

AN ABSTRACT OF THE THESIS OF

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Students from Rural Resource Dependent Communities and of  
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Students often have difficulty completing their college education. Some leave during their freshmen year, others later in their careers. Many factors contribute to the decision to withdraw, often relating to the individual student, or the institution. Literature indicates that the decision to withdraw is frequently based on student involvement.

This study, conducted at Oregon State University, utilized the revised third edition of the College Student Experience Questionnaire by Pace, (1990) as the instrument for assessing student involvement. The study groups consisted of all freshmen students admitted in 1992 from rural resource dependent communities (RRDC) in the state of Oregon (N=37), a like sample of non-RRDC students (N=37) selected from the balance of the freshman class that year, and natural resource (NRM) majors (N=26) and non-NRM (N=128) selected from a random sample of all students admitted to the university in 1990, 1991, and 1992.

This study postulated that students socialize differently in RRDC and, consequently, differ in their

involvement in academic and social activities on campus. Further it posited that departments vary and consequently students in NRM would exhibit more involvement in the college experience.

No significant difference in involvement was found between RRDC students and their cohorts. However, ninety-four percent of the non-RRDC students lived in college housing during their freshmen year, while forty percent of the RRDC students lived off campus. About twenty-two percent of RRDC students indicated that they were not planning to return to O.S.U. in the Fall, while less than seven percent of the non-RRDC students planned not to return.

Quality of effort varied significantly between NRM and non-NRM students, however no consistent difference was found. Non-NRM students rated higher factors about Art, Music and Theater, Student Union and Personal Experiences, while NRM students rated higher factors about Science and Technology, Relationships with faculty members, and gains in understanding science and in specializing for further education.

A discriminant analysis done on the entire response group (N=154) to determine which of the variables best discriminated those who intended to return and those who did not resulted in supporting the hypothesis that satisfaction is a powerful discriminator of intent to return.

Involvement and Intent to Return of Freshmen  
Students from Rural Resource Dependent Communities  
and of Natural Resource Students

by

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INVOLVEMENT AND INTENT TO RETURN OF FRESHMEN STUDENTS  
FROM RURAL RESOURCE DEPENDENT COMMUNITIES AND  
OF NATURAL RESOURCE STUDENTS

CHAPTER 1  
INTRODUCTION

Earning a college degree is considered to be one of the best methods of attaining success in American society. Formal education can mediate the effects of socioeconomic background, and facilitate the attainment of greater occupational status and associated financial benefits (Pascarella and Terenzini, 1991). Numerous factors, especially during the first year of university enrollment after high school, affect whether or not students can attain this goal (Tinto, 1982). Factors which work to discourage the student from continuing enrollment are considered barriers to their success. Many students are negatively affected and drop out of school. The nonacademic complications of young adulthood are endlessly complex, and the decision to withdraw from college often culminates a series of unfortunate experiences (Farrar & Hampel, 1989). In describing the decision to depart early from college, Vincent Tinto (1975, 1987) uses two sets of agents which he

believes contribute to that decision--those related to the individual student and those associated with the particular institution.

Some of the barriers to successfully earning a degree are intrinsic to the student and are carried to the university. Examples of these potential barriers include a lack of individual academic capacity, insufficient personal motivation, inadequate high school preparation, and a host of personal and social traits which temper the "student" that the University has accepted. The living environment shapes a person's behavior and how one perceives and responds to external stimuli are, in a large way, attributable to the psychological processes of learning and socialization (Kalsner, 1991; Kimble, 1990; Lindesmith, Strauss, & Denzin, 1991; Williams, 1983).

Other barriers encountered are extrinsic to the student and often occur after arrival on campus. Campus size, lack of people with similar backgrounds, and unfriendly staff are examples of extrinsic barriers (Lagowski, 1992; Coll & VonSeggern, 1991). Not dealing successfully with these factors can leave the student feeling alienated, isolated or inadequate (Wright, 1987). These difficulties, and how the student deals with them, are critical to decisions about remaining enrolled at a particular institution (Tinto, 1990). Voluntary departure from an institution has been found to be due, more often, to experiences that the student

has after arrival at school, than to preparation, previous experiences, or strength of individual commitment to a college education (Noel, Levitz, Saluri, 1987; Wehlage, 1989).

Researchers have consistently found that institutional practices which increase student involvement in the life of the campus have the greatest impact upon minimizing attrition (Astin, 1975; Beal and Noel, 1980; Carnegie Foundation for the Advancement of Teaching, 1990; Kuh, et al., 1991; Noel, Levitz, Saluri & Associates, 1985; Tinto, 1975). Integration into the University environment academically and socially can contribute to the success of students (Kalsner, 1991) and help overcome these negative factors. Fitting-in may be the single most significant factor in whether or not a student remains enrolled. Interaction with faculty and peers increases integration and helps to make the student feel a part of things (Pascarella & Terenzini, 1976, 1977, 1979, 1980, 1991; Tinto, 1975; Wilson, Wood & Gaff, 1975; Wilson, Gaff, Dienst, Wood, & Bavry, 1975).

Early withdrawal is among the most persistent and challenging problems in higher education today. In some areas, regional universities have reported attrition rates between 55 and 60 percent (Astin, 1991; Beal & Noel, 1980; Blanc et al, 1983). This withdrawal exacts a significant toll on the institution and raises ethical considerations

regarding the long term welfare of the students, their families and communities (Baumgart & Johnstone, 1977). These losses extend to the larger society which forfeits the potential benefits derived from a skilled, educated citizen who values learning and higher education. The significance to the individual relates to the loss of opportunities to fully develop personal talents, and to better earn a living wage.

For institutions of higher education, student attrition represents lost tuition revenue, inefficient use of resources, and a public perception that something is wrong with the institution (Noel, Levitz, Saluri, 1987; Summerskill, 1962). The national economic loss because of the dropout problem has been estimated to be approximately 77 billion dollars annually (Weis, Farrar, & Petrie, 1989). One private university studied the cost of one year's (in 1980 dollars) attrition on the expected tuition over the educational lifetime of those students. "Based on tuition of \$1,200 per quarter, the net loss was in excess of \$6 million" (Noel, Levitz, Saluri, pp 362, 1987).

Universities and colleges recognize that some students have difficulty adjusting to the campus environment, but the institutional response to student retention problems varies widely. Peer advising, mentoring, and big brother and sister programs have been developed on some campuses (Dunphy, Miller, & Woodruff, 1987). Another response has been the

proliferation of classes designed to assist Freshman students through the difficult period of adjustment (Kuh, Schuh, Whitt, et al., 1991; Pascarella, 1986). Rice (1989) estimated that over 70 percent of the colleges and universities of this country have initiated self-help courses or freshman orientation programs in an effort to increase success. Some colleges, however, have accepted the notion that failure to complete is part of the "sorting out" process (Ramaker, 1992).

Research to determine which factors can predict student retention have contributed to the development of theories that are associated with the success of students (Cabrera, Nora, & Castaneda, 1993; Astin, 1977, 1991; Fox, 1986; Pace, 1964, 1981; Pascarella, & Terenzini, 1980, 1991). These have given rise to several theoretical works and models addressing the processes of student success (Anderson, 1985; Metzner & Bean, 1987, Webb, 1989). The foremost theoretical model pertaining to freshman year withdrawal/retention was developed by Vincent Tinto (1975, 1987). His model and others assert that retention rates are related to aspects of the student's entering characteristics, personal goals, commitment to the institution, and the product of social and academic integration (Corley, 1989).

For many reasons rural students have special challenges when attending college. For instance, graduates from small schools generally have less success in college than do

graduates from larger schools (Jess, 1984; Barker & Gump, 1964). Educators and researchers have questioned the ability of rural schools to provide adequate training and educational opportunities for their students (Sher, 1977, Nachtigal, 1982). As a general rule, the rural educational system has produced students less able to cope with industrialized urban society, and less likely to understand the significance of a formal education in their achievement (Nachtigal, 1982; Roger, Burdige, Korshing, & Donnermeyer, 1988).

Poplin (1979) points out that there have been many analyses of social and cultural differences between rural and urban communities, and from these studies has arisen widespread agreement on five major sociocultural differences. First, the urbanite enjoys more anonymity than the ruralite. Second, there is a distinct difference in occupational structure, with urban communities being characterized by high division of labor and rural communities having over half the labor force engaged in one occupation while the rest is employed in support services for the major occupational group. Third, rural communities tend to be more homogeneous than urban communities. Fourth, people who live in rural communities relate to each other differently than do urbanites who have many impersonal and formally prescribed relationships. Fifth, urbanites rank each other largely on overt symbols of status, while in

rural communities people know each other and judge each other on personal characteristics. Based on these differences one might conclude that students from rural resource-dependent communities should vary from their counterparts who grew up in large urban communities.

Rural communities tend to be more homogeneous than urban communities. For instance, members of a rural community may be affiliated with the same church and political party. In small resource-based communities, a large percentage of the population may be employed in one occupational area, such as logging, logging supplies, saw sharpening and diesel mechanics; while in an urban community, people are employed in hundreds of activities, attend different religious communities, and encounter different ethnic backgrounds on a daily basis. Urban communities also contain a multitude of organizations and associations.

Which of these milieu's best develops students for entering the university system and successfully completing a course of study? One adage is that, if a student can compete and succeed in a big school system, that student will be able to succeed at the university. The idea is reminiscent of the song that Frank Sinatra sings that refers to New York City and states "If I can make it there, I'll make it anywhere." Is this true of students? When student drop-out rates are compared by size of home towns, it is noted that

the smaller the town, the greater the chance that the student will withdraw within the four year period (Astin, 1975).

Certainly the competition for top positions and recognition is greater in a high school with several thousand students compared to one with a small student body. However, does such a state of increased competition lead to more students successfully completing a college education? In rural schools, students are more likely to be called upon to participate in all aspects of their school and community because of the lack of numbers of people available to do any particular task. Consequently, students from small towns and rural communities often have more extensive and diverse participation than their urban counterparts (Kimble, 1990). Gump & Friesen (1964) found that students in small high schools gained psychological benefits from participation in more settings, and attained positions of greater responsibility in more situations than students from large schools. Participation, recognition, and the feeling of being competent are readily available in the small school environment. Further, they found that students in small schools who gained psychological benefits, reported greater satisfaction from being involved and feeling responsible. It should be noted, however, that Baird (1969) found that participation in high school did not lead to greater college success.

There is increased interest in helping rural learners to be successful at postsecondary education (McDaniel et al, 1986). The fact that the rural education process does not adequately prepare a student to adjust to a more urban area in order to continue their education has been a perennial problem (Lewis, 1918, Swift, 1988); a number of studies indicate that rural students in higher education have a greater dropout rate than their urban counter-parts (Brown, 1985; DeYoung, Huffman, & Turner, 1989; Pace, 1981; Tinto, 1982).

The issue of the integration and retention of students, in particular rural students, is important to Oregon State University for a variety of reasons. As a public Land Grant institution O.S.U. needs to contribute to the educational gains and processes of the people of Oregon. Of particular importance are the Resource Dependent Communities in the Pacific Northwest which are experiencing economic and social upheaval (Robbins, 1989). One way in which the people of these communities can prepare themselves for a changing future is through higher education. In order to fully benefit from what the university has to offer, students must enroll, be accepted and complete their college education.

How well students feel they belong, or "fit", at a college contributes to their success or failure to persist (Pace, 1964). When students attend institutions where they

are clearly in the minority, they often feel "different," and out-of-place (Copland, 1989). A minority group is one which has a certain distinct and recognizable social or physical characteristic which is somehow different from the majority population (Rogers et al, 1988). One might argue that social and environmental influences, coupled with the experience of going to school in a Rural Resource Dependent Community (RRDC), affect an individual sufficiently to qualify such a student as a member of a minority population (Kuvlesky, 1977). At Oregon State University students from rural resource dependent communities comprise approximately two percent of the entering class of freshmen each year, a factor which might be related to student retention. (In 1992 RRDC students numbered 37 out of 2453 entering freshmen.)

Since the literature suggests that the campus environment distinctly affects college students and influences their participation in school activities, we might ask, does the milieu of Oregon State University create an ambiance conducive to high quality-of-effort, and thus retention, by freshmen from Rural Resource Dependent Communities?

#### Statement of the Problem

Students drop out. It appears that dropping out often is related to involvement in the college experience. It

seems also that ruralness and being from a resource dependent community might be related to early departure. Thus, the purpose of this study is to measure whether or not students from Rural Resource Dependent Communities have greater difficulty than their non-RRDC cohorts integrating into Oregon State University life. As a corollary problem, this study seeks to compare students who enter Natural Resource Management programs such as Forestry, Wildlife and Range Management with those who do not in order to see if they exhibit different levels of involvement in the college experience.

The literature indicates that the inability to integrate into the social and academic fabric of the institution can be a major factor in a student's decision to drop out. What constitutes adequate integration, and the degree of influence integration has on the enrollment decision vary from individual to individual. A considerable amount of research indicates that a student's interactions within the college setting are dependent upon the particular background characteristics that the student brings to college (Astin, 1962; Centra & Rock, 1969; Thistlethwaite & Wheeler, 1966; Pascarella & Terenzini, 1980). Examples of these characteristics are the resulting effects of socialization, academic ability, and commitment to a goal.

College has a greater impact when the student is actively engaged in several facets of campus life.

Involvement in campus activities and associations with the faculty provide for a broad range of social and personal benefits attributable to the college experience (Pace, 1974). Pace (1982) concluded that, once the student got to college, what mattered most in success was not who the student is, or where the student attended but rather the "Quality" of effort exerted.

Institutions vary in the type of experience they provide, and consequently, the nature of the outcomes (Pace, 1974). The popular acceptance of the premise that environments influence behavior has been demonstrated many times in past educational research (Pace, 1964). For example, Fleming (1984) found that a climate of hostility or racism is not conducive to the success of black students. According to Astin (1982) many students perceive college campuses as hostile.

An environment that does not appreciate or acknowledge individual worth and existence may cause that student to experience loneliness, social isolation and alienation, and adversely effect academic success (Wright, 1987). Just as university environments vary so do different departments and schools within each institution (Pace, 1964). A student who enters an unsupportive campus environment will have lowered satisfaction with the college experience which can result in premature exit from campus without a degree (Wright, 1987). Some have observed that many colleges, and especially

universities, seem more concerned with processing large numbers of students efficaciously, rather than attempting to maximize student learning (Pascarella & Terenzini, 1991). A tangible difference exists between those institutions which place the student at the center of its everyday life as compared to those which place student welfare second to other goals (Tinto, 1990).

This feeling of difference, or not fitting-in, can significantly affect to what extent a student becomes integrated into the university environment. The degree of integration may be measured by the quality of effort the student exerts to participate in the various activities available at the university.

### Study Objectives

The specific objectives of this study were to determine if quality of effort, as measured by the College Student Experiences Questionnaire Revised third. edition (Pace, 1990)

A. differs between freshmen students enrolled at Oregon State University who graduated from high schools in RRDC and their non-RRDC cohorts.

B. differs between students enrolled in natural resource management majors and those enrolled in other majors at Oregon State University.

In the context of the problem as stated earlier, these are the relevant objectives because, if Oregon State University is to provide an environment (academic, social, faculty and administration) which is conducive to the retention of freshmen students from rural resource dependent communities, then it follows that we must understand what aspects of the college experience, as we provide it, contribute to the students' participation. The information derived might then find application in the development of methods of intervention to mitigate the negative effects of the experience.

Similarly, this study will help elucidate differences between students enrolled in natural resource management majors and those who are not. This will provide insight into whether or not there is a significant difference in quality of effort exerted by the students in these two groups. Based on the findings of this research, it may then be possible to eliminate unnecessary barriers to the success of the students in these natural resource management programs.

### Hypotheses

The fundamental hypothesis of this study is that freshman students entering Oregon State University from Rural Resource Dependent Communities who have difficulties in completing their first year do so because of their

inability to integrate into the academic and social fabric of the University. A corollary hypothesis is that students enrolled in natural resource management curricula will indicate greater involvement (quality of effort) in the college experience.

The following null hypotheses have been formulated to guide analysis of data evaluated in this study:

1. Students from Rural Resource Dependent Communities will show no significant difference from non-RRDC students in level of effort they make (as indicated by CSEQ) to integrate into the academic and social environment of the University.
2. Students enrolled in Natural Resource Management majors will show no significant difference in level of effort, from that of students enrolled in other majors.

#### Limitations of the Study

Within the context of this investigation are factors which limit the ability to generalize the findings of this study:

1. Only those students from rural resource-dependent communities who enrolled as freshmen directly after graduation from high school were included in the study, so generalization can not be made to those students who follow another path to a college education.

2. The study was limited to an examination of the theoretical guidelines of Tinto's (1987) model of student success as indicated by Pace's (1990) measure of "Quality of effort" using the College Student Experiences Questionnaire. Other theoretical and methodological approaches to investigate the phenomenon were not pursued.

Despite these limitations much can be learned about these students and how Oregon State University affects their involvement in the college experience.

## CHAPTER II CONCEPTUAL FRAMEWORK

College attrition has been a perennial problem, yet despite recognition that the problem exists, students continue to dropout. During the past fifty years, the overall attrition rate among college students has remained stable (Cage, 1993; Dodge, 1991; Lederman, 1993; Morning, 1991; Pantages & Creedon 1978; Porter, 1990) at about fifty percent. In the course of their lifetimes less than 40 percent of those who enter higher education will ever earn a bachelor's degree (Anderson, 1985).

Several different approaches to understanding the college dropout phenomenon exist, and a confusion persists about the true nature of retention and the causes of premature withdrawal. Many factors contribute to decisions by students to dropout of college (Bean, 1982). Inadequate academic performance has been identified as a causative factor, but it often is not the primary reason for dropping out of college, as most withdrawals are voluntary (Tinto, 1987). Kalsner (1991) suggests that decisions to withdraw center more commonly on the personal life of the student than on academic difficulties, and Porter (1990) indicates that the majority of those who are not successful encounter problems during the first year. A critical period for

students occurs in the initial six weeks of the first semester, especially at large, residential institutions (Tinto, 1982).

To understand why a freshman student remains enrolled at a particular institution during and after the first year, one must consider three major areas: the individual student, the institution, and the integration of these two. This research addresses two questions. One relates to whether the milieu of Oregon State University enhances or detracts from the integration of students from rural resource-dependent communities (RRDC) of Oregon into the social and academic fabric of the university. A similar set of considerations exists regarding the second aspect of this research which addresses whether students integrate to a greater extent if they major in a Natural Resource Management related program such as Forestry, Fisheries or Wildlife.

Several themes are identified in the literature about withdrawal from college. They include difficulty with the transition into college, lack of goals, uncertainty about the benefits of college, academic underpreparation, and financial difficulties (Gordan, 1985; Kalsner, 1991; Noel, 1985; Pace, 1964; Pantages & Creedon, 1978; Tinto, 1987). Developed from these themes, several theoretical models have been proposed to explain attrition, each incorporating one or more of these aspects.

## Theoretical Approaches to Student Departure

During the past twenty-five years a large quantity of theories and models have been proposed to explain the forces influencing student development, achievement and persistence. However, until the early 1970's there were few works that related to the development of adolescents. Singer (1968), conducting a search of the Annual Review of Psychology from 1950 to 1968, found virtually no discussion of development during the college years. Outside of the work of Erik Erikson (1968), very little effort had been made to help "understand the feelings and behaviors of today's American youth" (Keniston, 1971. p.3). The situation now is quite different as Pascarella and Terenzini (1991) point out:

Indeed, the growth in theory development is one of the most striking and significant trends in the study of collegiate impact over the last two decades. In fact, depending upon how strictly one defines theory, twenty or more candidates are identifiable to guide an inquiry into how students change in the collegiate setting or to suggest what sorts of policy or programmatic interventions might be the most effective in promoting an institution's educational goals. (p. 15).

Each theory attempts to explain essentially the same processes, but approaches the subject matter from a different direction. Theories have been developed relating to student success by such researchers as Astin, 1984; Pace, 1982; Pascarella, 1980; Pascarella & Terenzini, 1979, 1980, 1991; Shirley, 1986; Tinto, 1987; Wisner, 1984.

Investigations about withdrawal behavior and retention are most often grounded in one of several models developed from these theories to predict such behavior. The diversity of available theoretical grounds for the study of undergraduate persistence amplifies the need to select the appropriate model or theory for any particular piece of research or policy making process.

Generally speaking these models access the problem from either the perspective of the person-environment, or a developmental process approach. The following is a brief review of several models pertinent to this investigation.

#### College Fit Model

One of the early theoretical paradigms, known as the College Fit model, was posited by Pace and Stern (1958). The model suggests that student persistence is increased where attitudes, values and beliefs of the student and the institution are in harmony.

