their source and direction.

Table 1. Examples of Driving Forces That Affect Student Engagement

	Direction	
Source	Toward Engagement	Toward Disengagement
Current External Environment	Parents' wishes Lack of job opportunities No affordable place to live Advice of a teacher	Opportunity to travel Friends at home Program at another college Job opportunity
Internal Environment	Quality of academic program Athletic program Intimate friend Social activities	Large student body Bureaucracy Rowdy students Lousy food
Prospective External Environment	Access to higher paying job Access to certain careers Social status	No training for some careers Fear of increased responsibilities

Barriers. Barriers are characterized according to the direction in which movement is being restrained—toward either disengagement or engagement. Table 2 presents examples of barriers that affect student engagement.

Table 2. Examples of Barriers That Affect Student Engagement

Restraining Disengagement	Restraining Engagement
Having to inform parents	Paying the semester bill
Moving all possessions	Passing a language requirement
Withdrawal process	Registering for desired courses
Leaving friends	Finding part-time work

Psychological dimensions of engagement. A student's psychological attachment to a college results from the impact of all relevant engagement forces. This impact can be described in two ways: depth and intensity of engagement.

> **Depth of engagement**. The degree of meshing between student and college. Represented by the shaded area of Figure 2, it is the *net sum* of all engagement forces, taking their direction into account.

In one sense, depth of engagement reflects the "intimacy" of the student–college bond. Alternatively, it may be thought of as the degree to which the student's life revolves around the college environment. A student who is very deeply engaged has few interests outside the college environment.

> **Intensity of engagement**. The tension that arises from conflicting forces. It is the *absolute sum* of all engagement forces, regardless of direction.

The first year in college often requires important psychological adjustments by students. Intensity of engagement portrays one important aspect of this adjustment—i.e., coping with opposing attractions and repulsions, and with barriers that restrain movement in either direction. Whereas depth of engagement indicates the intimacy of the student–college bond, intensity indicates the passion—i.e., the total amount of emotional energy that is associated with the relationship.

The Social Context of the Student-College Bond

The motivational forces that compose a student's relationship with a college are likely to be significantly influenced by his or her subsequent collegiate interactions. Students enter college with some conception of why they are attend and what they hope to accomplish in college. They soon discover whether their new socal environment supports their initial goals and expectations.

The correspondence theories reviewed earlier provide different ways to characterize social support in terms of the "fit" between a student and an institution of higher education. For the student engagement model, we are interested in comparing students according to the types and relative strengths of forces that affect their engagement.

Social dimensions of engagement. The consequences of good or bad fit are indicated by two social dimensions: normative congruence and normative consistency.

> **Normative congruence**. The typicality of a student's engagement forces. It refers to the similarity between a student's forces and the average engagement forces among students in a college.

In his student integration model, Spady (1971) suggested that normative congruence refers to "the general degree of compatibility between the dispositions, interests, attitudes, and expectations of the student and the set of behaviors, expectations, and demands to which he may be exposed as a result of interaction with a variety of individuals in the college environment" (Spady, 1971, p. 39, footnote 4). Spady argued that students whose own norms are more congruent with the dominant norms will "perceive a greater degree of affinity and identity with the college, be more likely to establish close relationships with others, achieve intellectual and academic success, and feel more tightly integrated into the fabric of campus life" (p. 42).

The present definition of normative congruence is more specific; it only refers to congruence among engagement forces. Nevertheless, it is expected that such congruence indicates potential social support for students' motivational orientations to college.

> **Normative consistency**. The consistency among a student's engagement forces, where consistency refers to social standards about what forces are seen as compatible as opposed to contradictory.

College students differ in their motivational orientations to college. There may be some norms that are more dominant than others, but there are many "acceptable" reasons for attending college. Clark and Trow (1966) suggest that, among heterogenous student populations, the main source of social support comes from "student–subcultures," or "pockets" of students with similar interests. Normative consistency indicates the degree to which a student's engagement forces reflect identifiable social norms, although not necessarily the dominant ones.

Measuring Student Engagement

Measuring engagement requires, first of all, identifying the forces that determine engagement. The engagement model provides a framework for generating such a list. Specifically, questions can be posed to elicit forces that reflect the three sources (current external, internal, and prospective external environments), two directions (toward engagement and toward disengagement), and the two types (driving forces and barriers). Tables 1 and 2, presented earlier, show how engagement forces can be arrayed according to these classification criteria. Once identified, students' ratings of the engagement forces provide the basic elements for deriving measures of the dimensions of engagement.

As an exploratory study, the present one employs extant data from a national survey of entering college students, conducted by the Cooperative Institutional Research Program (CIRP). Two sections of this survey ask students about their reasons for attending college.

The items from these two sections will serve as measures of engagement forces.

The analyses were conducted to address two basic research questions: (1) can the dimensions of student engagement be successfully measured using the CIRP survey responses? and (2) does initial student engagement correlate with students' background, with current expectations and goals, or with their subsequent performance in college?

Method

The present study explores engagement among entering first-year students. The first year in college requires the greatest psychological and social adjustment. This is evidenced by the fact that typically half of all student who voluntarily withdraw from college do so before beginning their second year (Pantages & Creedon, 1978). For new students, the college environment is usually vastly different from any previous environment. Going to college marks their first time away from daily parental guidance. Since the engagement model focuses on a student's affective ties to college, entering students are a particularly appropriate population for study.

Extant data were used in this study as an economical resource that would also be readily available to researchers at other colleges. Thus the present study tests not only the engagement model, but the limits of the data as well. The sample was drawn from the Fall 1984 and 1985 entering freshman classes at the University of Massachusetts at Amherst.

The Data

The primary source of data on students' engagement, background, expectations, and goals was the Cooperative Institutional Research Program's (CIRP) Student Information Form (SIF), an entering student survey. Additional background data, and all outcome data were taken from administrative records.

The entering student survey. The SIF is a four page multiple-choice survey sponsored by the American Council on Education (ACE) as part of an ongoing longitudinal study of college students. The SIF has been administered yearly since 1966 at approximately 500 institutions of higher education throughout the United States. The University of Massachusetts at Amherst has participated in the program since 1975.

The SIF survey provides a broad range of information about students' demographics, secondary school background, and means for financing college. Other sections of the survey pertain to students' aspirations (educational, vocational, and personal), expectations, attitudes, and values. Most relevant to the engagement model are its questions about students' reasons for attending college: One section presents 11 reasons for going to *college in general;* another presents 15 reasons for going to the *specific college*. A final item asks students for permission to use their responses in anonymous follow-up research.

The Fall 1984 sample represented 87.7% of the entire entering freshman class and the Fall 1985 sample represented 92.4%. In both years just under 60% of the sample, or 50% of the entire freshman class, provided permission for using their responses in follow-up research. After discounting cases with invalid ID numbers, 40% of each freshman class could be tracked through their first year in college.

Students' administrative records. The University of Massachusetts maintains computerized records of its students in an array of different systems. Data were obtained on academic background, from the admissions system; on financial aid packages, from the financial aid system; and on students' outcomes, from the Undergraduate Registrar's student data base. Data were available for all members of the two entering classes.

Analytic Procedure

Initial factor analysis of items from the SIF survey indicated that the data did not adequately fit a common–factor model; these factorial analytic methods produced many negative eigenvalues and occasional Heywood cases, and iterative procedures exhibited poor rates of convergence. Therefore, principal component analysis was used to derive measures based on multiple items: measures of depth of engagement; of academic, economic, and social background; and of expectations and goals.

Data from the 1984 entering class were used initially to formulate measures of engagement and its anticipated correlates. Data from the 1985 class were used to examine the reliability of the measures and to answer the research questions. Thus only students from the 1985 sample were tracked through their first year of college.

Comparing Trackable Participants with Other Entering Students

Several significant differences were found between the 1985 trackable participants and other first–year students. The trackable participants had significantly higher mean verbal and math SAT scores, higher high school class rankings, included proportionately more white and fewer minority students, and overrepresented students who entered applied majors (i.e., underrepresented arts and science, and undeclared majors).