#### Needs-Press Model

Stern's (1970) "needs-press" model of students and the college environment, proposes that those psychological needs which give purpose and direction to a person's behavior, and the situational pressure or press to behave in a particular manner, facilitate or curtail the satisfaction of individual

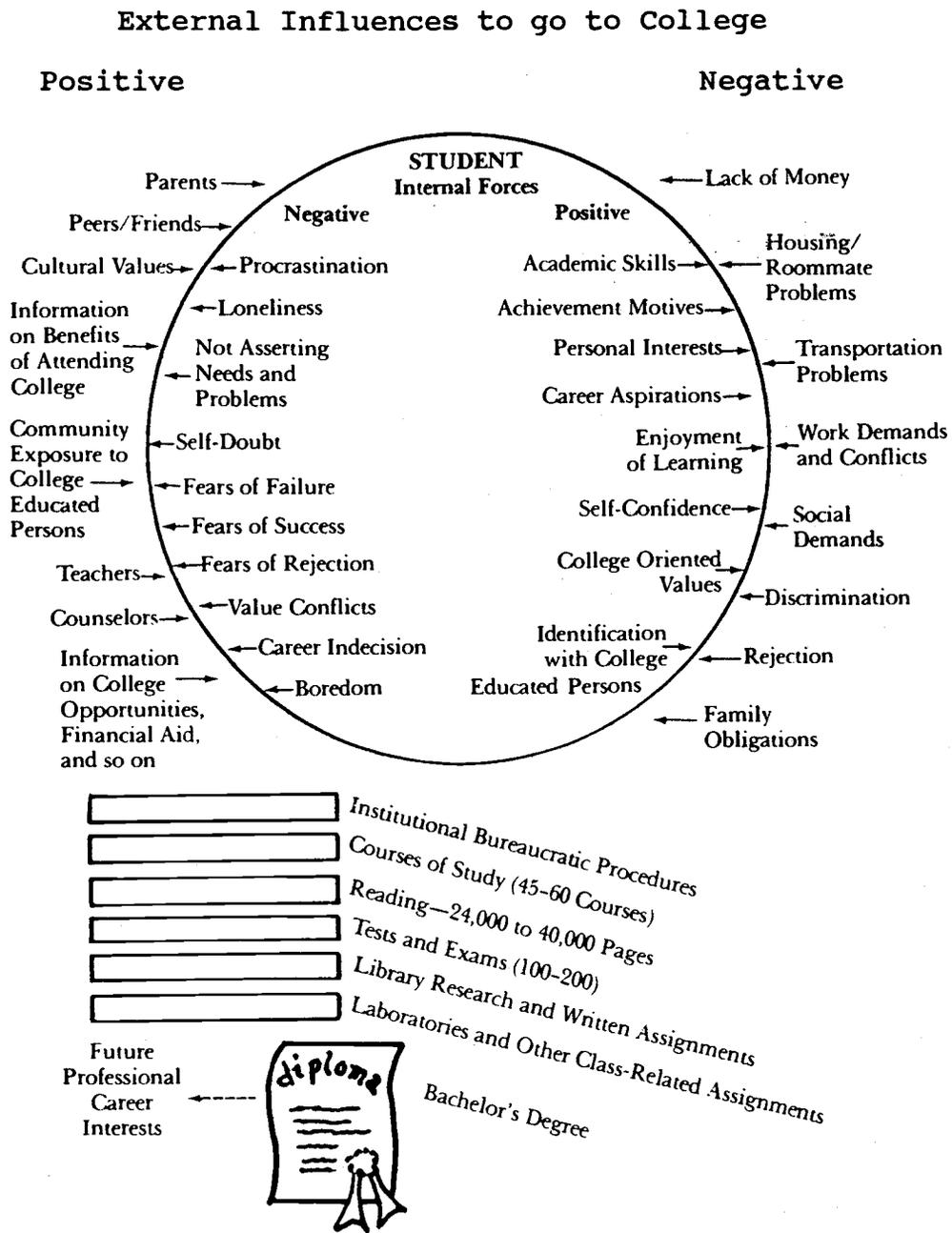
needs. The credibility of this model has been enhanced by other studies which concluded that the likelihood of a student remaining enrolled at a particular institution is better if the student attends college where the social background of the other students is similar to his own (Astin, 1975; Cope & Hannah, 1975; Pervin, 1968).

### Force Field Analysis of College Persistence

Anderson (1985) states that, based on fifteen years of directing academic support programs, he is able to identify those forces which either produce academic success and persistence or failure and withdrawal. He developed a model based on Lewin's (1951) field theory approach to behavioral study. Lewin's theory has a social and interpersonal emphasis that posits that the causes of behavior are determined by the combination of characteristics of the person and the environment, and that these causes vary in strength and direction. The changes made by an individual are influenced by the forces that promote or hinder the behavior associated with those changes (Anderson, 1985).

Anderson (1985) lists forces which are either negative or positive in their effect, and are either external influences or internal forces. Figure 1 shows Anderson's force field analysis of college persistence. The forces are not equal, but vary in magnitude of influence and in type.

Figure 1. Force Field Analysis of College Persistence



Due to variation among individual personalities, the strength of each force is different for each person. As a consequence, individual and group differences must be taken into consideration, and institutional variation must be accounted for as well. Thus, in order to better understand attrition, it becomes necessary to assess both the student and the institution (Anderson, 1985).

A singular penultimate reason for withdrawal from college is the exception, not the rule. Anderson points out that a complex network of "causal factors, forces, or obstacles" are acting upon individuals. As factors are identified which affect certain groups of students or a particular student, an assessment of the intensity of influence can be made, and programs, services and policies can be designed to promote persistence.

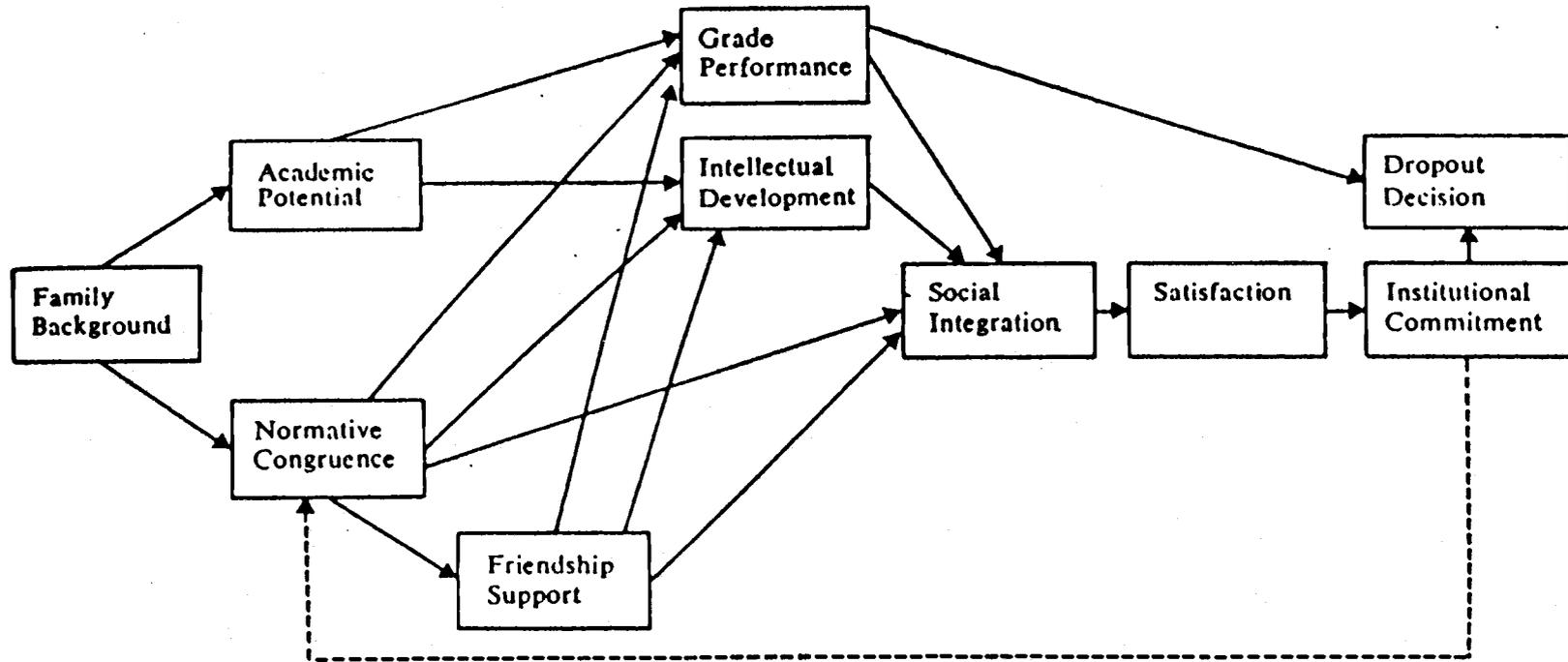
#### Spady's Undergraduate Drop-out Model

William Spady (1970) developed a model using work from Lewin's (1936) Person-Environment Fit/Dissonance theory combined with ideas from Durkheim's (1951) Social Integration theory. The gist of Lewin's theory is that behavior is a function of the interaction between an individual and the environment. In the decision to remain or leave the environment in question, the choice will depend on cognitive dissonance or consonance between individual

beliefs and needs, and the setting's ability to gratify them. Durkheim's (1951) theory on the phenomenon of suicide asserts that a person's decision to participate in a given environment is dependent upon adherence to values which are similar to the values of those who dominate, and upon personal interaction and affiliation with other members of the community. Thus suicide, one of the most individual of acts, can only be fully understood in its social context (Robertson, 1987). The probability of suicide increases as aspects of these two functions of social integration are diminished (Spady, 1971). Spady posits that dropping out of college is the metaphorical equivalent of suicide in the context of the educational milieu. Drawing from this, Spady proposed a model of student withdrawal (Figure 2).

On the whole these person-environment models do not venture to explain human development, rather they attempt to resolve the role of interaction of the individual with the environment to clarify human behavior. Many of these models relate to the individual student's perception and interpretation of the surrounding world. Each perception, whether of a psychosocial or behavioral nature, is subjective and unique to the individual student. In sum, these perceptions define the individual's environment and influence psychosocial development in a variety of areas (Pascarella & Terenzini, 1991).

Figure 2. Model of the Undergraduate Dropout Process



## College Impact Models

A second theme among retention theories pertains to developmental process during the college years. Common to several of these theories is the increase in awareness of individual self, and an expanded cognition of roles and responsibilities to other people. Further these cognitive-structural theories explain:

The growth of individuality is accompanied by expanded interpersonal horizons and a growing understanding and appreciation of the paradoxical merger of dependence and independence in the concept of interdependence. This theme is identifiable in Chickering's 'Autonomy' and 'Identity' vectors; Heath's 'Becoming Integrated' and 'Becoming Autonomous' dimensions; Loevinger's 'Self-Aware,' 'Conscientious,' and 'Individualistic' stages (5-7). (Pascarella & Terenzini, 1991. p. 43).

Similarities exist among developmental theories and models, especially in their view of the processes of student development. That is, psychosocial development is cumulative, continuous, develops from simpler to more complex behaviors, and is stage-related.

Several models of student change focus upon the genesis and processes of change (Wilson, 1981). These "college impact models" are less explicit than the theories relating to individual student development, eclectic in nature, the roots of college impact theory are more diverse, drawing on sociology, consumer behavior, organizational impact and industrial psychology (Pascarella & Terenzini, 1991).

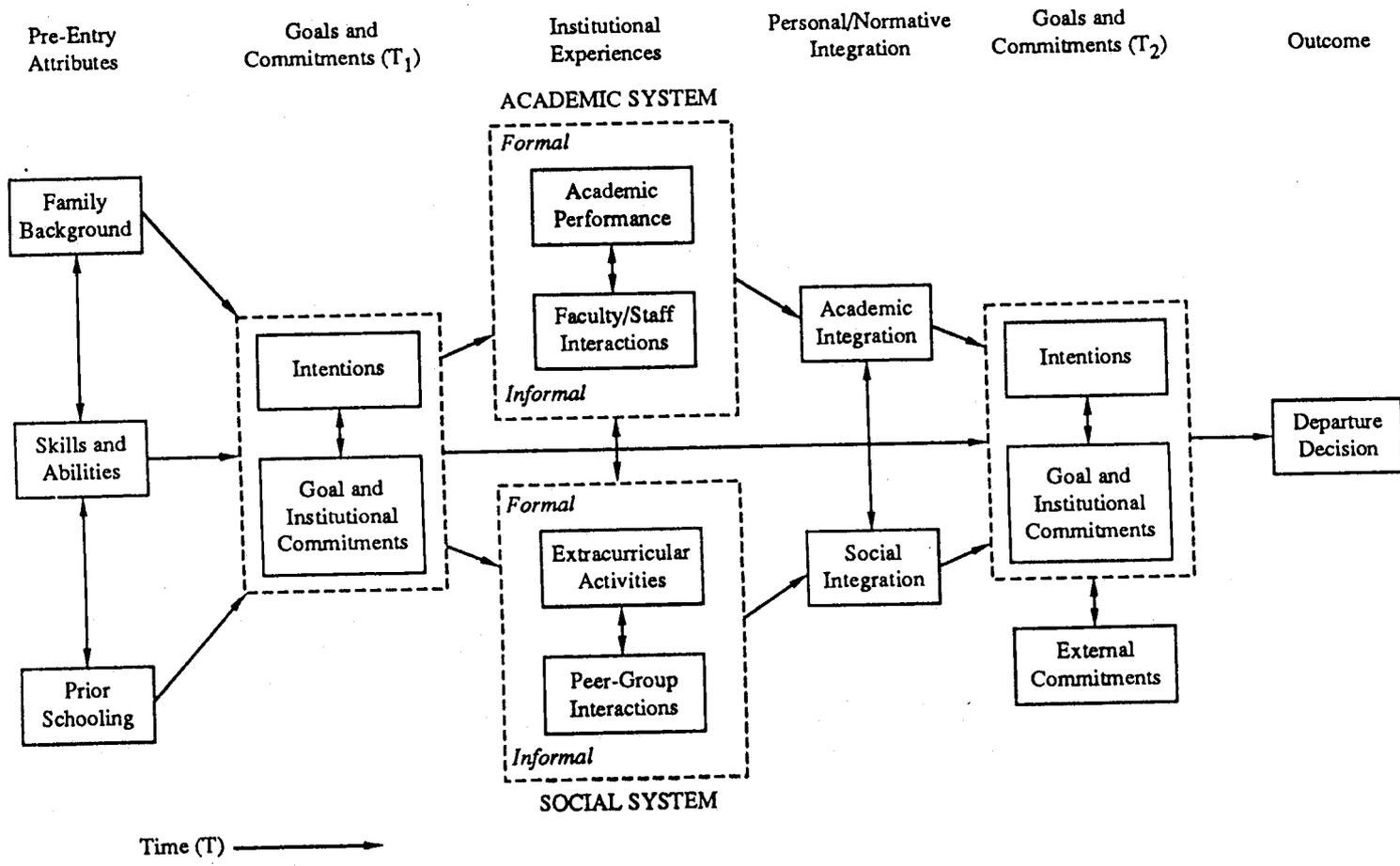
One of the earliest college impact models was proposed

and developed by Astin (1970). Based on his own research which parallel Pace's (1984) work on the effects of quality of student effort, Astin proposed that, while the institutional environment is critical to the success of the student, the student holds a central role since the greater the involvement, the greater the opportunity for growth and development. Thus, the consequent impact of college upon a student is determined according to the student's involvement with the resources provided by the institution. X

#### Tinto's model of institutional departure

Vincent Tinto's work addressing freshmen student success provides a more explicit model of the impact of college, and offers the primary theoretical paradigm for student withdrawal versus success (1975, 1987). Building on Spady's (1970) work, Tinto's model (Figure 3) proposes that success, as defined by retention, is attributable to the total consequence of academic and social integration, the student's individual characteristics, personal goals, and institutional commitment. A degree of conceptual similarity exists between Astin's (1984, 1985) "involvement" and Pace's (1984) "quality of effort" although the role that the investment of physical and psychological energy has in retention is only implied in Tinto's model. Tinto focuses on college attrition, and indicates that negative experiences X

Figure 3. A Model of Student Departure  
(Tinto, 1987)



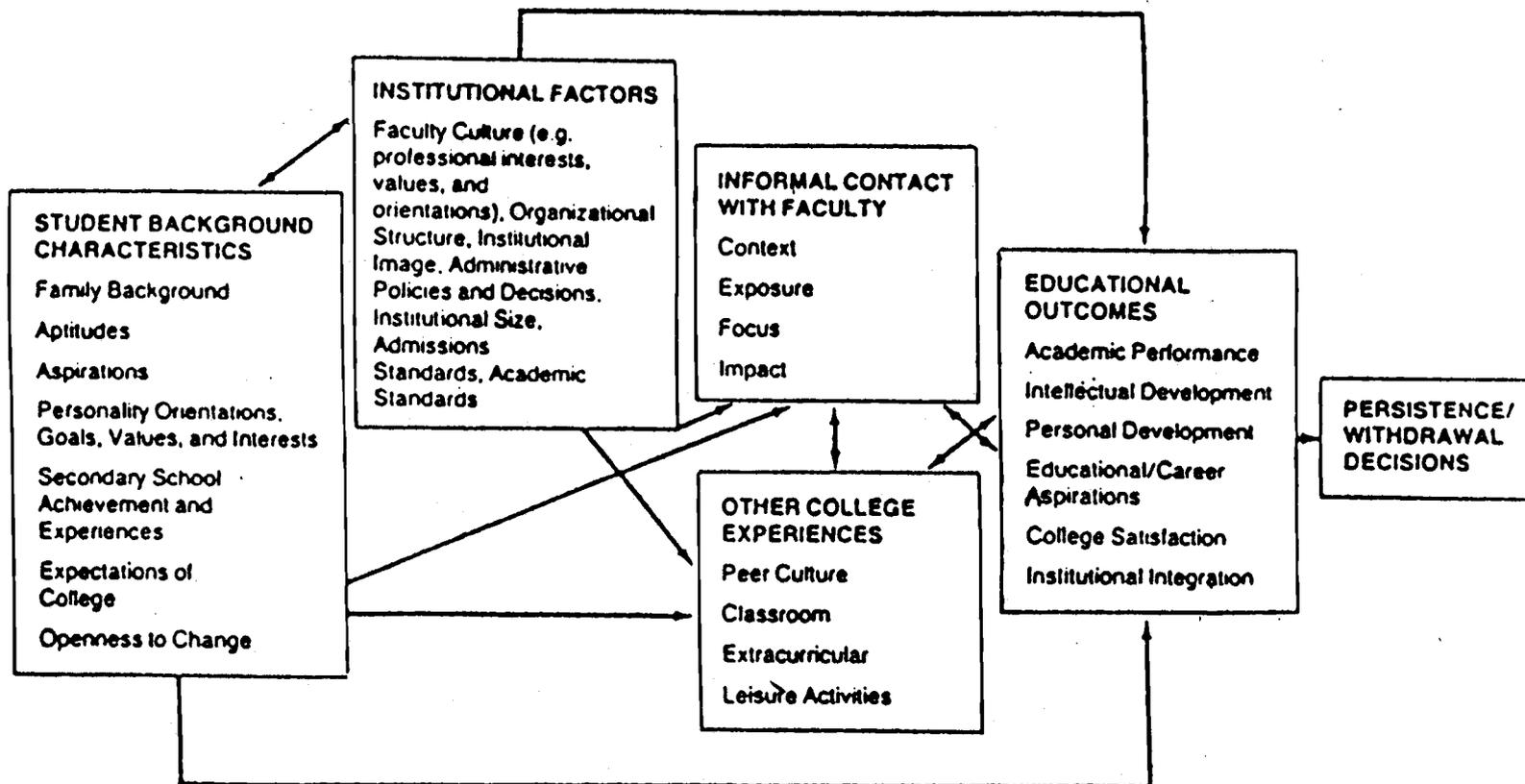
can affect integration and act as a distancing factor, promoting marginality, thus leading to a decrease in social and academic interaction, and eventually withdrawal.

In his model of institutional departure, Tinto (1987) alludes to the difficulties encountered by rural students entering college. His findings are supported by other researchers who conclude that the educational attainment of the rural population continues to lag behind that of urban populations (Rogers, 1988). Children in rural communities begin school at a later age, progress more slowly, and attain fewer years of education (Nachtigal, 1982). Each of these areas can negatively affect the success rate of students entering universities from small towns and rural communities.

#### Pascarella's model

Pascarella (1980) created a model which drew on the work of Spady (1970) and Tinto (1975). He suggested a general model that includes many of the interactive aspects of Tinto's work, giving consideration to both instructional characteristics and the general environment of the institution (Figure 4), thus making it applicable to multi-institutional studies of the effects that college has upon students. Expanding on his own work (1980) and that of Pace, (1979) Weidman (1989) and others, Pascarella suggests

Figure 4. Pascarella's 1980 Student/Faculty Contact Model



that development is a function of the direct and indirect effects of five sets of variables included in the model: the student background and precollege characteristics, structure and organization of the institution, and the college environment. These five influence another cluster of variables which involve quality and quantity of interactions with the major socializing agents on campus. Quality of effort stems from the student's background characteristics and the general institutional ambience. The studies arising from the models address general categories within the student retention problem. Research has focused on the consequences of specific university programs and services intended to slow or stop students from dropping out. Another genre of research concentrates on student entry-level characteristics, to aid in the identification of "at risk" populations. A substantial component of the research is descriptive, and attempts to determine which students depart early, and which remain (Bean, 1982; Ramaker, 1992).

#### Socialization processes

A factor common to each of these models is the student's background, which contributes to their response to the school experience. Kimble (1990) points out that children who live in dissimilar settings are treated or

socialized differently. Thus, given these models as the basis for investigation, it becomes pertinent to explore the processes of socialization.

Socialization of youth occurs when adults and youth teach a society's rules to children to help them better fit into that society. Individuals who mature under different circumstances socialize differently (Kimble, 1990). Poplin (1979) indicates that along with the family, the school plays a key role in socializing the young. The freshman year of college has been characterized as being a time of both socialization and desocialization (Feldman & Newcomb, 1969).

Social pressure which influences an individual to unlearn current attitudes, beliefs, values, and behaviors is also referred to as resocialization. Conversely socialization is pressure to learn new values, attitudes and beliefs, as well as to participate in new customs and behaviors (Pascarella & Terenzini, 1991). Socialization affects one's understanding of oneself and one's place in society (Berkowitz, 1990).

A person's origin, language usage, and experiences significantly affect the outcome of the socialization process (Desmonde, 1957). Latane's (1981) social impact theory identifies some of the major factors involved in social influence. Strength, immediacy and numbers of the influencing group directly affect how one is socialized.

Latane indicates that the effects are multiplicative, so that a moderate level in all three categories is more influential than a high level in one and very low levels in the other two.

### Stereotypes and Self-image

How we perceive ourselves and those around us is a complex process. Several assumptions made in understanding self-categorization process are widely shared in social psychology. Self-concept is a cognitive component of the psychological and information-processing system which a person has to define oneself. Individuals possess multiple concepts of self, and each of these are comprised of several parts. Stemming from psychoanalytic theory, Allport (1954) proposed that stereotypes satisfy unconscious needs of the individual. Individuals with low self-esteem berate other groups of people, compare their own self-image to that of the derogated group, and perceive themselves more favorably, thus boosting their own self-esteem (Crocker et al, 1987; Eber & Fiske, 1984; Fiske & Neuber, 1989; Hamilton & Gifford, 1976; Hamilton & Rose, 1980; Hamilton & Sherman, 1989; Stephan, 1989; Taylor, 1981; Trolier, 1986; Turner, 1987.