The differences in area of study largely account for the differences in SAT scores and high school class rank. That is, the effect of SAT score on participation status was not significant when area of study is taken into account in a two–factor analysis of variance. Verbal SAT score still had a significant effect, but was smaller than when area of study was not taken into account.

Thus the trackable students are not entirely representative of the entering first–year class. They overrepresent students who pursue vocationally oriented areas of study. They

are also a more academically selective group of students, primarily because students who pursue the applied areas of study tend to have higher academic credentials. This is particularly true among students who enter engineering and business fields, the majority of applied majors.

The Reliability and Validity of SIF Responses

Some information captured in the SIF survey was also available in students' administrative records. Five of the 1,765 trackable students had a different sex listed on their administrative record than in their SIF response. This represents a 99.7% rate of agreement, but it is noteworthy to find any differences at all. There was a 95.8% agreement rate for ethnicity among students who reported this data on both the SIF and for University records. There was only an 80.4% agreement rate for student age but inspection of incorrect responses indicated that many students used the SIF scale in the reverse direction.

Table 3 compares students' reports of their financial aid awards and their estimates of parental income on the SIF, with the rewards actually received and their parents' actual income. For this analysis, students' actual awards and their parents' incomes were translated into the SIF categories before the correlations and agreement rates were calculated.

The second column of Table 3 displays the percentage of students whose actual awards were within the category indicated in the SIF. The third column shows the percentage of students whose actual awards were in either the category they indicated, or in one category immediately below or above. It should be noted that the correlations shown in the first column are attenuated if few students receive aid from that source. This is particularly evident for the "other loan" category, where over 80% of the students accurately report that they receive no financial support from this source; the lack of variation in responses yields a

low correlation in spite of a high rate of concordance.

Table 3. SIF Financial Data Compared to Administrative Data

Financial Source	Correlation	% in Same Category	% Within one Category
Pell Grant	.69****	75.0	84.4
SEOG	.33****	70.6	82.0
Work-Study	.46****	69.1	86.1
State Schol. or Grant	.39****	69.4	79.9
College Schol. or Grant	.40****	52.0	66.7
FGSL	.40****	44.9	57.2
NDSL	.25****	66.0	75.2
Other Loan	.07	84.7	87.1
Parent's Income	.35*	26.8	45.5

* $p < .05$; **** $p < .0001$
SEOG = Supplemental Educational Opportunity Grant.
FGSL = Federally Guaranteed Student Loan.
NDSL = National Defense Student Loan.

The rates of agreement for the financial data are much lower than for the demographic data and they vary considerably among the different items. Thus the reliability and validity of the SIF responses are somewhat questionable especially among the financial items. The reliability of the attitudinal items is considered below, when formulating measures of engagement and the anticipated correlates of enagement.

Results

Measuring Engagement

A principal components analysis was conducted initially on all 26 items of the SIF pertaining to students reasons for attending college. Items with either low communality or low sampling adequacy (Kaiser & Cerny, 1977) were eliminated, leaving nine of the 26 items to measure depth of engagement. A second principal component analysis of the nine remaining items revealed three components that accounted for over 60% of the total variation (65% for the 1984 sample; 62% for the 1985 sample). The components were rotated by the PROMAX method (Hendrickson & White, 1964). Table 4 displays the resulting component patterns. Although comparing principal components between two samples is not a powerful test (Mulaik 1972, p. 357), the similarity between the two sets of loadings indicates no important differences.

The first component, labeled "educational enrichment," is comprised of items that refer to college as an intrinsically enriching experience, that is, a college education as an *end* in itself. The second and third components represent college as a *means* to other ends. The second, labeled "job prospects," refers to obtaining better jobs, and the third, "college's credentials," refers to how the *specific* college augments one's career opportunities.

The college's credentials component was moderately correlated with both the educational enrichment component (1984, r = .23; 1985, r = .28) and the job prospects component (1984, r = .24; 1985, r = .20), but the latter two components were practically uncorrelated with each other (1984, r = .03; 1985, r = .12). To avoid sample idiosyncrasies, depth of engagement component scores were calculated by applying the components weights derived from the 1984 sample to the data from the 1985 sample.

Table 4. The Principal Components of Student Engagement

	Component Loadings					
	Educational Enrichment		Job Prospects		College's Credentials	
Item	1984	1985	1984	1985	1984	1985
Reason for going to college:						
1. Make me a more cultured person	**.80**	**.80**	.02	−.01	.01	−.04
2. Improve my study skills	**.79**	**.72**	.04	.14	.01	.07
3. Gain a general education and appreciation of ideas	**.71**	**.68**	−.01	−.01	.00	.00
4. Learn more about things that interest me	**.56**	**.47**	−.05	−.07	.05	.04
5. Make more money	−.01	−.01	**.80**	**.89**	.05	−.02
6. Be able to get a better job	.01	.01	**.89**	**.74**	−.03	.05
Reason for going to particular college:						
7. Graduates gain admissions to top graduate and professional schools	.02	.03	−.15	−.19	**.91**	**.93**
8. Graduates get good jobs	−.07	−.07	.17	.19	**.86**	**.83**
9. Good academic reputation	.16	.16	.03	.07	**.49**	**.47**

Note. Sample sizes: 1984, n = 3,275; 1985, n = 3,613.

These components can be viewed as different motivational orientations along which students engage in college. Furthermore, they can be related to the sources of engagement forces identified earlier in the model—i.e., current external, internal, and prospective external forces—and also to the differing focus of the two CIRP questions—i.e., attractions to college in general versus attractions to the specific college. The educational enrichment component refers to *internal* attractions to *college in general;* the

job prospects component reflects *prospective external* attractions to *college in general;* the college's credentials component relates to *internal* attractions to the *specific college*, as well as to the achievement of *prospective external* goals.

The distinction between internal and prospective external engagement forces is supported by the intercorrelations among the three components. The educational enrichment component, which relates only to internal attractions, was practically uncorrelated with the job prospects component, which relates only to prospective external attractions. However, the college's credentials component, which relates to both internal and prospective external forces, was moderately correlated with both other components.

Unfortunately, intensity of engagement (i.e., the absolute sum of all engagement forces, regardless of direction) could not be differentiated from depth of engagement with the current data. That is, since the available data pertain only to forces toward engagement, the net sum of the forces is identical to their absolute sum.

Normative congruence was measured as the geometric distance between the vector described by a student's factor scores on the three engagement components, and the one described by the sample mean scores. For the 1985 sample, normative congruence was most strongly correlated with the job prospects component ($r = .57$; $p < .0001$) followed by college's credentials ($r = .22$; $p < .0001$) and educational enrichment ($r = .16$; $p < .0001$).

The strong positive association between the job prospects component and normative congruence supports the contention that normative congruence measures the most dominant social norms. The job prospects component contains the most popular current reasons for attending college among members of the University sample (Shoemaker & Clark, 1986) and of the national CIRP sample (Green & Astin, 1985).

Normative consistency was measured by comparing students' responses to each engagement item with the predicted values derived from a separate regression equation for each of the three enagement components. Because of the small number of items and the moderate correlations among them, the confidence intervals were fairly wide. As a result, the measure was highly skewed toward consistency; almost two-thirds of the 1985 sample (64.5%) received the maximum score (i.e., an unstandardized score of nine).

Despite this limited variability, normative consistency was significantly correlated with each engagement component: $r = .34$ with job prospects ($p < .0001$); $r = .25$ with educational enrichment ($p < .0001$); and $r = .21$ with college's credentials ($p < .0001$). Thus normative consistency can be seen as revealing differing "pockets" of student motivations rather than just the dominant social norm.

A further note on trackable and untrackable SIF participants. In the method section above, it was shown that the trackable participants overrepresented students entering applied fields of study. The two groups also differed in their scores on the educational enrichment component ($t = 2.01$; $df = 3.524$; $p < .05$), but there were no significant differences in the other two component scores. Furthermore, the trackable pariticipants' engagement forces were significantly more normatively consistent ($t = 2.19$; $df = 3,934$; $p < .05$) but no more normatively congruent than those of the untrackable group.