Social learning theory suggests that stereotypes are transmitted culturally through socialization processes

(Hamilton, 1991; Strobe & Insko, 1989). The theory proposes stereotypes are based on social influences derived from peers, parents, school, community and the mass media (Strobe & Insko, 1989), and that there is a desire to display opinion conformity to gain in-group acceptance (Bar-Tal, 1989). Humans have an inherent need to be a part of social groups, and the influence that groups have on behavior has been studied by many researchers, i.e. Kirschenman & Neckerman (1991), Rothbart & John (1985), and Bobo & Kluegel (1991). This is critical in the retention of freshmen students who enter the university and are, in essence, making a cognitive decision to change groups, values and behaviors to conform to new in-groups.

Socialization also plays a primal role in the development of one's own self-concept and contributes to one's discernment of others (Markus, 1977; Markus, Smith & Morland, 1985; Tedeschi, 1985), by providing a framework for the perception and organization of one's own life experiences. Self-concept arises from a set of schema that organize past experiences and interpret relevant stimuli in the social environment. This theory proposes that individuals have a concept of self based on their perceptions of themselves, and a conception of their ideal self based on who they think they would like to be (Assael, 1983). It is also broadly and methodically used as an interpretive framework for processing the thoughts, feelings

X

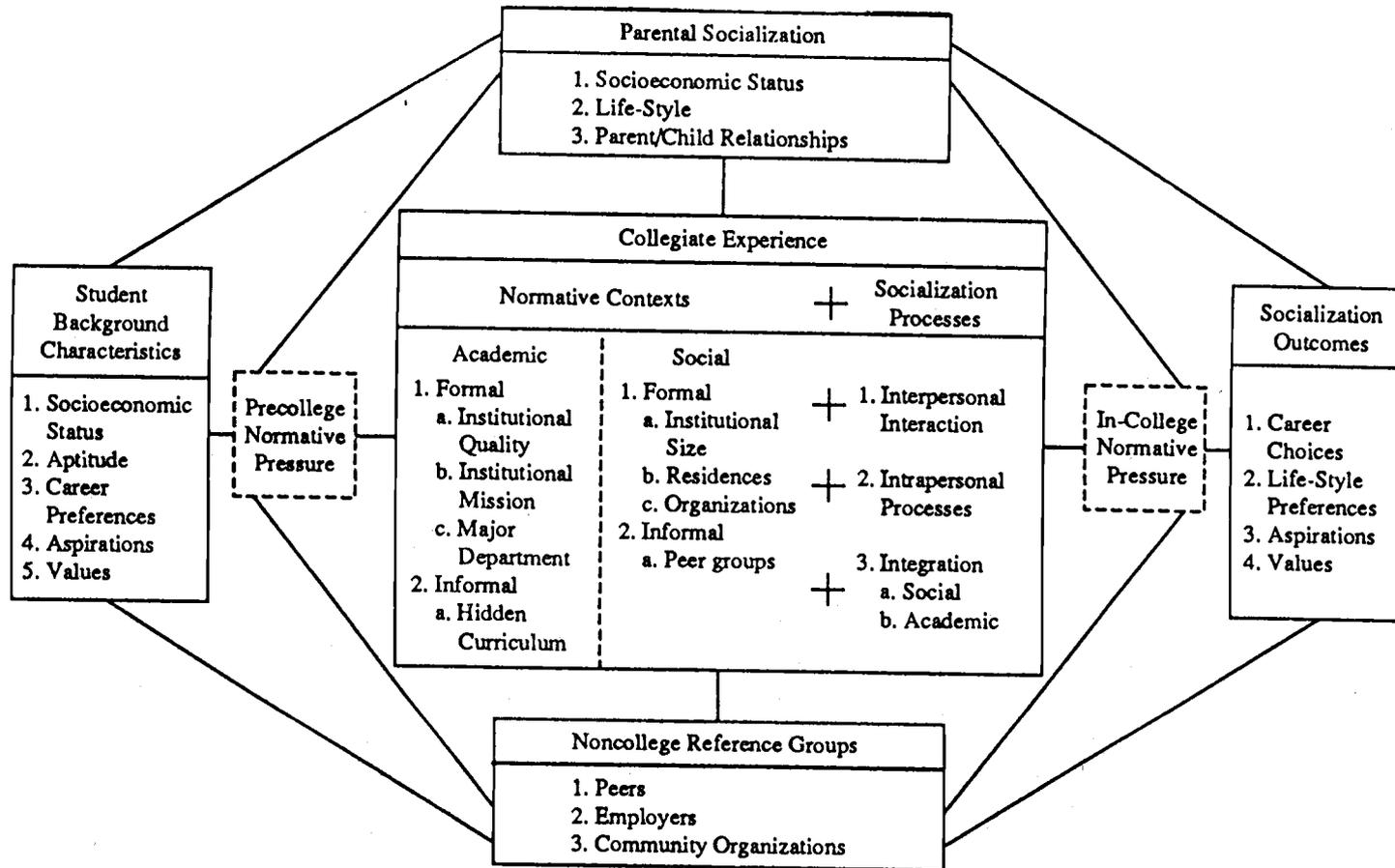
and behaviors of other people.

#### Undergraduate socialization, Weidman's model

Based primarily on his own research, and building upon the work of Chickering (1969) and Astin (1984), Weidman (1989) proposed a model (Figure 5) of undergraduate socialization which incorporates both the psychological and social influences on student development and change. Because of the recent nature of this model, its use and validity for practical purposes, as well as research, has not been examined.

Intuitively, however, this model makes sense. Like Tinto and Pascarella, Weidman hypothesizes that many forces are at work simultaneously, varying from time to time as to degree of importance and influence. Further he posits that students bring important pre-entry attributes and a complex of normative pressures from both non-collegiate peer groups and parents. Weidman's model, unlike some others, recognizes the continued influence of these non-collegiate groups, especially the student's parents. These forces constitute a predisposition which influences the student's social and academic activities. The context of these involvements may be either formal or informal and involve interpersonal interactions, processes and changes. Socialization requires the student to evaluate and adjust personal goals based on these normative influences.

Figure 5.A Conceptual Model of Undergraduate Socialization



In Weidman's model, the process of understanding what contributes to the successful retention of students from rural resource-dependent communities during their freshman year parallels that of other researchers. Most of the studies done on retention theory and practices have been conducted at four year institutions, and the bulk of the research focuses on entering freshmen (Terenzini, Lorang & Pascarella, 1980).

#### The Rural Learner

Traditionally, research on university withdrawal has been directed toward urban students. Like their urban counterparts, rural students are subject to most of the major variables traditionally studied. These variables include gender, age, employment status, marital status, financial status, performance in class, and intent to reenroll. Rural students, however, have special needs and problems which exacerbate the effects of these influences. Graduates from small schools experience less success in college than do graduates from larger schools (Matthias, 1972). Over one-third of the students educated in the United States attend rural schools which comprise approximately three-quarters of the districts in America (Cross et al 1991).

The ability of rural schools to provide adequate training for their students has been questioned (Sher, 1977, Nachtigal, 1982). The problems associated with rural education include lack of adequate funding, extended distance to educational facilities, and the inability to recruit and retain quality teachers (DeYoung, Huffman & Turner, 1989). By accepted standards, the rural educational system provides less educational opportunities, and produces students less able to cope with urban society (Nachtigal, 1982). Lewis (1918) believes that rural students do not perform well because no one has given them a vision of the social significance of education. X

The communities themselves are currently under stress from changes in the composition of their membership due to urban sprawl, immigration and emigration (Roger, 1988), and changes in the economic base precipitated by fluctuation of available resources (Adams, 1989; Burch & DeLuca, 1984; Graham, 1989; Metzner, 1989).

The entire milieu of ruralism, economics, family, educational opportunity, and community stress are imparted to the freshman undergraduate which the university receives. Rural individuals are not separate, uninvolved entities, apart from family, community and environment. Rather, they tend to have family and community more tightly integrated into their lives than do other groups (Merriam & Cunningham, 1990). The educational effects of family structure and

economic resources have a strong influence on rural youth educational achievement (Lichter, Cornwell, & Eggebeen, 1993). These students often express a high level of allegiance to their families, with a deep recognition of the value of their parents' and grandparents' hard work (Roger, 1988).

The processes of rural education often do not prepare the students to move to a metropolitan area to advance their education, yet, the number of students wishing to relocate to urban areas is substantial. Seyfrit (1986), in a study of high school seniors in rural Utah, found that nearly 80 percent planned to migrate to more urban areas soon after graduation. Stresses experienced during the transition from high school to college can be severely augmented for persons who must simultaneously make the transition from a rural to an urban environment. Like many other minorities entering colleges, rural students must go through a process of acculturation (Wright, 1987). Overnight they are shifted into a new environment (Noel, Levitz & Saluri, 1985). They have to begin rebuilding support groups, and during the transition it is easy to retreat to past associates (Noel, 1985). Also, difficulty in identifying and establishing contacts with students of similar background and experiences limits the initiation of social and academic rapport.

How well integrated these individuals become academically and socially within the University environment

will contribute to their success and the decision to remain at Oregon State University to complete their education. A scarcity of "in school" associates amplifies the absence of home base support to stay in school. Frequently, retention is made even more difficult if a formal education is perceived as "a way out" of the local community, and rural parents view their children's success in college with mixed emotions or uneasiness (Weis, 1989).

There is an expanding awareness of the need to help rural learners be successful at postsecondary education (McDaniel, 1986). The interest is spawned by current economic difficulties and consequent unemployment problems in these communities due to the economic decline of major rural industries including timber harvest, mining, agriculture, and fishing. Many look to education as a means to provide access to new job skills and opportunities. Others are interested in upgrading qualifications in an attempt to deal with change (McDaniel, 1986).

A literature review conducted by Brown (1985) cites numerous studies in which rural students in higher education have an elevated attrition rate compared to their urban counter-parts. Why this is so is not clear, although some studies indicate that the origin is not lower academic achievement. Brown (1985) further concludes that the cause may be a lack of social skills and the inability to develop interpersonal interactions, while Downey (1980) attributes

it to limited views of occupational opportunities and role models, resulting in a tendency to select from familiar areas. Uncertain career goals, lack of a major, and unrealistic expectations are all characteristics commonly associated with drop-out prone populations (Gordon, 1985).

Aylesworth and Bloom (1976) learned that there is no distinguishable difference intellectually between rural and urban college freshmen. Rural students, however, dropped out more often than their urban cohorts. In these studies students from rural schools cited such factors as the problems of dealing with large campus size, impersonality of the system and the teachers, high levels of stress and alienation, and difficulty finding other students who were culturally comparable and friendly.

#### Learning Process of Rural Students

Underpreparedness for college is a relative condition. Unprepared students can be broadly defined in an academic context as a students whose skills, knowledge, and abilities are significantly below average. In the first year of college, many underprepared students have difficulty dealing with courses with high intellectual demands. However, being unprepared socioculturally for university life is likewise an aspect of underpreparedness which significantly affects student retention. This likely is a particular problem for

rural students. Such students often exhibit problems of underpreparedness commonly associated with adult learners. These include a lack of confidence in their ability to learn and an uncertainty about what to expect. The students may have difficulty with highly abstract theoretical concepts, preferring experiential learning which more closely replicates real-life concrete experiences (Kalsner, 1991). Van Tilburg (1990) comments that farm families become more self-reliant in their approach to learning new information, and individualistic in their learning styles. The rural learner prefers an individual learning setting and conceptually distinguishes greater differences between work and socializing than does the urban counterpart. Typically education is viewed as work. The rural learner is likely to feel that only after the work is done, is it time for socializing (Merriam & Cunningham, 1990). Pragmatism permeates their attitudes toward learning situations. The approach tends to be "Just show me how to do it, or tell me how and then I'll get on with it," and "Don't bother me with groups, or socializing" (Van Tilburg, pp 545, 1989). Hence, rural college students have more difficulty in acculturating to the college academic and social environments which emphasize group experience and involvement. Some of the problem might lie in the fact that a large proportion of lower division instruction on most campuses is oriented toward a passive approach to learning that minimizes student

involvement. It is true that not all students respond to the same instructional format in the same manner, however, evidence suggests that student involvement in learning increases the meaningful value of the information (Csikszentmihalyi, 1975). Student participation can greatly enhance the learning process (Link, 1981).

A consistent finding among researchers in the field of student persistence is that those practices by the institution which increase student engagement and involvement in the academic and social activities within the institution have the greatest positive affect upon retention (Astin, 1975; Beal & Noel, 1980; Carnegie Foundation for the Advancement of Teaching, 1990; Kuh, et al., 1991; Noel, Levitz, Saluri, and Associates, 1987; Tinto, 1975).

#### Natural Resource Majors Versus Other Majors

Universities vary from department to department, and among colleges within the institution (Pace, 1964). The relevant question in this regard for this study is, do students who enroll in a major related to natural resource management become more involved than those in other types of majors? The implication here is that perhaps the students and faculties within these departments create an academic and social milieu which encourages greater integration of the student than do other departments on campus.

## Participation in College Life

In its 1984 report on involvement and learning, the National Institute of Education concluded that student involvement (or integration) is the single most important area for improving undergraduate education in the United States of America. Kalsner (1991) asserts that involvement equates to the amount of time and effort a student expends in college-related activities. Conceptually, involvement may be perceived as a continuum relating to each of the various aspects of college life. Representatives of the low end of the continuum would be students who "live off-campus, who come only to attend classes, who devote minimum effort to their academic activities, and whose lives are concerned primarily with persons and events outside the institution" (Astin, 1984, pp 21). The other end might be represented by students who live in campus housing, participate in various social aspects of the university and center the majority of their time to school related matters and activities. X

There are several variables that can be examined in determining degree of integration. Some of these are consistent with several of the models previously discussed, though there are others too. The following is a brief description of these variables.

### Pre-Entry Attributes

The capacity of a particular individual to adjust to a significantly different environment depends upon personal characteristics and values (Swift, 1988). Each student comes to the university with a unique set of attributes. These attributes include psychosocial development, intelligence, where they grew up, the type of schooling they experienced, gender, economic status and family educational background (Corley, 1989, Erikson, 1982). The overall influence these have upon the individual's values and world views contributes to a disposition (favorable or unfavorable) toward learning (Boucouvalas and Krupp, 1990).

### Institutional Experiences

In 1978, Cope proposed that a student's decision to attend or withdraw from college depended on several factors relating to that student's overall perception and evaluation of the college experience. Institutional experiences include interaction with the social and academic aspects of the college. Wright (1984) found that long before academic performance became the deciding factor, lack of academic commitment influenced the student's decision to drop out. Other factors, many external to the institution, also significantly affect the decision to withdraw from school. However, among those relative to the on-campus experience,

academic and social integration are viewed as exerting strong influences on student retention (Shirley, 1986, Terenzini & Wright, 1987).

Students enter college for a wide variety of reasons. Some have well-focused goals and aspiration, with clear ideas of where their schooling is leading. Beyond the typical goals of degrees and jobs, other considerations such as self-edification or making a contribution to society may significantly affect a student's decision to enroll. The decision to remain enrolled at a particular institution may, however, be significantly influenced by perceptions of access to opportunities to hone social and interpersonal skills (Astin, 1990), and by financial considerations.

It is widely recognized that economically disadvantaged college and university students are at high risk in terms of attrition (Fox, 1986; Lichter, Cornwell, & Eggebeen, 1993). Families of rural youth often have limited ability to afford the full college experience for their children. Consequently these students may feel pressure to help the family, and often consider that college interferes with their ability to contribute financially (Anderson, 1985).

#### Motivation and Intent to Complete a Degree

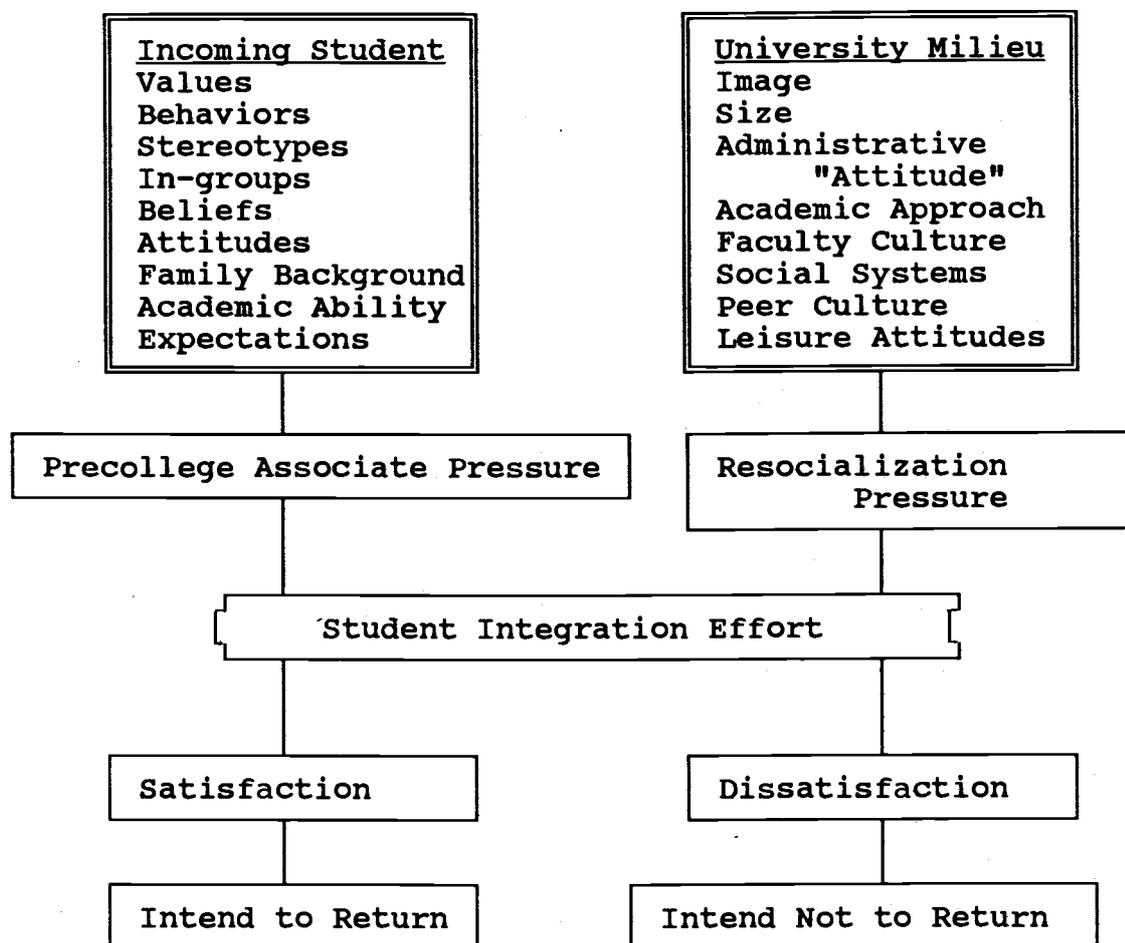
Motivation of the student as a possible predictor of persistence has been of continued interest to researchers.

Various indicators have been used, such as commitment to higher education and the institution and reasons for attending school. Summerskill (1962) felt that this was an important area to study, but tricky because of the diversity of reasons one attends college, making motivation a difficult variable to sort out. Its importance, however, was recognized by Tinto (1975) who indicated that once ability was taken into account, individual commitment to the goal of completing college was the next most influential variable. Several studies have suggested that personal commitment and expectation to complete college are major factors in whether or not students persist (Hackman & Taber, 1979; Marks, 1967; Munro, 1981; Rossman & Kirk, 1970).

#### Research Paradigm

In view of the theories, models and investigations about student retention and in view of the specific problems identified for this research, the following framework for investigation has been developed. A schematic diagram of the relationships among variables in the framework is shown in Figure 6. Depicted as separate entities which interact are the incoming student and the university milieu. The student is affected by the institution, its people and processes, as well as the pressures of precollege associations. The individual students respond to and become part of the

Figure 6. A Framework for Investigating Student Retention



activities around them. The model posits that if a student exerts quality effort integrating into the academic and social fabric of the institution, satisfaction with the experience will lead to an intent to return.

#### Student Integration Effort

The variables to be examined in this study to assess quality of effort will encompass all indices in the CSEQ including those which are oriented toward either the academic or the social aspects of the college experience. Those relating to academics include questions regarding library use, interaction with faculty, in class effort, involvement in art related activities, writing, and involvement in the sciences. Those questions oriented toward social integration include use of the student union, athletic and recreation facilities, clubs and organizations, personal experiences, student acquaintances, residence hall activities, topics of conversation, and conversion and application of learned knowledge. In sum, measures of these variables indicate the amount of effort the student contributes to becoming involved in the various aspects of the university environment.

### University Milieu

Another set of variables investigates the university environment itself. These variables emphasize the student's perception of the college environment. Among those most pertinent to this research are those which emphasize how well the student liked going to school at Oregon State University, and whether that student would choose Oregon State if they were starting over. Further, these variables examine perceived relevance and practical value of courses, development of esthetic, expressive and creative qualities, critical and evaluative thinking skills, and vocational and occupational competence. Another set of variables which relate to student retention and the college environment are relationships with other students, with faculty members, and with administrative offices and personnel.

As previously stated, theoretical models guide research in student retention. Various principles are posited regarding those factors most salient to the success of students as defined by retention. The dominant organizing principle used in student retention theory has been the assessment of student "fit", meaning how well the individual fits into the institutional culture and how this milieu affects the desire to remain enrolled. In this setting, "Fit" is described by Beal and Noel (1980) as:

moral and social interaction, meaningful contact between the student and the faculty, development of relationships between students and those who care about them and the responsiveness of the institutions to the needs the students feel (p. 21).

Pace and Stern (1958) further describe "Fit" as the congruence between the values, attitudes and goals of the student and the college they are attending. The better the fit or congruence, the more likely the student is to remain enrolled. This fit, coupled with academic and social interactions, comprises integration of the student into the institution, precipitating a commitment to persist and complete a degree. Thus, integration equates to involvement and can include academic and social aspects relating to both faculty and peers. Both Astin (1977) and Pace (1984) specify that those students who feel themselves a part of campus activities are most likely to remain in college.

Numerous assertions have been made regarding the difficulty encountered by students who enter residential universities and colleges. As a result several models have been developed and applied to freshman populations. Studies have shown that rural students have a more difficult time than their urban counterparts in attaining a college degree, the ultimate goal of college attendance. The qualitative and quantitative energies a student expends in the college experience determines the quality of the experience, the

greater the involvement the stronger the likelihood that learning and development will occur (Astin, 1977; Corley, 1989; Pace, 1984).

Thus, based on these observations, the following working hypotheses were posited to guide this investigation:

### Working Hypotheses

1. Students from Rural Resource Dependent Communities exhibit less quality of effort at integrating into the academic and social fabric of Oregon State University during the freshman year than do non-RRDC cohorts.
2. Students in natural resource management majors exhibit greater involvement in the college experience than do their cohorts who are in other majors.

Based on these hypotheses, this study examines the "quality of effort" put forth by freshman students from rural resource-dependent communities, and its affect on their intent to return to Oregon State University following their freshman year. Additionally, this research compares the students who major in an area related to natural resource management with those who do not, to see if those who major in NRM put forth more effort toward integration into the institutional fabric.

### CHAPTER III METHODS

In chapters one and two rural resource dependent students and retention research and theory were described and a conceptual model to guide this investigation was posited. Chapter III describes the methods used in this investigation. Both qualitative and quantitative techniques were used to identify variables relating to freshmen year retention of students from Rural Resource Dependent Communities (RRDC) who enter Oregon State University directly after graduation from high school.

#### The Population

The participants in the study were students who enrolled at Oregon State University (O.S.U.), a Northwestern Land, Sea and Space Grant institution. Participants were from the entire population of students first enrolling as freshmen in 1990, 1991, and 1992 at O.S.U. Three subgroups of this population were identified for this research. One group was comprised of the entire population of students from RRDC high schools, another was composed of students majoring in natural resource management programs, and the third was a random sample of cohorts drawn from the entire

population, excluding the other two subgroups. From this selection a like sample of non-RRDC freshmen was drawn to compare with the population of RRDC freshmen.

To identify students from Rural Resource Dependent Communities, definitions for "resource dependent community" and "rural school district" were necessary. Natural resource students were identified based on their major, with forestry, range, fisheries, wildlife and related majors being the focus.

#### Rural School District

Rurality is in the eye of the definer (Owens, 1980) and, because of this, the definition of rural often varies. The federal government defines rural as "all areas outside Standard Metropolitan Statistical Areas with a population fewer than 2,500 persons and fewer than 1,000 persons per square mile" (Census Bureau, 1987). However, in reality, ruralness is a continuum. Individual areas are classified based on multiple factors including subcultures and environmental setting.

Each area is unique, and the relative ruralness is a composite factor of topography, distance from other population centers and major transportation corridors, population scarcity, and economic base. A rural area can include non-metropolitan areas, sparsely populated areas, or

remote areas. Rural school districts have a specific definition. The statistical parameters utilized by the U.S. Office of Special Education Programs classifies a school district as rural when either the number of inhabitants is fewer than 150 per square mile, or it is located in a county where 60% or more of the population lives in communities of 5,000 or fewer (U.S. Department of Education, 1987; Van Tilburg & Moore, 1990). Ruralness does not necessarily imply small school district, but often the districts are small.

A school district is small if fewer than 2,000 students are enrolled in grades K-8 or K-12. A secondary school with an enrollment of 750 or fewer in any combination of grades 7-12 is considered small. A very small high school has fewer than 350 students.

In this study, these parameters were used as general guidelines for identifying rural school districts. In addition, however, many educators solve the definitional problems by being pragmatic--if those served by a school district perceive themselves as residents of a rural area, then the school district is rural. During interviews with Counselors and Principals of the schools in this study, interviewers were asked if they believed that their school was a rural school. In almost all cases the respondents perceptions coincided with classifications defined by the general guidelines. One exception was Bandon, where one counselor believed the school was not rural because of the

high amount of tourism in the area. He believed this exposed the students to a greater diversity of people and thus was more urban.

School districts or schools meeting either of the above definitions (rural and/or small) were also classified for their remoteness. Those in a location 100 or more miles from the nearest nonsmall school district were considered remote or isolated. While this might be one factor in the character of a school, in this study, more emphasis was placed on rural and small characteristics than on remoteness. Due to topography and climate, schools in Oregon can be relatively isolated or remote without meeting the above distance standard. An example of this is Butte Falls in Jackson County. Butte Falls is only about 40 miles from Medford, but is isolated part of the year by snow and difficult driving conditions, thus limiting access to the metropolitan area.

#### Resource Dependent Community

Defining a Resource Dependent Community was necessary. A study undertaken at Oregon State University in 1990 was the prime source of information for identifying these communities (Byrne, 1990). In that study, "community" commonly referred to a town, city, incorporated area, region or other geographical area. Communities were often viewed as regions, rather than isolated towns and 21 resource

dependent communities were identified in Oregon. The criteria used for identification were economic indicators such as the number of firms in a resource products industry within a particular community, or the proportion of employment that a particular resource industry represented within a community. Additionally, the community's location in terms of proximity to major transport and population centers was considered in establishing its ruralness.

The following parameters were used in the O.S.U. study to identify the major characteristics of Resource Dependent Communities:

1. Economic dependence on a single resource product with a large percentage of the better jobs with a single employer or in support of a single industry.

2. Community resources related to a resource dependent industry with the dominant community infrastructure, leadership, retail and commercial endeavors oriented toward servicing that base.

3. Location--the community grew to serve the industry and may have been established for reasons that are no longer valid, for example, available federal timber contracts.

In selecting rural resource dependent communities for this study, two of the characteristics, economic dependence on resource based products and location, were the core criteria for judging what constituted a Rural Resource

Dependent Community. In addition, however, an evaluation of resource dependency by the Principals, Counselors and Students of the communities, also was used as a pragmatic measure for inclusion.

Table I lists the towns and regions considered to be resource dependent communities because of the large employment in a single industry. Those regions where resource products employment constituted 70% or more of the number of people employed in manufacturing were included. The percentage of people in the community employed in the resource industry is shown in parenthesis directly after the community name. As an additional indicator of ruralness, those with a poor location in respect to population centers and ease of access to transportation corridors were considered to be more remote and consequently rural. In each case the higher the number, the greater the influence of the criteria. The data are summarized below, with each region rated on a scale of 1-5 for degree of dependence.

Thus:

For economic dependence criterion:

1 = low level of dependence on the resource industry.

5 = high dependence on the resource products industry.

For location criterion:

1 = good location with ready access to transport facilities and population center.

5 = poor location with respect to transport and population centers.

TABLE 1

Communities included as Rural Resource Dependent

<u>Communities</u>	<u>Economic.Dep.</u>	<u>Location</u>
Klamath Falls (77%) Chiloquin, Klamath Falls	4	3
Bend (75%) Bend, Crescent, Gilchrist, La Pine, Madras, Powell Butte, Prineville, Redmond, Sisters, Warm Springs.	4	3
Roseburg (85%) Camas Valley, Canyonville, Dillard, Glide, Myrtle Creek, Oakland, Riddle, Roseburg, Sutherlin, Umpqua, Winston.	5	2
Coquille (79%) Bandon, Coos Bay, Coquille, North Bend, Norway, Myrtle Point, Powers, Reedsport.	5	3
Hines (93%) Burns, Hines.	5	5
Brookings (74%) Brookings, Gold Beach Harbor, Port Orford	5	5
Lakeview (99%) Lakeview	5	5

TABLE 1, Continued

John Day (98%)	5	5
Days Creek, John Day, Prairie City.		
Mapleton (87%)	4	3
Deadwood, Florence, Mapleton, Swisshome.		
Heppner (88%)	5	5
Heppner		
Oakridge (91%)	5	5
Oakridge, Westfir.		

Using a map of the state of Oregon, the above information, and data provided by the Department of Education's Oregon School Directory, an analysis by overlay process was possible to define and choose those schools in the state which most closely fit the operational definition of a rural high school in a resource dependent community. Table 2 shows the schools so identified and the counties in which they are located.

TABLE 2

Rural High Schools from Resource Dependent Communities

<u>County</u>	<u>Name of High School</u>
Benton	Alsea Philomath
Coos	Bandon Coquille

TABLE 2, Continued

Curry	Gold Beach Pacific (Langlois)
Grant	Grant Union
Harney	Burns Crane
Jackson	Butte Falls Prospect
Klamath	Gilchrist Lost River
Lake	Lakeview North Lake Paisley
Lincoln	Eddyville
Morrow	Heppner Riverside
Wallowa	Enterprise Joseph Wallowa

In Fall term of 1992, Oregon State University received Applications from 64 students from these high schools and thirty-seven students actually matriculated. All of the students who entered O.S.U. from these high schools were included in this study. This was the lowest year for applications and enrollment of freshmen from these districts in three years. Seventy-two students applied in 1991 and forty-seven matriculated, and 107 applied in 1990 with sixty-six students enrolling as freshmen.

A like sample was selected from the remainder of the students who enrolled at O.S.U. during each of those same years.

### Research Approach

There is a recognized need to better understand some of the hard-to-measure characteristics of institutions and organizations (Peterson, 1985) including organizational culture, learning environment and socialization (Aanstoos, 1986; Deal and Kennedy, 1982; Hedberg, 1981). Toward this end, increased effort has been directed into research methods which probe the subtleties of institutional life. In the search for understanding, the use of qualitative methods is receiving new interest (Hedegaard & Hakkarainen, 1986). Falling within the rubric of qualitative research methods are several genre of techniques including observation, case studies, ethnography, interviews, and focus groups (Crowson, 1987). Maslow (1970) stated that customary scientific technique of dissection and reductive analysis, which have worked in the inorganic world, are just nuisances when seeking knowledge of living organisms, and are inadequate for studying people in general. However, it would be wrong to perceive research methodology as a single continuum--ranging from qualitative to quantitative. Smith and Heshusius (1986) state that despite the fundamentally

different epistemological tradition of qualitative and quantitative methods, the two are potentially compatible systems of investigation, and that, in fact, they can be cooperatively employed to serve a particular research endeavor. This research incorporates just such a compatible system of investigation.

### Qualitative

Following a review of the literature related to Freshman retention processes, a series of interviews were conducted with Principals and Counselors from schools located in Rural Resource Dependent Communities. The purpose of these interviews was to ascertain what those individuals expect would contribute to the success of students from their communities after they enrolled as Freshmen at Oregon State University. Interviews with senior year students from these same schools followed, to learn their perceptions. At the completion of this process, and considering the variety of perceptions which basically encompassed all the parameters common to student success models, it was decided to hold a focus group with students who had enrolled at Oregon State University from the selected RRDC as first year freshmen in 1992. This focus group was conducted the first week of their second quarter of enrollment. Again, the important factors indicated for consideration by the

participants were typically the same as those noted by the majority of the retention process theories, with special regard for the processes of academic and social integration. Based on results of this procedure, it was decided to utilize the College Student Experiences Questionnaire to investigate for statistically significant differences in quality of effort exerted by Freshmen RRDC students who enter Oregon State University and by the general first year Freshmen population.

#### Interviews.

Individual interviews and a focus group were the primary methods of data collection in the initial stages of the research. Interviews were done with Principals and Counselors from school districts representative of those investigated in this study. Interviews were also conducted with High School Seniors from the schools. In all cases, the interviews focused on perceived benefits and barriers to completion of a college education at Oregon State University, based on the experience of having graduated from high school in a Rural Resource Dependent Community.

#### Focus Group.

The use of Focus Groups as a self-contained method of gathering supplementary information for both qualitative and

quantitative research is widely recognized. Focus groups can be particularly helpful in the preliminary stages of research. One of the strengths lies in their ability to explore topics and generate hypotheses (Morgan, 1988). "Focus groups are discussion groups that meet only once and concentrate on a specific topic" (Kuh et al pp 388, 1991).

Focus group discussions can yield information that is helpful in discovering values and feelings of various groups (Kuh et al, 1991). In this study, the topic of the focus group was Freshman Year Experiences at Oregon State University. Ample opportunity was allowed for exploration of related spontaneous subjects, attempting to insure that a comprehensive understanding of the participants' thinking was obtained (Morgan, 1988). Often one spontaneous subject led to the next. Eventually the students addressed each of the factors indicated as critical to this investigation: academic preparedness, university environment, social skills, quality of effort and integration.

The focus group was recorded using two tape recorders so that all information generated could be retrieved. The tapes were transcribed and input into an IBM Compatible 386-SX computer utilizing The Ethnograph program for text-based data (Seidel, Kjolseth, & Seymour, 1988). This allowed the information to be categorized and sorted by subject discussed.

### Selecting the Sample For the Focus Group

The focus group was selected from the population of students from RRDC who entered the university as first quarter Freshmen in Fall term 1992. There were thirty-seven students in the total population. Ten names were selected to be invited to participate in the Focus Group. The names of the students in the population were arranged alphabetically, and assigned numbers by order of position on the list, with the first name to appear given the number one, and the last given the number thirty-seven.

A random numbers table from Scheaffer, Mendenhall & Ott, (Appendix table 3, 1979) was used to select the ten students to participate in the focus group. A letter was then sent to these ten students inviting them to attend the focus group session during the first week of Winter Term--the second quarter of the academic year. Along with the letter of invitation, the student was sent a return address envelope and a form to return indicating whether or not they planned to attend the session. Pizza and sodas were provided and the focus group was held between 5:30 and 7:30 P.M. A follow-up call was made the day before the focus group session to remind the students, and to reinvite them to attend. Eight of the ten students selected were in attendance.

### Quantitative

Using the College Student Experiences Questionnaire, a pilot study was performed upon three students who participated in the focus group, and two randomly selected freshmen from outside the RRDC student population. The pilot surveys were taken by the selected students, and were followed directly by a debriefing session. During the debriefing, the survey was reviewed, and questions and comments about its content were discussed. The purpose of the pilot study was (1) to determine if the focus group students felt that the questions on the CSEQ addressed the majority of their concerns, and (2) to test its use with students who were unfamiliar with the research project. At the beginning of the session a student was presented with an envelope, the content of which was similar to the ones received by survey participants. After reviewing the cover letter and instructions, the pilot study participants were given the opportunity to ask questions to clarify instructions, if necessary. They then completed the questionnaire, and a debriefing conference followed to clarify any questions they had about the survey, its content or the process in general.

In addition to the CSEQ, there were ten questions added to the questionnaire, including eight taken from the work of Pascarella and Terenzini (1980) (Table 3). Those chosen were the most heavily weighted questions from each of five

clusters that parallel aspects of the CSEQ. The purpose of this action was as an additional measure of validity of the instrument chosen for this research. Pace (1982) indicates that the questionnaire has several examples of congruent or validating relationships between what is known as fact and students' ratings. Intent to return is highly correlated with whether or not the student will re-enroll at an institution (Pascarella and Terenzini, 1980), and so the ninth question inquired about their intent to return to Oregon State University the following fall term. "Do you intend to return to Oregon State University in the Fall of 1993?" The one remaining question was to be answered by upperclassmen only, and addressed perceived involvement in the university environment. The question asked "To what degree would you say that your involvement in University activities has changed since your Freshman year?"

TABLE 3

Pascarella and Terenzini (1980) Questions  
Used in Supplemental Questionnaire

## Scale/Item

## Scale I: Peer-Group Interactions

Since coming to this university I have developed close personal relationships with other students.

The student friendships I have developed at this university have been personally satisfying.

TABLE 3, Continued

It has been difficult for me to meet and make friends with other students.

Scale II: Interactions with Faculty

My nonclassroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.

My nonclassroom interactions with faculty have had a positive influence on my career goals and aspirations.

Scale III: Faculty Concerns for Student Development and Teaching

Few of the faculty members I have had contact with are generally interested in students.

Scale IV: Academic and Intellectual Development

My nonclassroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.

Scale V: Institutional and Goal Commitments

It is important for me to graduate from college.

Note: Items scored 5 = strongly agree to 1 = strongly disagree, in computing factor scores items with negative loadings were recoded 1 = strongly agree to 5 = strongly disagree.

Upon completion of the pilot study, the final draft of the cover letter, questionnaire and supplemental survey (Appendix 1) were prepared for mailing. To prompt the greatest response rate the following approach was used, as recommended by the Survey Research Center at Oregon State

University. A follow-up phone call was made two weeks after the initial mailing to encourage non-responders to return their questionnaires. This was then further pressed with a letter sent to those who still did not respond. If they indicated that they would return one if it were sent, additional questionnaires were mailed to those who had not returned the survey. Phone calls were again made to non-responders two weeks before the end of the term. Table 4 shows the time flow for the survey process. All completed questionnaires were then shipped to the National Information Services in Minnesota for scanning and a report was generated. A diskette containing the results of the scan was then forwarded to University Of California at Los Angeles, Center for the Study of Evaluation, the raw data was placed on a 3.5" diskette, and a print out of the analysis was returned to the investigator for further examination utilizing an SPSS-PC data analysis system.

TABLE 4

Survey Process Time Flow Chart

Week I	Beginning of Spring Quarter, questionnaires mailed.
Week II	Surveys received
Week III	Returned surveys entered and follow-up phone calls made to non-responders.

TABLE 4, Continued

Week IV	Follow-up phone calls continued
Week V	Follow-up letter sent to all non-responders
Week VI	Additional questionnaires mailed to willing non-responders
Week IX	Final phone calls made to non-responders
Week XI	Surveys mailed to N.I.S.

#### The Instrument

The instrument used to determine quality of effort was the College Student Experiences Questionnaire, Revised Third edition (CSEQ) developed by C. Robert Pace (1990). It was selected because of its capacity to ascertain quality of effort by the student to participate in the various social and academic activities available while enrolled in college. It was first published in 1983. In excess of 400 colleges and universities have used this instrument, and it has been used in more than twenty-five doctoral dissertations (Pace, 1992). Since the majority of the questionnaire asks the student about activities during the current school year, most colleges have used it when the schools academic calendar is about 2/3 to 3/4 completed. This research used the questionnaire directly following the end of Winter term, when the academic year was two thirds complete.

The CSEQ instrument was enlarged with a supplemental

questionnaire which helped the investigator insure reliability and also asked if the student intended to return to Oregon State University the following year. This intent to return measure is considered one of the most reliable measures of whether or not a student will withdraw (Pascarella and Terenzini, 1980).

### Measures of Quality of Effort

To occur, learning requires effort and an investment of time. The college experience is comprised of activities and events that take place while the student is in attendance at an institution of higher education. Most of these experiences take place within the facilities the college provides--libraries, residence halls, art and music exhibits, classrooms, laboratories, student center, and athletic and recreational facilities. The other major aspects of experiences are in the opportunities for associations such as contact with faculty members, experiences relating to self-development, involvement in clubs or student organizations, and acquaintances with other students. These experiences have particular significance in the college context. The Quality of Effort is a measure of how often students engage in these activities. The activities examined in each topic area range along a continuum, some requiring more exertion of energy and time

and, often, having more power to influence learning and development.

Fourteen scales constitute the questionnaire relating to College Activities, and measure the Quality of Effort exerted by the student as a participant in the undergraduate experience. The fundamental Quantity of Effort dimension for each of these scales, with one exception, incorporates ten or more activities as explained in Table 5. The students were instructed to respond about how often they had done each activity during the current school year. Response options were: very often, often, occasionally, or never.

TABLE 5

Quality dimensions for each College Activity Scale

Library Experiences (LIB) (10 activities)

Used the library as a quiet place to read or study materials you brought with you.

Used the card catalog or computer to find what materials there were on some topic.

Asked the librarian for help in finding material on some topic.

Read something in the reserve book room or reference section.

Used indexes (such as the Reader's Guide to Periodical Literature) to journal articles.

Developed a bibliography or set of references for use in a term paper or other report.

Found some interesting material to read just by browsing in the stacks.

## TABLE 5, Continued

Ran down leads, looked for further references that were cited in things you read.

Gone back to read a basic reference or document that other authors had often referred to.

Checked out books to read (not textbooks).

Experiences with Faculty (FAC) (10 activities)

Talked with a faculty member.

Asked your instructor for information related to a course you were taking (grades, make-up work, assignments, etc.).

Visited informally and briefly with an instructor after class.

Made an appointment to meet with a faculty member in his/her office.

Discussed ideas for a term paper or other class project with a faculty member.

Discussed your career plans and ambitions with a faculty member.

Asked your instructor for comments and criticisms about your work.

Had coffee, cokes, or snacks with a faculty member

Worked with a faculty member on a research project.

Discussed personal problems or concerns with a faculty member.

Course Learning (COUR) (10 activities)

Took detailed notes in class.

Participated in class discussions.

Underlined major points in the readings.

Tried to see how different facts and ideas fit together.

TABLE 5, Continued

Thought about practical applications of the material.

Worked on a paper or project where you had to integrate ideas from various sources.

Summarized major points and information in your readings or notes.

Tried to explain the material to another student or friend.

Made outlines from class notes or readings.

Did additional readings on topics that were introduced and discussed in class.

Art, Music and Theater (AMT) (12 activities)

Talked about art (painting, sculpture, architecture, artists, etc.,) with other students at the college.

Gone to an art gallery or art exhibit on the campus.

Read or discussed the opinions of art critics.

Participated in some art activity (painting, pottery, weaving, drawing, etc.).

Talked about music (classical, popular, musicians, etc.) with other students at the college.

Attended a concert or other music event at the college.

Read or discussed the opinions of music critics.

Participated in some music activity (orchestra, chorus, etc.).

Talked about the theater (plays, musicals, dance, etc.) with other students at the college.

Seen a play, ballet, or other theater performance at the college

Read or discussed the opinions of drama critics.

Participated in or worked on some theatrical production (acted, danced, worked on scenery, etc.).

TABLE 5, Continued

Student Union (UNI) (10 activities)

Had meals, snacks, etc. at the student union or student center.

Looked at the bulletin board for notices about campus events.

Met your friends at the student union or student center.

Sat around in the union or center talking with other students about your classes and other college activities.

Used the lounge(s) to relax or study by yourself.

Seen a film or other event at the student union or center.

Attended a social event in the student union or center.

Heard a speaker at the student union or center.

Played games that were available in the student union or center (ping-pong, cards, pool, pinball, etc.).

Used the lounge(s) or meeting rooms to meet with a group of student for a discussion.

Athletic and Recreation Facilities (ATH) (10 activities)

Set goals for your performance in some skill.