Generally, then, these differences were small enough to discount a significant bias when analyzing only the trackable participants responses. However, the differences are congruent with those found earlier; it is not suprising that students who overrepresent applied majors value a college education less as an end in itself and have more normatively consistent (i.e., predictable) responses.

Correlates of Engagement

Students' Background

Measures of students academic background included high school percentile rank, average high school grades, and SAT scores. Economic background indicators included parents' gross income (students' estimate) and amount of aid received. Social background was measured via students' reports of their parents educaitonal levels and current occupations. Summative measures were formed through the principal analysis. However, none of these indicators, individually or summatively, were even moderately correlated with any of the engagement measures described above.

On the one hand, the measures themselves may be inadequate; the analyses yielded factors that could only account for between 40% and 50% of the total variations in the individual items. On the other hand, students' motivational commitment to college may be independent of the aspects of their background being measured by these items.

Expectations and Goals

A principal component analysis was conducted on the 26 expectation items from the SIF survey; 12 items were retained to measure college expectations. Table 5 presents three PROMAX rotated components that accounted for half of the total variation (.51 in 1984; .52 in 1985). The components are labeled expectations to *succeed*, to *withdraw*, and to *need help* in college.

Ten of 18 long-term goal items were used to measure long-term goals. Table 6 displays the two component solution, after a PROMAX rotation, that accounted for exactly 50% of the variation for both the 1984 and 1985 samples. The first goal component, labeled *societal contribution*, indicates an altruistic goal among students. In contrast the

second component, labeled *personal gain*, indicates a self–serving goal.

Table 5. The College Expectation Measures

Item	Expectation Component Loadings: Succeed 1984	Succeed 1985	Withdraw 1984	Withdraw 1985	Need Help 1984	Need Help 1985
What is your best guess as to the chances that you will...						
1. Be elected to honor society	**.84**	**.84**	.05	.03	.05	.06
2. Graduate with honors	**.78**	**.81**	02	.03	–.03	–.05
3. Be elected to student office	**.58**	**.59**	–.03	–.01	.24	.24
4. Make at least "B" average	**.57**	**.58**	–.05	–.06	–.07	–.06
5. Fail one or more courses	**–.43**	**–.41**	.20	.23	.33	.34
6. Transfer before graduating	.13	.18	**.92**	**.91**	–.14	–.13
7. Drop out temporarily	–.08	–.12	**.63**	**.64**	.16	.16
8. Drop out permanently	–.12	–.14	**.54**	**.56**	.11	.07
9. Seek vocational counseling	.19	.14	–.01	.05	**.77**	**.75**
10. Get tutoring	–.16	-.07	–.10	–.11	**.70**	**.68**
11. Seek personal counseling	.15	.13	.06	.04	**.67**	**.68**
12. Need extra time for degree	–.08	–.09	.17	.09	**.44**	**.49**

Note. Sample sizes: 1984, n = 3,264; 1985, n = 3,266.

Table 7 displays the correlations among the three expectation and two goal components. Surprisingly, the two contrasting goal components are *positively* correlated. It is also noteworthy that the "societal contribution" goal component is moderately correlated with both expectations for success in college and for needing help in college.

Table 6. The Long–Term Goal Measures

Item	Goal Component Loadings: Societal Contribution 1984	Societal Contribution 1985	Personal Gain 1984	Personal Gain 1985
Indicate the importance to you personally of each of the following:				
1. Promote racial understanding	**.76**	**.75**	–.10	–.16
2. Develop a meaningful philosophy of life	**.72**	**.75**	–.11	–.13
3. Participate in a community action program	**.70**	**.69**	.02	.04
4. Influence social values	**.65**	**.64**	.13	.14
5. Become involved in programs to clean up the environment	**.60**	**.62**	–.02	.00
6. Influence the political structure	**.59**	**.59**	.12	.17
7. Help others who are in difficulty	**.59**	**.57**	.01	.01
8. Succeed in my own business	.03	.06	**.84**	**.84**
9. Be very well off financially	–.14	–.14	**.70**	**.69**
10. Having administrative responsi–bility for the work of others	.15	.12	**.65**	**.65**

Note. Sample sizes: 1984, n = 3,341; 1985, n = 3,377.