Followed a regular schedule of exercise, or practice in some sport, on campus.

Used outdoor recreational spaces for casual and informal individual athletic activities.

Used outdoor recreational spaces for casual and informal group sports.

Used facilities in the gym for individual activities (exercise, swimming, etc.).

Used facilities in the gym for playing sports that require more than one person.

TABLE 5, Continued

Sought instruction to improve your performance in some athletic activity.

Played on an intramural team.

Kept a chart or record of your progress in some skill or athletic activity.

Was a spectator at college athletic events.

Clubs and Organizations (CLUB) (10 activities)

Looked in the student newspaper for notices about campus events and student organizations.

Attended a program or event put on by a student group.

Read or asked about a club, organization, or student government activity.

Attended a meeting of a club, organization, or student government group.

Voted in a student election.

Discussed policies and issues related to campus activities and student government.

Worked in some student organization or special project (publication, student government social event, etc.).

Discussed reasons for the success or lack of success of student club meeting, activities, or events.

Worked on a committee.

Met with a faculty adviser or administrator to discuss the activities of a student organization.

Experiences in Writing (WRIT) (10 activities)

Used a dictionary or thesaurus to look up the proper meaning of words.

Consciously and systematically thought about grammar, sentence structure, paragraphs, word choice, and sequence of ideas or points as you were writing.

TABLE 5, Continued

Wrote a rough draft of a paper or essay and then revised it yourself before handing it in.

Spent at least five hours or more writing a paper (not counting time spent in reading or at the library).

Asked other people to read something you wrote to see if it was clear to them.

Referred to a book or manual about style of writing, grammar, etc.

Revised a paper or composition two or more times before you were satisfied with it.

Asked an instructor for advice and help to improve your writing.

Made an appointment to talk with an instructor who had criticized a paper you had written.

Submitted for publication an article, story, or other composition you had written.

Personal Experiences (PER) (10 activities)

Told a friend why you reacted to another person the way you did.

Discussed with other students why some groups get along smoothly, and other groups don't.

Sought out a friend to help you with a personal problem.

Elected a course that dealt with understanding personal and social behavior.

Identified with a character in a book or movie and wondered what you might have done under similar circumstances.

Read articles or books about personal adjustment and personality development.

Taken a test to measure your abilities, interests, or attitudes

TABLE 5, Continued

Asked a friend to tell you what he/she really thought about you.

Been in a group where each person, including yourself, talked about his/her personal problems.

Talked with a counselor or other specialist about problems of a personal nature.

Student Acquaintances (STAQ) (10 activities)

Made friend with student whose academic major field was very different from yours.

Made friends with student whose interests were very different from yours.

Made friends with student whose family background (economic and social) was very different from yours.

Made friends with students whose age was very different from yours.

Made friends with students whose race was different from yours.

Made friends with student from another country.

Had serious discussions with students whose philosophy of life or personal values were very different from yours.

Had serious discussions with students whose religious beliefs were very different from yours.

Had serious discussions with students whose political opinions were very different from yours.

Had serious discussions with students from a country different from yours.

Science (SCI) (10 activities)

Memorized formulas, definitions, technical terms.

Tried to express a set of relationships in mathematical terms.

## TABLE 5, Continued

Tested your understanding of some scientific principle by seeing if you could explain it to another student.

Read articles (not assigned) about scientific theories or concepts.

Practiced to improve your skill in using some laboratory equipment.

Showed a classmate how to use a piece of scientific equipment.

Attempted to explain an experimental procedure to a classmate.

Went to an exhibit or demonstration of some new scientific device.

Completed an experiment or project using scientific methods.

Tried to explain to another person the scientific basis for concerns about pollution, recycling, alternative sources of energy, acid rain, or similar aspects of the world around you.

Campus Residence Facilities (CRF) (10 activities)

Had lively conversations about various topic during dinner in the dining room or cafeteria.

Gone out with other students for late night snacks.

Offered to help another student (with course work, errands, favors, advice, etc.) who needed some assistance.

Participated in discussions that lasted late into the night.

Asked others for assistance in something you were doing.

Borrowed things (clothes, records, posters, books, etc.) from others in the residence unit.

Attended social events put on by the residence unit.

Studied with other students in the residence unit.

TABLE 5, Continued

Helped plan or organize an event in the residence unit.

Worked on some community service or fund raising project with other students in the residence unit.

Topics of Conversation (TOP) (10 items)

Current events in the news.

Major social problems such as peace, human rights, equality, justice.

Different life styles and customs.

The ideas and views of other people such as writers, philosophers, historians.

The arts-painting, theatrical productions, ballet, symphony, movies, etc.

Science-theories, experiments, methods.

Computers and other technologies.

Social and ethical issues related to science and technology such as energy, pollution, chemicals, genetics. military use.

The economy-employment, wealth, poverty, debt, trade, etc.

International relations.

Information in Conversations (INF) (6 activities)

Referred to knowledge you had acquired in your reading.

Explored different ways of thinking about the topic.

Referred to something a professor said about the topic.

Subsequently read something that was related to the topic.

Changed your opinion as a result of the knowledge or arguments presented by others.

Persuaded others to change their minds as a result of the knowledge or arguments you cited.

A Test Manual and Norms were published for the CSEQ in 1987 and revised to represent the 1990 edition (Pace, 1992). For all parts of the questionnaire, the manual presented score reliabilities, item intercorrelations, factor analysis and psychometric information. The slightly revised edition for the Revised Third Edition, 1990 was based on results from 20,513 undergraduates at 63 colleges and universities. The reliabilities of the Quality of Effort scales, for the Third Edition are listed in Table 6.

TABLE 6  
Reliabilities of Activity Scale Scores  
(Coefficient Alpha)

Library Experiences (LIB)	83
Experiences with Faculty (FAC)	90
Course Learning (COUR)	96
Art, Music, Theater (AMT)	85
Student Union (UNI)	89
Athletic and Recreation Facilities (ATH)	90
Clubs and Organizations (CLUB)	92
Experiences in Writing (WRIT)	85
Personal Experiences (PER)	96
Student Acquaintances (STAQ)	96
Science (SCI)	91
Residence (CRF)	91
Topics of Conversation (TOP)	86
Information of Conversation (INF)	83

Table 7 displays the known intercorrelations of the Quality of Effort Scales. In all cases except one, topics of conversations (TOP) and information of conversations (INF), the intercorrelations were less than or equal to 50. These low intercorrelations suggest that each measure can stand

alone. For example, results on the Art, Music and Theater (AMT) are not dependent on the results on Library Experiences (LIB).

### Measures of the College Environment

A significant amount of research has addressed the importance of environment as an influence on behavior. Proximity of people that basically support or discourage certain behaviors can be very influential in whether or not

TABLE 7

### Intercorrelations of Quality of Effort Scales

	LIB	FAC	COUR	AMT	UNI	ATH	CLUB
LIB							
FAC	41						
COUR	36	43					
AMT	30	34	20				
UNI	28	31	22	34			
ATH	16	22	13	17	36		
CLUB	29	40	26	36	50	29	
WRIT	40	40	46	25	23	17	24
PER	23	38	34	39	37	27	42
STAQ	29	34	30	37	37	36	44
SCI	14	21	22	10	16	22	16
TOP	33	38	39	42	28	18	35
INF	34	37	46	33	29	18	33
			WRIT	PER	STAQ	SCI	TOP
PER		38					
STAQ		36	51				
SCI		18	18	23			
TOP		31	40	50	32		
INF		35	41	50	28	65	

a student will participate in a given activity. Student activities in the Quality of Effort scales are ones which occur within the college setting.

The CSEQ has eight rating scales which address the characteristics of the college environment. Five of the scales emphasize the degree to which the conditions stress individual student development. These are seven-point evaluation scales, with "7" defined as "strong emphasis" to "1" indicating a weak emphasis. These scales describe:

(1) Emphasis on developing academic, scholarly qualities.

(2) Emphasis on the development of esthetic, and creative qualities.

(3) Emphasis on being critical, evaluative and analytical.

(4) Emphasis on development of vocational/occupational skills.

(5) Emphasis on practical value and personal relevance of classes.

Three additional rating scales refer to relationships among people within the college environment. Again using a seven point Likert scale, the positive end is exemplified by words like friendly, supportive; approachable, helpful; considerate, flexible. The negative side is defined by words

such as uninvolved, alienated; remote, unsympathetic; rigid, impersonal. The intent of these scales is to describe relationships with:

- (6) Other students, student groups and activities.
- (7) Faculty members.
- (8) Administrative offices and personnel.

One final area investigated by the CSEQ is degree of satisfaction with the college experience. This section, "Opinions About College" (OPINISCR), asks how well they like college, and, if they could start over again, would they choose the same college.

#### Descriptive Information

A variety of descriptive items about each of the participants were gathered from the Oregon State University archives and in the survey. Table 8 lists these items.

TABLE 8

#### Survey Demographic Categories

- Age of Student
- Gender of Student
- Marital Status
- Class standing (Freshman, Sophomore, Junior)
- College Transfer or high school
- Residence while attending school
- Academic performance (College Grades, or High School GPA)
- Major in College
- Did either of students parents graduate from college
- Expectation to achieve more advanced degree

TABLE 8, Continued

Full-time or part-time student  
Time spent in class and studying  
Time spent working on a job  
Financial independence from/dependence on parents and family  
Ethnic identification

The above demographic information was utilized to develop a more comprehensive understanding of the general characteristics of the students comprising the population. An analysis of Quality of Effort was done, comparing Freshmen Students from Rural Resource Dependent Communities to those from the general Freshman population. An additional set of analyses were completed comparing students who enrolled as natural resource management majors, with non-natural resource management majors. Students in this portion of the study included all respondents to the CSEQ. Although asked by the CSEQ, actual major classification was done utilizing information derived from current university registration data, which allowed for more accuracy.

The present study was designed to examine categories of the Research Paradigm (Figure 6, Chapter 2) as they relate integration effort of RRDC students and non-RRDC students during their freshman year. Results of the survey, as determined by their Quality of Effort, were then related to Opinions about the College and the students stated intent to return to Oregon State University. A Similar set of analyses

was carried out using Quality of Effort to compare non-natural resource management majors with those who majored in an area of natural resource management.

## CHAPTER 4 RESULTS

The fundamental purposes of this study were to determine if the quality of effort to participate in the college experience differed between freshmen students from Rural Resource Dependent Communities (RRDC) and a like sample of their non-RRDC student cohorts. A corollary aspect explored whether or not students who entered Natural Resource Management (NRM) majors at Oregon State University exerted more effort than non-NRM students to become involved in the university experience. The instrument used to determine quality of effort was the College Student Experiences Questionnaire, (Pace, 1990).

The results of this study are organized and presented in three parts. The first compares the population (N=37) of students who entered Oregon State University in 1992 as Freshmen from high schools located in RRDC, to a like sample (N=37) of freshmen who entered O.S.U. that same year. The second investigates the difference in quality of effort between samples of students who are majoring in NRM (N=26) and students who are not (N=123). The third presents results of a discriminant analysis of all persons studied to assess the importance of discriminating variables with respect to intent to return to Oregon State University.

Freshmen from Rural Resource Dependent  
versus  
Non-Rural Resource Dependent Communities

Group Characteristics

Demographic comparisons were performed for respondents from the RRDC and the like sample of non-RRDC students who entered Oregon State University as freshmen in 1992. The initial comparisons examined those data available on all of the students in each of the groups to determine if significant differences exist between the two samples. None of the variables showed statistically significant differences ( $\alpha \leq .05$ ) between the two groups of freshmen. Both samples were comprised of first year, non-transfer students, with identical racial, gender and age distributions. Similarly there was no significant difference in the mean score on the Scholastic Aptitude test, or entering grade point average. Thirty-nine students responded to the questionnaire. Twenty-three were from RRDC, and 16 were from the non-RRDC student sample. These are response rates of 62 percent and 43 percent, respectively. Chi-square and t-statistics were calculated for each characteristic, where appropriate.

Since non-response was fairly high, several factors were examined to learn if there might be a non-respondent bias in the data, although a non-response bias is not

typical (Berg, 1993). No significant difference ( $p \leq .05$ ) was found between the two groups. Variables studied were high school grade point average, cumulative grade point average while attending O.S.U., and scores on the Scholastic Aptitude Test. Additionally, a comparison was done between the number of respondents from RRDC who indicated that they did not intend to return to Oregon State University in Fall of 1993 and the actual number of students from these communities who did not enroll Fall term. The values were 9 and 11, respectively, a difference which is not significantly different ( $p \leq .05$ ). Therefore, at least for these variables for which comparable data were available, the respondents do not appear to be different from non-respondents. Appendix 1 includes the CSEQ which contains the demographic variables and associated responses used in describing the participants.

The respondents were demographically homogeneous in many respects, all of the students in this sample (100%) were first year freshmen--not transfer students, and were enrolled as full-time students. The age of the two groups is essentially identical with 100 percent of both being in the 22 years or younger class. Only one student, a member of the RRDC group, was married ( $\chi^2 = .7$ ,  $df = 1$ ,  $\alpha = .4$ ). There was a slightly greater proportion of females among the RRDC students (57% to 44%), though the difference is not significant ( $\alpha \leq .05$ ). They spent similar amounts of time on

school work ( $X^2=2$ ,  $df=4$ ,  $\alpha=.74$ ) and jobs ( $X^2=3.2$ ,  $df=3$ ,  $\alpha=.36$ ), and received comparable amounts of financial support from their families ( $X^2=1$ ,  $df=3$ ,  $\alpha=.8$ ). There was no statistically significant difference in ethnic representation between the RRDC students who were 91% white, and the non-RRDC who were 87% white; each group had two Asian students. Similarly no statistically significant difference existed between the two groups estimate of college grades ( $X^2=7.1$ ,  $df=4$ ,  $\alpha=.13$ ), major field of study ( $X^2=8$ ,  $df=7$ ,  $\alpha=.7$ ), college graduation of parents ( $X^2=2.8$ ,  $df=3$ ,  $\alpha=.43$ ), or expectations for an advanced degree ( $X^2=.08$ ,  $df=1$ ,  $\alpha=.8$ ). Although not statistically significant ( $X^2=8.2$ ,  $df=7$ ,  $\alpha=.7$ ), over one-fourth of the RRDC students declared their majors as undecided, while less than seven percent of the non-RRDC students were undecided.

The one statistically significant difference dealt with housing arrangements. When asked if they had ever lived in any type of college housing ( $X^2=5.4$ ,  $df=1$ ,  $\alpha=.02$ ), over thirty-nine percent of the RRDC freshmen answered no. Only six percent of the non-RRDC students indicated that they had not lived in some type of college housing. Table 9 shows where the students lived during the school year. Over forty-three percent of the RRDC freshmen students lived off campus with relatives or in apartments, while only one of the non-RRDC students lived outside of college housing, dormitories, fraternities or sororities.

TABLE 9  
WHERE THE STUDENTS ARE LIVING  
NOW DURING THE SCHOOL YEAR

	RRDC		NON-RRDC	
	n	%	n	%
Dormitory or College Housing	13	52	12	75
Fraternity or Sorority	1	4	3	19
Apartment Close to College	1	4	0	0
With Relatives	10	39	1	6

Chi-square	Degree of Freedom	Significance
7.38139	3	.06

#### Quality of Effort Scales

A null hypothesis for this study stated that there was no significant difference in the quality of effort of freshmen students from Rural Resource Dependent Communities and their cohorts. For each of the fourteen Quality of Effort scales in the CSEQ, a Mean, Standard Deviation and Standard Error were calculated, and an F-test for equality of variance (testing  $H_0: \sigma^2_1 = \sigma^2_2$ ) was performed. In those Quality of Effort (QE) scales where  $P \geq .1$  a pooled variance estimate was used to derive the t-test value. Scales were considered significant if  $P \leq .05$  on a 2-tailed probability.

The results of the analysis of twelve of the scales shows no statistically significant difference ( $\alpha \leq .05$ )

between the two groups. Table 10 displays the mean, and t-statistic for each of the scales.

TABLE 10  
QUALITY OF EFFORT SCALE MEANS AND  
T-STATISTIC FOR RRDC AND NON-RRDC STUDENTS

<u>VARIABLE</u>	RRDC	NON-RRDC	T VALUE	P
<u>Library</u>	18.0	16.4	1.30	.200
<u>Faculty</u>	18.4	16.3	1.56	.128
<u>Course learning</u>	26.2	24.8	.87	.388
<u>Art, Music, Theater</u>	17.7	16.2	.97	.337
<u>Art</u>	5.9	5.6	.27	.786
<u>Music</u>	6.6	5.9	1.08	.287
<u>Theater</u>	5.3	4.3	.34	.188
<u>Student Union</u>	19.9	18.5	.82	.415
<u>Athletic/Rec. fac.</u>	18.8	22.6	-2.06	.046
<u>Clubs/Organizations</u>	18.4	14.9	2.21	.034
<u>Writing</u>	25.2	23.3	1.10	.278
<u>Personal</u>	21.4	21.3	.05	.962
<u>Student acquaintances</u>	25.7	27.7	-.85	.400
<u>Science/Technology</u>	18.3	19.1	-.68	.501
<u>Dorm/Frat/Sorority</u>	26.8	24.9	.78	.443
<u>Topics conversation</u>	21.1	21.2	-.02	.951
<u>Info. in conversation</u>	13.4	12.8	.77	.444

Scores on two of the Quality of Effort scales, use of Athletic/Recreation Facilities, and participation in Clubs and Organizations, were significantly different ( $\alpha \leq .05$ ) between the two groups. These two scales relate to the use of leisure time by the students and indicate that students from non-RRDC used the athletic facilities more than those from RRDC, who tend to spend more time involved in clubs and school organization.

In addition to the above demographic information and quality of effort scales, the CSEQ examines several other aspects of the college experience. These include the number of assigned books and texts read, and non-assigned books read by the student. Also measured were the number of essay exams taken in courses, and the number of term papers or written reports produced. No statistically significant differences ( $\alpha \leq .05$ ) were noted for any of these scales.

The next set of scales asked the students to evaluate the college environment in several areas including academic, scholarly qualities; esthetic expressive, creative qualities; emphasis on being critical, evaluative; vocational and occupational competence; personal relevance-practical values; and satisfaction. Responses to the satisfaction scale were statistically significantly different ( $p = .025$ ) between RRDC freshmen and their non-RRDC counterparts. Table 11 contains the questions asked and response options for deriving the satisfaction index. Table

12 shows the distribution of each group's response to the two questions (range 2 to 8). A statistical difference was observed ( $\alpha \leq .05$ ) for this satisfaction index. The means were 6.04 and 6.69 for RRDC and non-RRDC students, respectively ( $t=2.34$ ,  $p=.025$ ).

TABLE 11

QUESTIONS USED TO DERIVE SATISFACTION INDEX

QUESTION #1: How well do you like college?

- 4 = enthusiastic
- 3 = like it
- 2 = more or less neutral
- 1 = don't like it

QUESTION #2: If you could start over again, would you go to the same college you are now attending?

- 4 = Yes, definitely
- 3 = Probably yes
- 2 = Probably no
- 1 = No, definitely

TABLE 12

OPINION SCORE: SATISFACTION INDEX

Opinion score

	RRDC		NON-RRDC	
	n	%	n	%
4	0	0	1	6.3
5	3	13	1	6.3
6	16	69.6	4	25
7	4	17.4	6	37.5
8	0	0	4	25

The CSEQ also requires students to evaluate their relationships with people on campus. These scales focus on relationships with other students, faculty, and administrative staff. The questions asked students to rate the relationships along a seven point Likert scale. For the other students scale, a 7 rated them as friendly, supportive, a sense of belonging, while a 1 indicated competitive, uninvolved, sense of alienation. Faculty relationships were rated between (1) remote, discouraging, and unsympathetic to, (7) approachable, helpful, understanding, and encouraging. Likewise, administrative personnel were rated between (1) rigid, bound by regulation, and (7) helpful, flexible. Though there were no statistically ( $\alpha \leq .05$ ) significant differences in the students relationships with other students or the administration, there was a difference in the relationship with faculty. As shown in Table 13, the RRDC students found the faculty generally more approachable and friendly, while the non-RRDC students felt they were more remote or indifferent to them ( $t=3.26$ ,  $df=37$ ,  $p=.002$ ).

Another series of t-tests were performed on the scales measuring students' perceived gains. For none of these scales were there any statistically significant differences between the two groups. Specifically the scales gauge growth in vocational training ( $t=-.07$ ,  $df=37$ ,  $p=.95$ ), specialization for further education ( $t=.91$ ,  $df=37$ ,  $p=.37$ ),

general education ( $t=1.09$ ,  $df=37$ ,  $p=.284$ ), career information ( $t=.85$ ,  $df=37$ ,  $p=.401$ ), understanding of the arts ( $t=1.37$ ,  $df=37$ ,  $p=.213$ ), acquaintance with literature

TABLE 13

RELATIONSHIP WITH FACULTY MEMBERS

Faculty relationship score	RRDC		NON-RRDC	
	n	%	n	%
1	0	0	1	6.3
2	1	4.3	2	12.5
3	2	8.7	4	25.0
4	5	21.7	5	31.3
5	8	34.8	4	25.0
6	4	17.9	0	0
7	3	13.0	0	0

Mean: RRDC=4.9 NON-RRDC=3.6

( $t=1.69$ ,  $df=37$ ,  $p=.1$ ), and ability to write clearly and effectively ( $t=1.58$ ,  $df=37$ ,  $p=.123$ ). T-statistics for significance were also calculated for the scales which measured gains in familiarity with computers, awareness of other philosophies, developing one's own values and ethics, and understanding yourself. None of the means were significantly different ( $\alpha \leq .05$ ) between the freshmen from RRDC and their cohorts.

Additional scales that showed no significant differences between means included those which measured gains in understanding other people ( $t=-.09$ ,  $df=37$ ,  $p=.93$ ), ability to be a team member ( $t=-.48$ ,  $df=37$ ,  $p=.64$ ), and developing health and fitness ( $t=-1.0$ ,  $df=35$ ,  $p=.32$ ). Likewise, the students were similar in their estimates of gain in science ( $t=.04$ ,  $df=37$ ,  $p=.97$ ) and science-technology ( $t=.51$ ,  $df=37$ ,  $p=.61$ ), awareness of new technology ( $t=-.29$ ,  $df=37$ ,  $p=.77$ ), the ability to think analytically ( $t=-.16$ ,  $df=37$ ,  $p=.87$ ), gains in quantitative thinking ( $t=.22$ ,  $df=37$ ,  $p=.83$ ), gains in ability to learn on their own ( $t=1.77$ ,  $df=37$ ,  $p=.086$ ), and in the ability to put ideas together ( $t=.69$ ,  $df=37$ ,  $p=.5$ ). No significant differences were recorded between the groups regarding gains in seeing the importance of history ( $t=-.93$ ,  $df=37$ ,  $p=.36$ ) and in knowledge about the world ( $t=-.27$ ,  $df=37$ ,  $p=.79$ ).

Statistical tests were also made for the first nine questions included on the supplemental survey which was distributed to the students along with the CSEQ. A statistical difference ( $\alpha \leq 0.05$ ) was observed in the mean score for only item six, "It is important to me to graduate from college." The means were 1.26 and 1.87, respectively for RRDC and non-RRDC students. Thirty percent more of the RRDC students (83 percent versus 53 percent) indicated that they "strongly agree" with the statement.

No other statistical differences were noted in the answers given on the final three questions of the survey. Two of these questions asked the students to rate their difficulty in meeting and making friends with other students, and the degree to which nonclassroom interaction with faculty had an influence on career goals and aspirations. Although not statistically significant ( $\alpha \leq .05$ ), 15 percent more RRDC students indicated they would not return to O.S.U. the next fall (22% to 7%).

### Discussion

The demographic analysis suggests that the students participating in the survey were a relatively homogeneous group of full-time freshmen. No statistical differences were noted for most characteristics, but one should note that over 25 percent of the freshmen from RRDC entered the university with no specific degree goal, compared to less than 7 percent of the non-RRDC students. Students who are undecided about majors and career goals have been the subject of numerous studies (Gordon, 1985). Generally lack of degree expectations has been indicated as a descriptor for students at risk of early withdrawal (Astin, 1971, Pantages and Creedon, 1978). Such a large proportion of undecided majors might suggest that more RRDC students lack

the focus necessary to cope with the trials and tribulations of the first year college experience (Gordon, 1985).

The one difference noted between the two groups is where they lived during their first year of college. Nearly 40 percent of the RRDC students lived outside of university approved housing. In general it is believed that residence halls provide advantages for students in the process of adjustment to student life, and retention (Upcraft, 1985; Upcraft & Gardner, 1989). Two probable consequences for these students are (1) less contact with fellow students, with decreased opportunity to develop new friendships and be influenced by their values, and (2) less overall immersion in the Freshman year experience. Detachment from the university and isolation from the other students could be the outcome.

The fourteen quality of effort scales were examined for differences. Two, use of Athletic/Recreation Facilities and participation in Clubs and Organizations, were statistically significant ( $\alpha \leq .05$ ). Students from non-RRDC used athletic and recreational facilities, while those from RRDC were more involved in clubs and other student organizations. This might be the result of the difference in living facilities, the possibility being that use of athletic and recreation facilities is a more spontaneous action, convenient to those who live in nearby school housing, while involvement in clubs is more scheduled and consequently works better for

those living off campus. The ramifications of these findings may well pertain to opportunities for intervention and access to these groups of students. Rural students may more easily be contacted through the clubs and organizations on campus, and activities designed to develop involvement of these students in the college experience may be best facilitated in this manner, similarly the non-RRDC students may be accessed through the athletic and recreational facilities.

One significant difference between the two groups was for the Satisfaction Index ( $t=-2.34$ ,  $p=0.025$ ). Here the majority (70%) of the population of RRDC students (mean 6.04) rated their satisfaction at six, while (62.5%) of the non-RRDC students (mean 6.69) rated their satisfaction at seven or above (range 2 to 8). This suggests that while the RRDC students were generally satisfied with the experience, non-RRDC students rated their college experience as more satisfactory. Satisfaction with the college experience is believed to be a major factor in a student's decision to return to an institution (Beal & Noel, 1980).

Another significant difference ( $t=-2.14$ ,  $p< 0.05$ ) between the two groups (RRDC=1.26, non-RRDC=1.87, range 1 to 4) dealt with the statement, "It is important for me to graduate from college." Almost eighty-three percent of the RRDC students said they strongly agree, while another thirteen percent indicated they agree, a total of ninety-six

percent of the RRDC students, while only 66% of the non-RRDC responded in these ways. Tinto's (1987) model of student departure (Figure 3, chapter 2) clearly indicates the importance of intentions and commitment to the goal of attaining a college degree. It's influence affects both the degree of effort put forth to become involved in the institutional experience, and with the outcome of the departure decision.

Findings here show that about twenty-two percent of the RRDC students were not planning to return to O.S.U. in the fall, while less than seven percent of the non-RRDC students said they were not planning to return. To check these result against actual enrollment, a computer search was performed to see how many of each of the groups originally sent questionnaires (N=37 per group) chose not to come back to O.S.U. The results were that eleven students (30% out of the original thirty-seven freshmen from RRDC did not reenroll Fall term 1993, while nine (24%) of those in non-RRDC sample did not return. The results of this check indicated that the actual drop-out rate for these two groups was greater than the response rate indicated, but not significantly different ( $\alpha \leq .05$ ).

Natural Resource Management Majors  
versus  
Non-Natural Resource Management Majors

The sample utilized in this portion of the analysis contained all of the students who returned the College Student Experiences Questionnaire (N=154), a 56 percent response rate. The respondents were separated into two groups based on majors indicated on their most recent registration. The first group were Natural Resource Management (NRM) majors, and were comprised of students who indicated one of the following as their current major: agriculture business management, agriculture education, general agriculture, horticulture, rangeland resources, wildlife science, forest management, forest products, forest recreation resources. There were 26 NRM majors and 128 non-NRM majors.

Group Characteristics

All respondents in both groups were age 22 or younger, with one exception, a student in the non-NRM group who was 28 or older. Over 96 percent of both groups were single, first entered college at Oregon State University, and were currently full-time students. The NRM students had a greater proportion of male students (58% to 40%).

Quality of Effort Scales

Quality of effort to participate in the various aspects of the college experience was assessed for the two groups. T-statistics were calculated for all scales and indexes comparing the two groups and are shown in Table 14.

For eleven scales there was a significant difference ( $\alpha \leq .05$ ). These scales were the following: Art, Music, Theater ( $p = .045$ ); Student Union ( $p = .025$ ); Personal experiences ( $p = .016$ ); Science/Technology ( $p = .005$ ); Aesthetic, expressive, creative qualities ( $p = .005$ ); Vocational and occupational competence ( $p = .004$ ); Personal relevance, practical value ( $p = .001$ ); Relationships with faculty members ( $p = .03$ ). Significant differences were also noted for estimate of gains between the two groups in three areas. These areas were: Gain in specialization for further education (mean NRM=2.81, non-NRM=2.37,  $t = 2.83$ ,  $p = .007$ ); Gain in understanding science (Mean NRM=2.73, non-NRM=2.31,  $t = 2.34$ ,  $p = .025$ ); Gain in understanding science and technology (Mean NRM=2.62, non-NRM=2.09,  $t = 2.66$ ,  $p = .009$ ).

TABLE 14

QUALITY OF EFFORT SCALE MEANS AND  
T-STATISTIC FOR NRM AND NON-NRM STUDENTS

<u>VARIABLE</u>	NRM	NON-NRM	T VALUE	P
<u>Library</u>	17.7	18.0	-.31	.759
<u>Faculty</u>	18.6	18.2	.41	.685

TABLE 14, Continued

<u>Course learning</u>	25.9	26.2	-.32	.751
<u>Art, Music, Theater</u>	16.1	18.4	-2.58	.013
<u>Art</u>	5.3	6.3	-2.45	.017
<u>Music</u>	6.1	6.6	-1.28	.203
<u>Theater</u>	4.6	5.4	-2.51	.014
<u>Student Union</u>	17.5	20.0	-3.03	.004
<u>Athletic/Rec. fac.</u>	20.9	21.2	-.23	.819
<u>Clubs/Organizations</u>	18.5	18.9	.37	.710
<u>Writing</u>	24.3	24.6	-.25	.804
<u>Personal</u>	19.0	22.3	-3.13	.003
<u>Student acquaintances</u>	24.2	26.4	-1.59	.114
<u>Science/Technology</u>	22.5	19.0	2.87	.005
<u>Dorm/Frat/Sorority</u>	27.1	26.8	.14	.886
<u>Topics conversation</u>	21.2	22.8	-1.22	.225
<u>Info. in conversation</u>	13.0	13.8	-1.25	.213

The two groups also were compared on their responses to the Supplemental Survey questions. The groups did not differ on most of the questions, but more NRM students did intend to return to O.S.U. in the Fall of 1993 (96% to 80%;  $\chi^2=3.88$ ,  $df=1$ ,  $p=.049$ )

### Discussion

The immediate point of interest is that there was a significant difference in the stated intent to return to Oregon State University ( $p \leq .05$ ), with no corollary difference in the satisfaction index ( $p = .9$ ). Nearly twenty percent of the responding students who were non-Natural Resource Management majors indicated that they did not intend to return to O.S.U. the following Fall term, while less than four percent of the NRM students felt similarly. This does not support the premise that satisfaction with the college experience is linked to the decision to exit college prematurely (Wright, 1987). Further it does not support the hypothesis that satisfaction is correlated to intent to return.

Another important finding included the statistical difference in estimates of gains. On the scale for gain in ability to be a team member, more Natural Resource Management majors (19% to 5%) indicated that they estimated "very little" gain. Significant differences also existed in the means for the scale measuring gain in understanding science and technology ( $t = 2.66$ ,  $P = .009$ ). Here the non-NRM students chose "very little" nearly twenty-nine percent of the time, while 15% of the NRM students selected this choice. Among those who chose either "quite a bit" or "very much", the difference was even greater, 58 percent of the

NRM students chose one of these two responses, while less than twenty-nine percent of the non-NRM students picked one of these answers. Natural Resource Management majors also rated personal relevance and practical values of the college experience differently ( $p < .05$ ), generally giving a higher rating. This finding indicates that it is possible that while satisfaction is not directly correlated with intent to return, as noted above, that the personal relevance and practicality of college education may be related to intent to return. Noel (1987) points out that retention is highest among institutions where learning gives the students a sense of growing and developing, and attitudes dominate which contribute to increasing competency and skills. While not conclusive, this result points out the need to better understand this relationship between the relevance of education and retention of students.

#### Discriminant Analysis

To determine which of the forty-nine variables included in the CSEQ had the greatest power to separate the whole sample into two groups based on who responded yes or no to question nine of the supplemental survey, a discriminant analysis was performed on the entire group of students ( $N=154$ ) who responded to the questionnaire. The goal of this analysis was to define the groups on the dependent variable,

their response to the question "Do you intend to return to Oregon State University in Fall of 1993?" Of the 154 respondents, 120 unweighted cases were used in the analysis. Thirty-four were eliminated from the analysis; two due to missing or out-of-range responses, and 32 because of missing data on potentially discriminating variables. Of the 120 respondents, 97 had answered yes, and 23 no.

A stepwise selection process (SPSS, 1988) was performed on the hypothesized discriminating variables. The primary selection rule was to maximize the minimum Mahalanobis Distance (D squared) between groups. This distance is a generalized measure of the distance between the two groups. The maximum number of steps used was 5, which was the default number used by SPSSPC+, and corresponded with a ten to one ratio between variables and steps. This helped to focus the analysis on those most significant variables. The minimum tolerance level was set at .001, the default setting for the SPSSPC+ statistical analysis package. Tolerance is the proportion of the variable's within-group variance that is not accounted for by the variables in the analysis; extremely low tolerances (<.001) can lead to instabilities in the calculations. To enter the selection, the minimum F for the variable was 1.00, and the maximum F to remove also was 1.00. This enabled selecting variables whose contribution to the analysis were significant. The F-ratio is the same as the F for a one-way analysis of variance with

the dependent variable equal to the answer (yes or no) on question nine, and the independent variables being the Quality of Effort scales included in the process. These variables and their F values, as listed in Appendix 2, reflect the contribution of the independent variable to the separation of the groups, unadjusted for any other scale. Since this analysis has two groups, only one function can be derived, and scatter plots are not possible since only one dimension exists in which to plot a case (SPSS-X, 1988).

Table 15 lists the variables in order of the step by which they were entered into the analysis, as well as the Minimum D Squared and significance of each variable in separating the groups. This table also cites the Standardized Canonical Discriminant Function Coefficients (SCDFC) calculated for each variable listed for the function:

TABLE 15

THE SALIENT SET OF DISCRIMINATING VARIABLES

STEP	<u>FUNCTION</u>	MINIMUM D <sup>2</sup>	SIGNIF.	SCDFC
1	<u>Satisfaction index</u>	.8838	.0001	.4464
2	<u>Voc./Occ. Comp.</u>	1.1751	.0001	.4067
3	<u>Think Analytically</u>	1.4388	.0000	.3865
4	<u>Course learning</u>	1.8264	.0000	.5228
5	<u>Team member</u>	2.0707	.0000	.3788

The discriminatory power of each canonical function is measured by its eigenvalue (McGarigal and Stafford, 1992).

Conceptually, Canonical Correlation Analysis seeks to locate gradients of variation within the Quality of Effort variables which are maximally correlated with the two groups. The use of the Standardized Canonical Coefficients enables the assessment of the "relative" importance of each variable.

Another way to assess the importance, and the order of importance, of discriminating variables with respect to the separation of the groups is through the use of Linear Discriminant Function (LDF). The LDF is the optimal linear contribution of discriminating variables, with regard to the segregation of the groups. A discriminating variable which is highly correlated with the LDF would be capable of producing "separation" that is close to optimal. So the higher the correlation, the better a variable is in discriminating between those who answered yes to question nine and those who answered no. Table 16 shows the correlations (pooled-within-groups) between the discriminating variables. For example, the correlation between Satisfaction Index, and the LDF (canonical discriminant function) is shown. The variables are ordered from most highly to least highly correlated. The shift in order of the variables between Table 15 and 16 is due to the fact that in the stepwise process each variable is independent of the other, and each attempts to separate the groups independently without duplicating any other

variable's influence. The LDF shows the relationship of each variable to the function, and the correlation indicates the degree to which each variable separates the groups.

TABLE 16

LINEAR DISCRIMINANT FUNCTION

Variables Ordered by Size of Correlation  
within Function

<u>VARIABLE</u>	<u>CORRELATION</u>
Satisfaction Index	.6533
Gain in Ability to be a Team Member	.5036
Vocational/Occupational Competence	.4903
Gain in Ability to Think Analytically	.4552
Gain in Understanding Other People	.3912
Relationships with Other Students	.3769
Gain in Career Information	.3252
Gain in Vocational Training	.3217
Emphasis on Being Critical/Evaluation	.2907
Academic, Scholarly Qualities	.2895
Relationships with Administrative Personnel	.2893
Course Learning Scale	-.2721
Gain in Developing Health and Fitness	.2666
Student Acquaintances Scale	.2497
Personal Relevance-Practical Values	.2467
Gain in Knowledge About the World	.2466
Gain in Understanding Yourself	.2163

TABLE 16, Continued

Gain in Quantitative Thinking	.2049
Clubs and Organizations Scale	.1770
Gain in Ability to Learn on Own	.1722
Relationships with Faculty Members	.1709
Aesthetic/Expressive/Creative Qualities	.1526
Gain in Understanding Science	.1374
Information in Conversation Scale	.1345
Gain in Understanding of the Arts	.1306
Gain in Ability to put Ideas Together	.1257
Gain in Understanding Science/Technology	.1254
Gain in Seeing Importance of History	.1239
Gain in Developing Own Values/Ethics	.1235
Athletics/Recreation Facilities Scale	.1086
Theater Scale	.0961
Gain in Awareness of Other Philosophies	.0913
Gain in Broad General Education	.0817
Science/Technology Scale	-.0765
Student Union Scale	-.0650
Experience in Writing Scale	-.0638
Topics of Conversation Scale	.0598
Personal Experiences Scale	.0534
Art, Music, Theater Scale	.0433
Gain in Awareness of New Technology	.0391
Experience with Faculty Scale	.0363
Gain in Familiarity with Computers	.0269

TABLE 16, Continued

Gain in Acquaintance with Literature	.0268
Gain in Writing Clearly and Effectively	-.0119
Gain in Specialization for Further Education	-.0084
Music Scale	.0040
Library Experience Scale	.0030
Art Scale	-.0002

These correlations are not affected by relationships with other variables and therefore reflect the true relationship between each variable and the canonical function. When the magnitude of the coefficient approaches +1 or -1, the coefficient is carrying nearly the same information as the variable. Thus, the canonical function can be defined by noting the variables that have coefficients that closely approach +1 or -1.

An additional discriminant analysis of the sample was done to expose variables which most significantly contributed to the separation of those students who intended to return in the Fall and those who did not. Variables included in the analysis were those which tested most powerful for defining the entire sample in the analysis above: satisfaction index, vocational and occupational competence, gain in ability to think analytically, quality of effort in course learning, and gain in ability to be a team member. In addition to these variables several

demographic variables were added, including where the student lived during the school year, estimate of most college grades, part of expense provided by family, and scores on the Scholastic Aptitude Test (Verbal, Math, and TSWE). The results of including SAT scores was to select only students in their first or second year of school, as these data were only provided for 1991 and 1992 classes. The outcome of this analysis is shown in Appendix 3.

The result of this process indicates that those variables which best separate the sample between those who intend to return and those who do not are Satisfaction Index ( $t=4.66$ ,  $p<.05$ ), Ability to be a team member ( $t=3.10$ ,  $p<.05$ ), Where living now during the school year ( $t=2.62$ ,  $p=.013$ ), and part of expense provided by the family ( $t=-1.75$ ,  $p=.08$ ). The implications of this analysis are that, when demographic variables are included in the discriminatory analysis process, where the student is living during the school year, and how much of the expense is being paid for by family are powerful variables for discriminating among those students who plan to return and those who do not. The effect appears to be that the more financially dependent a student is upon family, the more likely the student is to intend not to return, and if the student lives off campus they are also less likely to intend to return.

### Discussion

The intent of this process was to select those variables from among the scales included in the questionnaire with the greatest power to discriminate the sample into those intending to return to O.S.U. and those not intending to return. Several methods exist to maximize the various estimates of group differences (Huberty, 1984). The Wilks' Lambda statistic considers both the differences among groups and the cohesiveness or homogeneity within the groups. Tolerance was set low to reduce redundancy with variables already entered. The partial F-test (F-to-enter and F-to-remove) tests the significance of the additional discrimination derived by the inclusion of a variable, after taking into account the other variables already included. Both of these criteria must be met for a variable to be tested with the Wilks' Lambda entry criterion.

The process described derives the canonical coefficients, which are the variables in the linear equation that define the canonical function. The intent of the canonical function is to clarify which of the variables are most powerful at separating the groups. The eigenvalue indicates the function's discriminatory power. Another way to appraise a canonical function is by examining the canonical correlation coefficient. This measures the multiple correlation between the discriminating variables

and the canonical function. This coefficient measures the contribution of each variable. By using the standardized coefficient a comparison between the "relative" and the "absolute" importance of the discriminating variable in the canonical function is derived.

The result of these processes developed a standardized canonical function (as shown in Table 16 above) and the selection of the five scales most powerful in discriminating among the two groups of interest. A degree of similarity appears between the results of this stepwise selection of the canonical function and the Linear Discriminant Function. In each case, four of the five discriminatory variables were the same: satisfaction Index, gain in ability to be a team member, vocational and occupational competency, and gain in ability to think analytically. The most consistently powerful of the four, the Satisfaction Index, with canonical correlations of .4464 and .6533, seems intuitively correct, as it seems reasonable to suggest that satisfaction would be a good indicator of intent to reenroll at the university.

This finding supports the results of the initial aspect of this study. A greater percentage (93%) of the non-RRDC intended to return in the fall, they also rated their satisfaction significantly higher. This however, was not the case with the NRM students who exhibited a significantly higher rate of intent to return without a similar difference in satisfaction.

CHAPTER 5  
SUMMARY, CONCLUSIONS AND IMPLICATIONS

Review of the study

One purpose of this study was to investigate the quality of effort exerted by freshmen students from Oregon's rural resource dependent communities (RRDC) who enter Oregon State University directly after graduation from high school, and to compare the effort made by RRDC students, to the effort made by a like sample of cohorts entering O.S.U. the same year. A second purpose of this study was to compare quality of effort between Oregon State University students enrolled in Natural Resource Management (NRM) majors, and those who are not NRM majors.

The theoretical and research literature reviewed consistently showed that student retention is linked to greater participation in the college experience by the student (Astin, 1975, 1982; Pace, 1982; Pascarella and Terenzini, 1991). Several models are available to aid in the explanation of why students persist or withdraw from school. Many incorporate aspects of the interface between the incoming student and the institution, and most consider integration into the academic and social fabric to be contributory to the decision to remain in school.

Of particular interest in this study are those students who come to Oregon State University from the state's rural resource dependent communities (RRDC). In 1992 thirty-seven of these students entered O.S.U.. Of these students, twenty-three completed and returned the survey used in this investigation, while 16 of 37 non-RRDC freshmen students responded. By Fall term 1993 twenty-four percent of the RRDC students had chosen not to return to O.S.U.. This figure is eight percentage points higher than the cohort sample.

Two hypotheses guided this investigation:

1. The first stated that freshmen students entering Oregon State University from rural resource dependent communities would become less integrated into the social and academic fabric of the university during their first year of school.
2. The second hypothesis posited that students at Oregon State University who major in Natural Resource Management majors would show greater involvement in the college experience than those students who do not major in NRM.

A corollary aspect of this study attempted to disclose information about the effects of integration on satisfaction and intent to return. Based on the above working hypotheses, a model of student intent to return was developed which incorporated aspects of Tinto's model of student success and Pace's ideas on "Quality of effort". Tinto's model of student success (see Figure 3, Chapter 2) includes many of

the variables investigated in Pace's questionnaire. This questionnaire contains scales which explore pre-entry attributes, aspects of goals and commitments, academic and social integration into the institutional experience, and measures of personal and normative integration. Pace (1982) concluded that once the student begins college, it is not who the student is, or where the student attends that matters most in the retention decision, but rather the quality and quantity of effort exerted by the student to become involved in the college experience.