Table 8 shows many significant correlations between students' engagement and both their expectations for college performance and their long–term goals. These correlations further delineate the nature of the three engagement components.

Table 7. Correlations Among College Expectations and Long–Term Goals: 1985 Sample

Component	A	B	C	D	E
College Expectations:					
A. Succeed	1.00				
	(1,498)				
B. Withdraw	–.03	1.00			
	(1,498)	(1,498)			
C. Need help	–.04	.25****	1.00		
	(1,498)	(1,498)	(1,498)		
Long–Term Goals:					
D. Contribute to society	.29****	.03	.23****	1.00	
	(1,444)	(1,444)	(1,444)	(1,565)	
E. Personal gain 1.00	.06*	–.04	.01	.13****	
	(1,444)	(1,444)	(1,444)	(1,565)	(1,565)

* $p < .05$; **** $p < .0001$

Note. Number of observations in parentheses.

The educational enrichment component is stronger among students who expect to succeed in college and hope to contribute to society afterwards; the job prospects component is stronger among students who do not think they are very likely to succeed in college and hope to succeed financially after college. The college's credentials components again straddles between the other two components, especially in its associations with long–term goals; it is positively correlated with both the societal contribution and personal gain goal components.

Table 8. Bivariate Correlations Between Engagement, College Expectations, and Long–Term Goals: 1985 Sample

	College Expectations			Long–Term Goals	
Engagement	Succeed	With-draw	Need Help	Cont. to Society	Personal Gain
Depth:					
Educational enrichment	.21****	–.04	.17****	.36****	.08**
Job prospects	–.04	–.01	.02	–.06*	.34****
College's credential	.13****	–.13****	.03	.16****	.23****
Normative congruence	–.03	–.03	.01	–.02	.23****
Normative consistency	.04	–.08**	.01	.01	.11****

* p < .05; ** p < .01; **** p < .0001
Note. Sample sizes: expectations, n = 1,428; goals, n = 1,488.

Consequences

Two indicators of first year academic performance were considered: cumulative grade-point average and total degree credits earned. Correlations between these indicators and the engagement measures were negligable, ranging from –.07 to +.05. However, the academic background measure comprised of students H.S. performance indicators and SAT scores was moderately correlated with college GPA (r = .48; p < .0001).

There were significant differences in engagement, however, between students who returned for their sophomore year and those who did not.. The persisters' engagement orientations were more normatively congruent (t = 2.10; df=1652; p < .05) and more normatively consistent (t = 2.80; df = 1652; p < .01). This suggests the importance of social support in adjusting to college and for maintaining one's motivations for persisting.

Other environmental "adjustments" considered as correlates of engagement were changes in students' major and in their living arrangements. Change in major was characterized according to whether, either during the first year or upon returning for the second year, a student (a) made no change, (b) started with no declared major but later declared one, (c) changed from one major to another within the same academic division, or (d) changed from one major to another in a different academic division.

One–way ANOVA's were performed for each engagement score according to the type of major change. Table 9 displays the results. The only significant findings were for the social dimensions of engagement; students who changed to a major in a different academic division from their original major had the least normative engagement scores.

Changes in living arrangement were categorized according to whether a student (a) made no change, (b) moved within a residential area, or (c) moved to a different residential area. Table 10 displays the differences in engagement according to residential change. The differences for the job prospects component and normative congruence were significant; students who moved to a new residential area had the lowest scores.

Thus engagement was somewhat associated with both curricular and residential changes. Specifically, students who made the greatest changes (changing to a major in a different division or moving to a different residential area) tended to have lower engagement scores. Again, the social dimensions were more strongly associated with such changes compared to the depth components.