Based on the above hypotheses, and the associated theory and models, a paradigm was created to direct the research. In the paradigm (chapter 2, Figure 6) the student is affected by the institutional milieu, and responds by exerting effort to be a part of that environment. The effort to integrate contributes to satisfaction with the experience, which leads to the decision to either remain enrolled, or withdraw from Oregon State University. The entire process is driven, intensified and moderated by pressures for socialization and desocialization from in school associates as well as preschool and outside school associates.

The instrument used in this investigation was the College Student Experiences Questionnaire, revised third edition (1990) by C. Robert Pace. In addition to Pace's CSEQ a Supplemental Questionnaire (SQ) was included. Among the

questions on the SQ two were of particular interest to the findings of this study: one had the students rate from (1) "strongly agree" to (5) "strongly disagree" how they felt about the statement, "It is important for me to graduate from college"; the other asked them to answer "yes" or "no" to "Do you intend to return to Oregon State University in Fall of 1993?" Responses to these questions were joined with those from the CSEQ to comprise the data upon which the analyses were carried out. Designed to measure degree of effort made at participating in various aspects of the college experience, the CSEQ requires students to rate their contribution by responding to questions pertaining to quantity and quality of effort they made. The variables measure aspects of the college academic and social environments as well as exploring the quality of interactions the students had with the "college environment" including interactions with administrative personnel, faculty and other students.

The working model (Figure 6, chapter 2) of student retention guiding this investigation posits that students are affected by the institutional milieu, and respond by efforts to integrate in the institution. This integration effort contributes to satisfaction with the college experience, and to the decision to return. Examination of this paradigm was made by studying RRDC versus non-RRDC freshmen, NRM majors versus non-NRM majors, and a

discriminant analysis of the entire sample to select those variables which best discriminate the sample on intent to return to Oregon State University.

The results of the RRDC analysis did not support the model's suggestion that quality of effort is related to satisfaction, or that satisfaction is critical in the decision to return. What is apparent is that far more of the RRDC students are living off campus during the school year. The importance of this condition is supported by the discriminant analysis which shows this variable as a significant discriminant between those students who intend to return to O.S.U. and those who do not.

In the second part of this study, as a general rule, the NRM majors exhibited differences in the type of participation as compared to their non-NRM majors cohorts. For scales measuring effort, NRM students had significant differences on scales relating to associations with faculty, personal relevance of college, gain in vocational and occupational competency, and a variety of others as noted. Of particular interest to the research paradigm is the difference in each student groups intent to return to O.S.U. and their satisfaction index. While the intent to return differs significantly ( $\alpha \leq .05$ ), a corresponding statistical difference does not exist in the Satisfaction Index. Again,

the research paradigm's assertion that intention to return to an institution is tied to satisfaction was not supported.

The final analytical approach was the application of a series of discriminant analyses on the entire population of respondents, thus testing the research paradigm on the whole sample. The results of this inquiry are more supportive of the model and, in each case, indicate that the Satisfaction Index is a powerful discriminator between the populations who intend to return to O.S.U. and those who do not. When demographic variables were added to the process, where the student lived during the school year and degree of parental financial support for college were significant discriminators. The other recurring variable was assessment in gain in ability to be a team member, which shows that feeling a part of a group experience may be an important variable to include in retention studies.

### Conclusions

There is a difference in the "Quality of Effort" exerted by freshmen students from rural resource dependent communities when compared to a like sample of cohorts. Although some statistical differences were uncovered, those pertaining to quality of effort tended to show differences in choice of time spent participating in social activities. RRDC students spent more time involved in clubs and

organizations while non-RRDC students were more involved in athletics and the use of recreational facilities. These differences might be related to issues of socialization and access stemming from the housing variation of the two groups.

While there were few differences in quality of effort, there are some distinctions between the two groups. For instance, the two groups differ in the proportion living off campus. Only one of the sixteen non-RRDC students does not live in some type of college housing, while 43 percent (10 of 23) of the RRDC students live off campus with relatives or in apartments. This difference gives some indication that these students spend less time on campus and have less opportunity to interact in campus activities, especially those related to living groups.

Students from RRDC rate their relationships with faculty as significantly better than do students from non-RRDC. RRDC students rated the faculty as more approachable, understanding, interested in them and encouraging, and were typically more satisfied with the college experience. They also appear to be more self motivated, as indicated by their response to "It is important for me to graduate from college." Ninety-six percent indicated they either "agree" or "strongly agree", while 33 percent of the non-RRDC said they were "neutral" or "disagree."

Based on these results, it appears that RRDC students integrate differently into the social and academic fabric of the university than the sample of non-RRDC cohorts. They live off campus more often, but this does not appear to negatively affect their self motivation or satisfaction with the college experience. This is supported by the finding that there is no significant difference between the groups in the proportion of students intending to return to Oregon State University in the Fall.

Two scales dealing with gains, "understanding yourself" and "ability to learn on your own" were different between the groups. Over thirty percent of the RRDC students rated their gains in understanding themselves at "very much", while only 6.3 percent of the non-RRDC students indicated such a gain. Also most of the RRDC students (62.5%), were experiencing "quite a bit" of change, while only 26 percent of the non-RRDC students indicated this degree of adjustment. Similarly, over twenty-six percent of the RRDC students indicated "very much" gain in ability to "learn on their own", while none of the non-RRDC students chose this category of response. This could indicate that students from RRDC are encountering a larger amount of change, and consequently dealing with increased levels of related stresses in their lives. Though not necessarily the penultimate experience leading to premature withdrawal it

seems plausible that RRDC students gain more because they had further to go on these attributes. Attending university is a big change for them and to cope they must make significant gains.

This particular aspect of the O.S.U. experience was uncovered in the focus group which was comprised of eight freshmen students from RRDC. One student's remarks were "Basically I had to work it out myself..to teach myself how to do chemistry and stuff." "You have 250 students in the class and you just can't exactly walk up to the professor and ask a question." Another student, referring to doing problems assigned in the same class, stated "Well, I mostly figured it out by myself, you know...I'd sit there for 4 hours and look at it." It might imply that the RRDC school system provided a "more help along the way" teaching approach, which now leaves the students feeling abandoned and on their own. One last interesting interaction regarding help was:

Student #1: "I found coming from a small town that the classes you took were easier. That the stuff you take at college is not the same stuff. Yet, they (the teachers) all expect you to know it, they say 'don't you know this stuff' and make you feel stupid." You just kind of go yeah, and you don't know what to do."

Student #2: "Then you can't go and ask for help."

This may be interpreted as indicating that these RRDC students are feeling "very much" on their own when it comes to learning.

Another interaction occurred among the focus group students which relates to where they live during the school year, and the general effect of coming to Oregon State from a RRDC experience.

Student #1: "I am living off campus. I didn't really want to live in a fraternity or a dorm. I have been looking at prices and stuff, and hanging out with my friends, and they like the dorms. The fact that going to a small school you knew every body. It's kind of hard making friends. Its a big change for me trying to meet friends. I guess I depend on my old friends."

Student #2 There were four girls in my class in high school and we've been friends all my life. We've never had to make new friends...my biggest thing was learning how to make new friends, because I never really learned how to make friends, so that was kind of interesting. Living in the dorms was no help, it's like a soap opera and I hate it, I just wanted to get out of there. Having friends that are living off campus is hard. You look at the dorms and you go over there and you don't want to come back."

The second portion of this research looked for differences in the "Quality of Effort" exerted by students enrolled in Natural Resource Management (NRM) majors and those enrolled in other programs such as Liberal Arts, engineering or computer science. The response sample consisted of 154 questionnaires, 128 from non-NRM majors and 26 from NRM majors. Statistically significant differences ( $\alpha \leq .05$ ) were found in six of the quality of effort scales included in the CSEQ relating to art, music, theater, the

use of the student union, personal experiences, and science/technology. With the exception of Science/Technology students who were not majoring in NRM consistently measured higher on these scales in their quality of effort responses.

Natural Resource Management majors consistently measured higher ratings in those scales measuring gains in vocational and occupational competence, personal and practical relevance of schooling, relationship with faculty, gain in specialization for further education, understanding science and technology, and perhaps, most importantly, intent to return to Oregon State University.

As a consequence of this analysis, there is no clear basis to accept the null hypothesis that students enrolled in NRM majors exhibit a statistically significant higher level of "quality of effort." It is important to note that significantly more of these students intend to return to Oregon State University in the Fall of 1993, but this cannot be attributed solely to quality of effort.

The last analytical approach of this research was most supportive of the model guiding the study. The results of this discriminant analysis showed that the Satisfaction index which measured satisfaction with the college experience was a significant discriminator between students who intended to return and those who did not.

### Implications

This study was conducted on students attending Oregon State University, a northwestern land, sea and space grant institution. The ambiance of O.S.U. gives it its own strong institutional "personality." For example, the presence of Reserve Officer Training for every branch of the military means that every Tuesday is "uniform day", and classmates will often be dressed in military fatigues or "dress blues." The kind of student who fits best at O.S.U. may not be typical of other colleges. A future study comparing RRDC students quality of effort at other institutions could be conducted to confirm findings in this study.

The fact that "where the student lived" and "how much the family contributed to expenses" of school were major variables deserves further investigation. In the first part of this study, it was observed that living off campus was significantly more prevalent among RRDC freshmen, yet no similar response was apparent in intent to return to O.S.U. The affect of family financial support on retention is also worthy of continued examination. The complexity of the situation, relative to expenses and perceived ability to pay, could prove to be an interesting study.

The results of the analysis on NRM major versus non-NRM majors surfaced some questions for future research. Though not statistically significant in this sample ( $t=-1.68$ ,

$p=.095$ ), the gender distribution for the students in these two groups was quite different. Fifty-eight percent of the NRM respondents were male, while less than 40 percent were male in the non-NRM sample. This may be important as it relates to other research findings about the effects of gender on the college experience. In gauging satisfaction with the college experience, men usually are more oriented toward career attainment, while women often place more importance on friendships and social aspects of the experience. Further exploration of the interaction of gender and quality of effort seems appropriate as well.

One area for further study could be an exploration of the actual academic and social environment within the NRM programs that contributes to better satisfaction and intent to return. How did the learning environment in these areas differ? Since there was a significant difference in the relationships the students had with faculty, what was the source of that difference, and how did faculty academic advising contribute to it? More research in this area is needed to determine the origin of these differences. Qualitative research is recommended because little is known about the differences in formal and informal environments of these programs, faculty, staff and students.

Another approach to understanding the plight of the students from RRDC could be a longitudinal study to track college success rates of all students leaving high school

from these communities. Major limitations of this study were its small sample size and strict focus on Oregon State University. If the goal is to understand barriers to successful completion of a college degree by students from these communities, then additional research is necessary to trace all the paths the students choose toward achieving that end. The question of import to this study was what goes on at O.S.U. but, the larger questions need to be addressed, such as where do these students go, what happens when they get there, and where are they finding success?

A final implication relative to management for retention of freshmen students at O.S.U. would be to insure that RRDC students live in university housing during their first year. Further it is important to treat these students with consideration, and acknowledge that we appreciate the difficult changes they may be going through. Faculty should be encouraged to take the time to meet with students under non-confrontational conditions. Students need to feel that their education is relevant, and should be given ample opportunity to participate as a team member.

## LITERATURE CITED

- Aanstoos, C.M. (1986) Phenomenology and the psychology of thinking. In Ashworth, P.D., A. Giorgi, and A.J.J. de Koning, (Eds.), Qualitative research in psychology. Pittsburgh, PA: Duquesne university press.
- Adams, D.M. (1989) Economic fluctuations in the forest sector: Causes and options for stabilization with traditional policy tools. In D. Le Master & J.H. Beuter (Eds.), Community stability in forest-based economies. (pp 116-127). Portland, OR: Timber Press.
- Allport, G. W. (1954). The nature of prejudice. Cambridge, MA: Addison-Wesley.
- Anderson, E. (1985). Forces influencing student persistence and achievement. In L. Noel, R. Levitz & D. Saluri (Eds.). Increasing student retention. San Francisco: Jossey-Bass. pp 44-61.
- Assael, H. (1984). Consumer behavior and marketing action. Boston: Kent publishing.
- Astin, A. (1962). Influences on the student's motivation to seek advanced training: Another look. Journal of educational psychology, 54, 303-309.
- Astin, A. (1965). Classroom environment in different fields of study. Journal of educational psychology, 56, 275-282.
- Astin, A. (1968). Undergraduate achievement and institutional excellence. Science, 161, 661-668.
- Astin, A. (1970) Are the "best" colleges really better? Thing, 36, 26-28.
- Astin, A.W., (1975), Preventing students from dropping out. San Francisco: Jossey-Bass Publishers.
- Astin, A. (1977). Four critical years. San Francisco: Jossey-Bass.
- Astin, A. (1982). Minorities in American higher education: Recent trends, current prospects, and recommendations. San Francisco: Jossey-Bass.

- Astin, A. (1984). Student involvement: A developmental theory for higher education. Journal of College Student Personnel, 25, 297-308.
- Astin, A. (1985). Achieving educational excellence: A critical assessment of priorities and practices in higher education. San Francisco: Jossey-Bass.
- Astin, A. (1990). Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education. New York: Macmillan.
- Astin, A. (1991). Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education. New York: MacMillan.
- Aylesworth, Laurence S., & Bloom, Bernard L. (1976). College experience and problems of rural and small-town students. Journal of College Student Personnel. 17, (May): 236-242
- Baird, L.L. (1969). Big school, small school: A critical examination of the hypothesis. Journal of educational Psychology, 60, 253-260.
- Barker, R.G., & Gump, P. (1964) Big school, small school. Stanford California.: Stanford University Press.
- Bar-Tal, D., C.F. Graumann, A.W. Kruglanski, & W. Strobe. (1989). Stereotyping and prejudice: Changing conceptions. New York: Springer-Verlag.
- Baumgart, N.L., and Johnstone, J.N. (1977) Attrition at an Australian University: A case study. Journal of Higher Education. Vol XLVIII, No. 5. Sept/Oct. 1977.
- Beal, P., & Noel, L. (1980) What works in student retention, pp. 1-135. In a report of a joint project of the American College Testing Program and National Center for Education Management Systems.
- Beal, P. & Pascarella, E. (1980). What works in student retention. Iowa City: The American College and Testing Program.
- Bean, J.P. (1982). Conceptual models of student attrition: How theory can help the institutional researcher. In E. Pascarella (Ed.). New directions for institutional research: Studying student attrition, no. 36. San Francisco: Jossey-Bass, December 1982. (pp 17-34).

Bean, J.R., & Metzner, B.S. (1985). A conceptual model of nontraditional student attrition. Paper presented at the annual meeting of the Association for the Study of Higher Education, Chicago.

Berg, Helen (1993) Personal interview with Helen Berg, Director of the Oregon State University Survey Research Center. March 1993.

Berkowitz (Ed.). (1990). Advances in experimental social psychology, 8, New York: Academic Press.

Blanc, R., DeBuhr, L., & Martin, D. (1983). Breaking the attrition cycle: The effects of supplemental instruction on undergraduate performance and attrition. Journal of higher education, 54, 80-90.

Bobo, L., & Kluegel, J.R., (1991, August). Modern American prejudice: Stereotypes, social distance, and perceptions of discrimination toward Blacks, Hispanics and Asians. Paper presented at the annual meetings of the American Sociological Association, Cincinnati, OH.

Boucouvalas, M. & Krupp, J.A. (1990). Adult development and learning. In S. Merriam & P. Cunningham (Eds.), Handbook of adult and continuing education. (pp. 183-200). San Francisco: Jossey-Bass.

Brown, D.E., (1985). Higher Education students from rural communities: A report on Dropping out. Las Cruces: New Mexico State University., ERIC document: ED 258 771.

Burch, W.R. Jr., DeLuca, D.R. (1984). Measuring the social impact of natural resource policies. Albuquerque: University of New Mexico press.

Byrne, J.V. (1990) Dependent Communities Desktop Analysis, Prepared for, and presented to the President of Oregon State University, June 6, 1990.

Cabrera, A.F., Nora, A. Castaneda, M.B. (1993, March/April). College persistence: structural equations modeling test of an integrated model of student retention. The journal of higher education, 64, 123-139.

Cage, M.C. (1993, May 26). Graduation rates of American Indians and Blacks improve, lag behind others'. The chronicle of higher education. (pp A29).

Carnegie Foundation for the Advancement of Teaching (1990). Campus life: in search of community. Lawrenceville, NJ: Princeton University Press.

Centra, J & Rock, D., (1969). College environment and student achievement. American Educational Research Journal, 8, 305-316.

Chickering, A. (1969). Education and identity. San Francisco: Jossey-Bass.

Coll, K.M. & VonSeggern, D.J., (1991), Community college student retention: Some procedural and programmatic suggestions, ED 345 816.

Cope, R., & Hannah, W. (1975). Revolving college doors: The causes and consequences of dropping out, stopping out and transferring. New York: Wiley.

Cope, R. (1978). Why students stay, why they leave. In L. Noel (Ed.), Reducing the dropout rate, (pp. 26-38). San Francisco: Jossey-Bass.

Copland, B. (1989). Enhancing the success of adult learners. In L.M. Upcraft & J.N. Gardner (Eds.). The freshman year experience: Helping students survive and succeed in college. San Francisco: Jossey-Bass

Corley, S.P. (1989). A study of the Effects of an Extended Transfer Student Orientation Course on Factors of Student Success, Doctoral Dissertation, Oregon State University.

Crocker, J., Thompson, I., McGraw, K., & Ingerman, C., (1987). Downward comparisons, prejudice, and evaluation of others: Effects of self-esteem and threat. Journal of personality and social psychology, 52(5), 907-916.

Crowson, R.L., (1987). Qualitative research methods in higher education. In J.C. Smart (Ed.), Higher education: Handbook of theory and research, 3. New York: Agathon press.

Csikszentmihalyi, M. Beyond boredom and Anxiety. San Francisco; Jossey-Bass, Inc. 1975.

Deal, T.E., and Kennedy, A.A. (1982). Corporate cultures: The rites and rituals of corporate life. Reading, MA: Addison-Wesley.

Desmonde, W.H. (1957). The position of George Herbert Mead, from G. H. Mead and Freud: American social psychology and psychoanalysis. In B. Nelson (Ed.). Psychoanalysis and the future, (pp. 31-50). New York: National psychological association for psychoanalysis, Inc.

DeYoung, A.J., Huffman, K., & Turner, M.E., (1989). Dropout issues and problems in rural America, with a case study of one central Appalachian School District. In L. Weis, E. Farrar, & H.G. Petrie. (Eds.). Dropouts from School Albany: State University of New York Press.

Dodge, S. (1991, June 5). Study finds only half of top high school seniors get college degrees within 7 years. The chronicle of higher education. (pp A25-A26).

Downey, R.G., (1980). Higher education and rural youth. Paper presented at annual Kansas state University rural and small school conference. Manhattan, KS, Nov. 9-11, ERIC document. ED 201 459.

Dunphy, L., Miller, T.E., & Woodruff, T. (1987). Exemplary retention strategies for the freshman year (the mentoring program). New directions for higher education, 60, 39-60.

Durkheim, E. (1951). Suicide: A study in sociology. (J. Spaulding and G. Simpson, translators). G. Simpson (Ed.) Glencoe, IL.: The Free Press. (Originally published 1897).

Eber, R., & Fiske, S.T., (1984). Outcome dependency and attention to inconsistent information. Journal of personality and social psychology. 47(4), 709-726.

Erikson, E.H. (1968). Identity: Youth and crisis. New York: W. W. Norton.

Erikson, E.H., (1982). The life cycle completed: A review. New York: Norton.

Farrar, E., Hampel, R.L., (1989). Social Services in High Schools. In L. Weis, E. Farrar, & H.G. Petrie. (Eds.). Dropouts from School Albany: State University of New York Press.

Feldman, K., & Newcomb, T. (1969). The impact of college on students. San Francisco: Jossey-Bass.

Fiske, S.T., & Neuberg, S.L., (1989). Category-based and individuating processes as a function of information and motivation: Evidence from our laboratory. In D. Bar-Tal et al (Eds.). Stereotyping and prejudice: Changing conceptions (pp. 83-104).

Fleming, J. (1984). Blacks in college: A comparative study of student success in black and white institutions. San Francisco: Jossey-Bass.

Fox, R.N. (1986). Application of a conceptual model of college withdrawal to disadvantaged students. American educational research journal, 23(3), 415-424.

Graham, K. (1989). Commercial Fishing and Community Stability. In D. Le Masters & J.H. Beuter (Eds.), Community Stability in Forest-Based Economies (pp. 155-157). Portland, OR: Timber Press.

Gaff, J.G., and Gaff, S.S. (1981). Student-faculty relationships. In A.W. Chickering (Ed.), The modern American college (pp. 642-655). San Francisco: Jossey-Bass.

Gans, H.J. (1962). Park Forest: the birth of a Jewish community. In D. E. Poplin, Communities: a survey of theories and methods of research. New York: Macmillan.

Gordon, V.N. (1985). Students with uncertain academic goals. In L. Noel, R. Levitz, D. Saluri & Associates. (Eds.). Increasing student retention. (pp 116-137) San Francisco: Jossey-Bass.

Hackman, J., & Taber, T. (1979). Patterns of undergraduate performance related to success in college. American educational research journal, 16, 117-138.

Hamilton, D., (1991): Perceiving persons and groups: A social cognitive perspective. Paper presented at American Psychological Association, San Francisco.

Hamilton, D., & Gifford, R.K., (1976). Illusory correlation in interpersonal perception: A cognitive basis of stereotypic judgments. Journal of experimental social psychology. 12, 392-407.

Hamilton, D., & Rose, T.L., (1980). Illusory correlation and the maintenance of stereotypic beliefs. Journal of personality and social psychology. 39, 832-845.

Hamilton, D., & Sherman, S.J., (1989). Illusory correlation: Implications for stereotype theory and research. In D. Bartal et al. (Eds.), Stereotyping and prejudice: Changing conceptions (pp. 59-82).

Heath, D. (1968). Growing up in college. San Francisco: Jossey-Bass.