Table 9. Mean Engagement and Changes in Major: 1985 Sample (n=1,585)

	Type of Change in Major				
	No Change (n = 209)	Declared a Major (n = 952)	Changed Within Division (n = 135)	Changed Outside Division (n = 289)	
Depth:					
Educational enrichment	.09	.00	−.12	−.04	
Job prospects	.16	.18	.29	.05	*
College's credentials	.14	.09	.11	.05	
Normative congruence	−.05	.09	.10	−.14	**
Normative consistency	.05	.09	−.09	−.07	*

* p < .05; ** p < .01

Table 10. Mean Engagement and Changes in Residence: 1985 Sample (n = 1,585)

	Type of Change in Residence			
	No Change (n = 803)	Within Residential Area (n = 251)	Outside Residential Area (n = 531)	
Depth:				
Educational enrichment	−.05	.05	.04	
Job prospects	.16	.30	.10	**
College's credential	.09	.08	.09	
Normative congruence	.05	.16	−.05	*
Normative consistency	.05	.06	.02	

* p < .05; ** p < .01

Discussion

The present study was an initial attempt to validate the student engagement model. Already existing data were used to encourage replication at other colleges. On the surface, the Student Information Form data seemed relevant to the engagement model; they included information on students' backgrounds, their reasons for attending college, and their expecations and goals. Furthermore, the data could be readily linked to other data on students' outcomes in college. Unfortunately, the empirical findings provided only limited support for the engagement model.

Among the more encouraging findings were the establishment of differing engagement orientations and their associations with students' expectations for college and with their longer–term goals. However, the model as applied to the SIF data produced very poor predictions of first–year academic performance and only weak predictions of the adjustments made by students to alter their college life (i.e., withdrawing, changing majors, and changing living arrangements).

There are several possible reasons for the limited success of this study. For one, the engagement model may be invalid. However, other possible reasons make such a judgement premature. First, the results provided evidence that the SIF data are not very useful for inferential analyses. The strongest evidence for this comes from the measures derived for college expectations and long–term goals. One would not necessarily expect the survey to yield adequate measures of the engagement concepts, but expectations and goals are more general concepts and the survey devotes a sizable section to each. Yet.the common factor model was not supported by these items and principal components did not reduce the data in a fashion generally acceptable for measurement practices.

The Student Information Form may yield good descriptive data, but the applicability of these data to longitudinal research is questionable; very few of the items examined in the present study significantly predicted students' subsequent college outcomes. The Cooperative Institutional Research Program encourages participating institutions to use their data in follow–up research. Given the availability SIF data at many colleges, it is likely that other researchers have employed this data in their studies. The fact that there are few published research studies based on the SIF data may be a further indication of their limited usefulness.

Another reason for the inability to predict first–year college performance in this study may be the vast changes that freshmen go through during their first year. In fact, changes in student engagement may be a more important determinant of college success than is initial engagement. For example, students who enter college primarily to enhance their job prospects may question the applicability of their academic studies toward this end. Unless they resolve this discrepancy—either by recognizing the vocational skills they are developing, or by changing their primary focus away from improving their job prospects—they are likely to become less engaged in college. More generally, students may have long–range goals in mind when they first enter college, but the four years ahead requires that they find more immediate attractions to the particular college for them to stay motivated.

It is also possible that initial engagement did not predict first–year performance for *this* sample because the University of Massachusetts at Amherst does not "plug in" to these particular motivations in order to foster academic success. That is, students may find that their initial motivations are not suited to the University climate and so they adjust them appropriately. An important goal of many freshman counseling programs is to encourage

the most functional motivations among students and discourage the more dysfunctional ones. The engagement model may then be useful for assessing students' initial motivations so as to target counseling and advising programs for adjusting these motivations.

The engagement model provides a systematic perspective for examining college student life but more comprehensive longitudinal data are needed to fully assess its usefulness. Hopefully, the present model will serve as impetus for new research. But, regardless of whether it does so, institutional researchers need to adopt such systematic conceptual views of the phenomena they study. Conceptual models provide several important advantages to researchers including definitional clarity, a qualitative description as a basis for quantitative measurement, a context for interpreting results, and the ability to assess the reliability of measures. These advanages are critical to the progress of institutional research as it enters further into such inferential research efforts as student outcome assessment.

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