Hedegaard, M. & Hakkarainen, P., (1986) Qualitative research as instructional intervention. In Ashworth, P.D., A. Giorgi, and A.J.J. de Koning, (Eds.), Qualitative research in psychology. Pittsburgh, PA: Duquesne university press.

Hedberg, B. (1981). How organizations learn and unlearn. In P.C. Nystrom and W.H. Starbuck (Eds.), Handbook of organizational design, 1. Oxford: Oxford university press.

Huberty, C.J., (1984). Issues in the use and interpretation of discriminant analysis. Psychological bulletin, 95.(1). 156-171.

Involvement in learning: Realizing the potential of American higher education. (1984, October). Final report of study group on conditions of excellence in American higher education. Washington, D.C.: National institute of education.

Ingham, R. (1987). Context and learning. In W. Tivera & S. Walker (Eds.). Lifelong learning research conference proceedings. College Park: University of Maryland.

Jess, J.D., (1984). Rural education 1984: Issues and impacting forces. A local perspective. Paper presented at the National Conference on Building Partnerships for Quality Education in rural America (Washington, D.C., June 28, 1984). ED 251 253.

Kalsner, L. (1991). Issues in college student retention. Higher education extension service review, 3(1), 1-7.

Keniston, K. (1971). Youth and dissent: The rise of a new opposition. New York: Harcourt Brace Jovanovich.

Kimble, C.E. (1990). Social Psychology: Studying human interaction. Dubuque: William C. Brown.

Kirschenman, J., & Neckerman, K.M., (1991). Hiring strategies, racial bias, and inner-city workers. Forth coming in Social Problems.

- Kuh G.D., Schuh, J.H., Whitt, E.J. and assoc., (1991) Involving Colleges. San Francisco: Jossey-Bass.
- Kuvlesky, W.P., (1977) Rural youth in the U.S.A.: Profile of an ignored minority. Department of Agriculture. Washington D.C. (FGK 21416).
- Lagowski, J.J. (1992), Faculty attitudes and student retention. Journal of chemical education, 69, 173, March 1992.
- Latane, B. (1981), The psychology of social impact. American psychologist, 36, 343-356.
- Lederman, D. (1993, May 26). 43% of male basketball players earned degrees within 6 years. The chronicle of higher education. (pp A32).
- Lewis, H.T., (1918). The rural school and the community. Boston: The Gorham Press.
- Lewin, K. (1936). Principles of topological psychology. New York: McGraw-Hill.
- Lewin, K. (1951). Field theory in social science. New York: Harper & Row.
- Lichter, D.T., Cornwell, G.T. & Eggebeen, D.J. (1993). Harvesting human capital: Family structure and education among rural youth. Rural Sociology. 59(1). pp. 53-75.
- Lindesmith, A.R., Strauss, A.L., and Denzin, N.D., (1991). Social Psychology. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.
- Link, M. (1981). Outdoor Education. Englewood Cliff, NJ: Prentice-Hall, Inc.
- Markus, H. (1977). Self-schemata and processing information about the self. Journal of Personality and Social Psychology, 35, 151-175.
- Markus, H., Smith, J., & Morland, R. (1985). Role of the self-concept in the perception of others. Journal of personality and social psychology, 49(6), 1494-1512.
- Marks, E. (1967). Student perceptions of college persistence, and their intellectual, personality, and performance correlates. Journal of educational psychology. 58, 210-221.

- Maslow, A.H. (1970) The psychology of science: A reconnaissance. Chicago: Henry Regnery Company.
- McDaniel, R.H. (Ed.), (1986). Barriers to rural adult education: A survey of seven northwest states. a report of the northwest action agenda project. Washington, D.C.: Fund for the improvement of post secondary education. (ED 275 462).
- McGarigal, K., & Stafford, S. (1992). Multivariate Statistics: Applications in wildlife research. Forest Science Department: Oregon State University.
- Merriam, S.B., & Cunningham, P.M., (1990). Handbook of adult and continuing education. San Francisco: Jossey-Bass.
- Metzger, R.E. (1989). How BLM considers community stability in western Oregon forest planning. In D. Le Masters & J.H. Beuter (Eds.), Community Stability in Forest-Based Economies (pp 93-103). Portland, OR: Timber Press.
- Metzner, B., & Bean, J. (1987). The estimation of a conceptual model of nontraditional undergraduate student attrition. Research in higher education, 27(1), 15-38.
- Morgan, D.L. (1988). Focus Groups as Qualitative Research. Newbury Park: Sage Publications.
- Morning, C. (1991) Viewpoint. Higher education extension service review. 3(1). New York: Columbia University.
- Munro, B. (1981). Dropouts from higher education: Path analysis of a national sample. American educational research journal, 18, 133-141.
- Nachtigal, P.M. (Ed.), (1982). Rural education: In search of a better way. Westview Press: Boulder, Co.
- Noel, L. (1985). Increasing student retention: New challenges and potential. In L. Noel & R. Levitz (Eds.), Increasing student retention. San Francisco: Jossey-Bass.
- Noel, L., Levitz, R., & Saluri, D., (1987). Increasing student retention. San Francisco: Jossey-Bass Publishers.
- Pace C., & Stern, G. (1958). An approach to the measurement of psychological characteristics of college environments. Journal of educational psychology, 49, 269-277.

Pace, C.R., (1964). The influence of academic and student subcultures in college and university environments. Los Angeles: UCLA.

Pace, C.R., (1974). Demise of diversity: A comparative profile of eight types of institutions. New York: McGraw-Hill.

Pace, C.R., (1979). Measuring outcome of college: Fifty years of findings and recommendations for the future. San Francisco: Jossey-Bass.

Pace, C.R., Measuring the quality of undergraduate education Paper presented at the annual meeting of the American Educational Research Association (Los Angeles, California, April 1981. ERIC Document ED 206 228.

Pace, C.R., (1982) Achievement and the quality of student effort. Paper presented at a meeting of the National Commission on Excellence in Education. Washington, DC, . May 25, 1982. ERIC Document ED 227 101.

Pace, C. (1984). Measuring the quality of college student experiences. Los Angeles: University of California, Higher Education Research Institute.

Pace, C.R., (1990) College Student Experiences Questionnaire, Third Edition. Los Angeles: UCLA Center for the Study of Evaluation.

Pace, C.R., (1992) College student experiences questionnaire: Norms for the third edition, 1990. Los Angeles: UCLA Center for the study of evaluation.

Pantages, T., & Creedon, C. (1978). Studies in college attrition: 1950-1975. Review of educational research, 48(1), 49-101.

Pascarella, E. (1980) Student-faculty informal contact and college outcomes. Review of Educational Research, 50, 545-595.

Pascarella, E. (1986). A program for research and policy development on student persistence at the institutional level. Journal of college student personnel, 27, 100-107.

Pascarella, E., & Terenzini, P. (1976). Informal interaction with faculty and freshman ratings of academic and non-academic experience of college. Journal of educational research, 70, 35-41.

- Pascarella, E., & Terenzini, P. (1977). Pattern of student-faculty informal interaction beyond the classroom and voluntary freshman attrition. Journal of higher education, 48, 540-552.
- Pascarella, E., & Terenzini, P. (1979). Interaction effects in Spady's and Tinto's conceptual models of college dropout. Sociology of education, 52, 197-210.
- Pascarella, E.T., & Terenzini, P.T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. Journal of Higher Education, 51(1), 60-75.
- Pascarella, E.T., & Terenzini, P.T., (1991) How college affects students., San Francisco: Jossey-Bass Inc.
- Pervin, L. (1968) Performance and satisfaction as a function of individual-environment fit. Psychological bulletin, 69, 56-68.
- Peterson, M.W. (1985). Emerging developments in postsecondary organization theory and research: Fragmentation or integration. Educational researcher, 14, 5-12.
- Poplin, D.E. (1979). Communities: A survey of theories and methods of research. (2nd. Ed.). New York: Macmillan.
- Porter, O. (1990) Undergraduate completion and persistence in four-year colleges and universities. Washington, D.C.: The national institute of independent colleges and universities.
- Ramaker, M.J. (1992) The relationship between a collaborative learning community and the persistence of community college students. Doctoral dissertation, Oregon State University, Corvallis.
- Rice, R.L. (1989). Retention and the extended orientation program. Paper presented at the National Conference for the Freshman Year Experience, Irvine, CA. In Corley, S.P., Doctoral Dissertation, Oregon State University., 1989.
- Robbins, W.G. (1989). Lumber production and community stability: A view from the Pacific Northwest. In D.C. LeMaster, & J.H. Beuter, Community stability in forest-based economies. Portland, Oregon: Timber press.

Robertson, I. (1987). Sociology, (3rd. Ed.). New York: Worth Publishers.

Rogers, E.M. et al. (1988). Social change in rural societies: An introduction to rural sociology. 3rd Edition. Englewood Cliffs, New Jersey: Prentice Hall.

Rossmann, J. & Kirk, B. (1970). Factors related to persistence and withdrawal among university students. Journal of counseling psychology, 17, 56-62.

Rothbart, M., & John, O.P., (1985), Social categorizations and behavioral episodes: A cognitive analysis of the effects of intergroup contact. Journal of social issues. 41(3), 81-104.

Scheaffer, R.L., Mendenhall, W., Ott, L., (1979). Elementary Survey Sampling. (2nd edition). Boston: Duxbury Press.

Seidel, J.V., Kjolseth, R., Seymour, E., (1988). The Ethnograph: A program for the computer assisted analysis of text based data, A User's Guide. Qualis Research Associates. Corvallis, Oregon.

Seyfrit, C.L., (1986). Migration intentions of rural youth: Testing an assumed benefit of rapid growth. Rural Sociology, 51. (Summer): 199-211.

Sher, J.P., (1977). Pluralism in the countryside: A brief Profile of Rural America and its schools. In Education in Rural America: A reassessment of conventional wisdom, (Ed.) Sher, J.P. Boulder, Colorado: Westview Press.

Shirley, C. (1986). A longitudinal validation of Tinto's model of using a multi-institutional sample (Doctoral dissertation, University of Kentucky, 1986). Dissertation Abstracts International, 48, AA08705208.

Singer, S. (1968). Review and discussion of the literature on personality development during college. In J. Katz (Ed.), Growth and constraint in college students. Stanford, CA: Stanford University, Institute for the Study of Human Problems.

Smith, J.K., and Heshusius, L. (1986). Closing down the conversation: The end of the quantitative-qualitative debate among educational inquirers. Educational researcher. 15, 4-12.

- Spady, W. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. Interchange, 1, 64-85.
- Spady, W. (1971). Dropouts from higher education: Toward an empirical model. Interchange, 2, 38-62.
- Stephan, W.G., (1989): A cognitive approach to stereotyping. In D. Bar-Tal et al. (Eds.), Stereotyping and prejudice: Changing conceptions. (pp. 37-57).
- Stern, G. (1970). People in context: Measuring person-environment congruence in education and industry. New York: Wiley.
- Strobe, W. & Insko, C.A. (1989) Stereotype, prejudice and discrimination. In D. Bar-Tal, C.F. Graumann, A.W. Kruglanski, & W. Strobe (Eds.), Stereotyping and prejudice: Changing conceptions. New York: Springer-Verlag.
- SPSS-X User's Guide, (1988). 3rd Edition. Chicago: SPSS Inc.
- Summerskill, J. (1962). Dropouts from college. In N. Stanford (Ed.), The American college. New York: Wiley.
- Swift, D., 1988 Preparing rural students for an urban environment. ERIC Clearinghouse on rural education and small schools. EDO-RC-88-08.
- Taylor, S.E., (1981): A categorization approach to stereotyping. In D.L. Hamilton (Ed.), Cognitive processes in stereotyping and intergroup behavior (pp 83-114).
- Tedeschi, J.T., (1985). Social psychology. St. Paul, MN: West publishing.
- Terenzini, P., Lorang, W. Jr., & Pascarella, E. (1980). Prediction freshman persistence and voluntary dropout decision: A replication. Paper presented at the annual convention of the American Educational Research Association, Boston.
- Terenzini, P., Wright, T. (1987). Influences of students' academic growth during four years of college. Research in Higher Education, 26, 161-179.
- Thistlethwaite, D., & Wheeler, N., (1966). Effects of teaching and peer sub-cultures upon student aspirations. Journal of Educational Psychology, 57, 35-47.

Tinto, V., (1975). Dropout from higher education: A theoretical synthesis of recent research. Review of Educational Research, 45, 89-125.

Tinto, V., (1982). Defining dropout: A matter of perspective. In E.T. Pascarella (Ed.), Studying student attrition. (pp 3-17). San Francisco: Jossey-Bass.

Tinto, V. (1987). Leaving college: Rethinking the causes and cures of student attrition. Chicago: University of Chicago Press.

Tinto, V., (1990). Principles of effective retention. Journal of the freshman year experience, 2(1), 35-48.

Troler, T.K., & Hamilton, D.L. (1986). Variables influencing judgments of correlational relation. Journal of personality and social psychology, 50. 879-888.

Turner, J.C. (1987). Rediscovering the social group: A self-categorization theory. New York: Basil Blackwell. pp 58.

U.S. Bureau of the Census. Statistical abstract of the United States: 1987. (107 edition) Washington D.C.: U.S. Government printing office.

Upcraft, L.M (1985). Residence halls and student activities. In Noel, Levitz, Saluri & Associates (Eds.) Increasing student retention. San Francisco: Jossey-Bass.

Upcraft, L.M. & J.N. Gardner (Eds.).(1989). The freshman year experience: Helping students survive and succeed in college. San Francisco: Jossey-Bass

U.S. Department of education. (1987). Digest of educational statistics. Washington, D.C.: U.S. Department of education, Center for education statistics

Van Maanen, J., Dobbs, Jr., J.M., and Faulkner, R.R. (1982). Toward a theory of organizational socialization. In B. Staw (Ed.), Research in organizational behavior, 1. Greenwich, CT: JAI press.

Van Tilburg, E., Moore, A.B., (1990). Education for rural adults. In S.B. Merriam & P. M. Cunningham (Eds.), Handbook of adult and continuing education. (pp. 537-547). San Francisco: Jossey-Bass.

Webb, M. (1989). A theoretical model of community college student degree persistence. Community college review, 16(4), 42-49.

Wehlage, G. G. (1989). Dropping Out. In L. Weis, E. Farrar, & H.G, Petrie (Eds.), Dropouts From School. Albany: State University of New York Press.

Weidman, J. (1989). Undergraduate socialization: A conceptual approach. In J. Smart (Ed.), Higher education: Handbook of theory and research (Vol. 5). New York: Agathon.

Weis, L., Farrar, E., & Petrie, G.G. (Eds.), (1989). Dropout from school. New York: State University of New York Press.

Williams, T.R. (1983) Socialization Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Wilson, J.D. (1981) Student learning in higher education. New York: John Wiley.

Wilson, R.C. and others; (1975). College professors and their impact on students. New York: John Wiley.

Wisner, R. (1984). A longitudinal study of individual and environmental factors associated with student persistence at a public commuter university (Doctoral dissertation, University of Michigan, 1984). Dissertation Abstracts International, 45, AA88412283.

Wright, D. J. (Ed.). (1987). Responding to the needs of today's minority students. San Francisco: Jossey- Bass.

Wright, T. (1984). Pre-college and post-matriculation predictors of attrition at Miami Community College. Research Report No. 84-33, Miami, FL: Miami Community College Office of Institutional Research. (ERIC Document Reproduction Service No. ED 267 871)

## APPENDICES

## Appendix 1

DEPARTMENT OF  
FOREST RESOURCES

April 29, 1993

Dear ,

My name is Andrew Jackman. I am an Instructor in the College of Forestry conducting research about the processes and experiences that contribute to a student's decision to remain enrolled at Oregon State University. This research is important because if we want to increase the success rate of students at Oregon State, we must understand what in the university experience causes students to leave or return each year. I need your help. You were selected for this study using a scientific process. I know time is in short supply, but I hope you will take the opportunity to complete this survey, and return it to me as soon as possible.



OREGON  
STATE  
UNIVERSITY

Pease Hall 4108  
Cortland, Oregon  
97331-5703

The information you give me will be utilized as a data base for my research project and hopefully, to improve the University for the students in the future. I cannot overemphasize how significant it is to receive your input. A response from each potential respondent is extremely important.

Each of the questionnaires has a code number so that I may keep track of who has responded and who has not. When all the questionnaires are returned to me, the code record will be destroyed in an effort to insure anonymity. Further, you have my personal assurance that neither your name nor any of your individual responses on the enclosed questionnaire will ever be published. For one thing, this will not be possible once the code is destroyed, and it is not the purpose or intent of this research to single out respondents. The questionnaire is to accumulate a data base for statistical analysis and, most importantly, to gain understanding about students' experiences here at Oregon State University.

In addition to the main questionnaire, there is a Supplemental Survey which should be answered after completing the main one. It will take you between 30 and 45 minutes to complete both of the forms. Please take the time to finish the questionnaire, and return it to me in the enclosed envelope.

Telephone  
503-737-4931  
Fax  
503-737-2668

Again, thank you for your time and assistance in this effort. Without your help, my research will not be possible. If you have any questions, please feel free to call me at my office (737-3562).

Sincerely,

Andrew Jackman,  
Instructor

## Appendix 1, Continued

COLLEGE  
STUDENT  
EXPERIENCES

The main purpose of this inquiry is to learn more about how students spend their time — in course work, in the library, in contacts with faculty, in extracurricular activities, in various social and cultural activities, and in using other facilities and opportunities that exist on the college campus.

The information obtained from you and from other students at many different colleges and universities should provide new insight to administrators, faculty members, and others who provide the resources and shape the programs that are meant to be of benefit for student learning and development within the college experience.

At first glance you may think it will take a long time to fill out this questionnaire, but you will find that it can be answered quite easily, that you can do it in less than an hour and perhaps only 30 to 45 minutes. You will find, too, when you have finished it, that your answers provide a kind of self-portrait of what you have been giving and getting in your college experience.

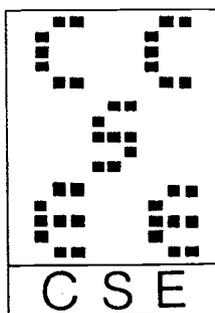
The benefit from this or any other survey depends on the thoughtful responses and willing participation of those who are asked to help. Your willingness to participate is important and very much appreciated.

We do not ask you to write your name in this questionnaire; but we do need to know where the reports come from, and that is why each questionnaire has a number on the back page—certain blocks of numbers tell us that those questionnaires have come from your college.

And, as you will see on the next page, we need to know a few things about you and where you come from, so that we can learn how activities might be related to age, sex, year in college, major field, whether one lives on the campus, whether one has a job, etc.

The questionnaire responses will be read by an electronic scanning device. Please use a #2 black lead pencil. Be careful in marking your responses. Do not write or make any marks on the questionnaire outside the spaces provided for your answers.

## QUESTIONNAIRE



This questionnaire is available through the Center for the Study of Evaluation, UCLA Graduate School of Education, 405 Hilgard Ave., Los Angeles, CA 90024. It is intended for use by any college or university that wishes to have an inventory of the campus experiences of its students.

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Revised Third Edition 1990

## Appendix 1, Continued

## BACKGROUND INFORMATION

DIRECTIONS: Indicate your response by filling in the appropriate space under each question.

## Age

- 22 or younger  
 23-27  
 28 or older

## Sex

- male  
 female

## Are you single or married?

- single  
 married

## What is your classification in college?

- freshman  
 sophomore  
 junior  
 senior  
 graduate student

## Did you enter college here or did you transfer here from another college?

- entered here  
 transferred from another college

## Have you at any time while attending this college lived in a college dormitory, fraternity or sorority house, or other college housing?

- yes  
 no

## Where do you now live during the school year?

- dormitory or other college housing  
 fraternity or sorority house  
 private apartment or room within walking distance of the college  
 house, apartment, etc. away from the campus  
 with my parents or relatives

## At this college, up to now, what have most of your grades been?

- A  
 A-, B+  
 B  
 B-, C+  
 C, C-, or lower

## Which of the following comes closest to describing your major field of study (or your expected major)?

- Agriculture  
 Arts (art, music, theater, etc.)  
 Biological Sciences (biology, biochemistry, botany, zoology, etc.)  
 Business  
 Computer Science  
 Education  
 Engineering  
 Health related fields (nursing, physical therapy, health technology, etc.)  
 Humanities (literature, history, philosophy, religion, etc.)  
 Physical Sciences (physics, chemistry, mathematics, astronomy, earth science, etc.)  
 Social Sciences (economics, political science, psychology, sociology, etc.)  
 Foreign Languages (French, Spanish, etc.)  
 Area Studies (Latin American Studies, Russian Studies, Asian Studies, African Studies, etc.)  
 Interdepartmental majors (international relations, ecology, women's studies, etc.)  
 Other: What? →

- Undecided

## Did either of your parents graduate from college?

- no  
 yes, both parents  
 yes, father only  
 yes, mother only

## When, or if, you graduate from college, do you expect to enroll for a more advanced degree?

- yes  
 no

## Are you going to school full-time or part-time?

- full-time  
 part-time

### Appendix 1, Continued

During the time school is in session, about how many hours a week do you usually spend on activities that are related to your school work? This includes time spent in class and time spent studying.

- about 50 hours a week or more
- about 40 hours a week
- about 30 hours a week
- about 20 hours a week
- less than 20 hours a week

During the time school is in session, about how many hours a week do you usually spend working on a job?

- none. I am not employed during the school year.
- about 10 hours or less
- about 15 hours
- about 20 hours
- about 30 hours
- more than 30 hours

About how much of your college expenses this year are provided by your parents or family?

- all or nearly all
- more than half
- less than half
- none or very little

What is your racial or ethnic identification?

- American Indian
- Asian or Pacific Islander
- Black, African American
- Hispanic, Latino
- White
- Other: What? 

### COLLEGE ACTIVITIES

**DIRECTIONS:** In your experience at this college during the current school year, about how often have you done each of the following? Indicate your response by filling in one of the spaces to the left of each statement.

Very often  
 Often  
 Occasionally  
 Never

#### Library Experiences

- Used the library as a quiet place to read or study materials you brought with you.
- Used the card catalogue or computer to find what materials there were on some topic.
- Asked the librarian for help in finding material on some topic.
- Read something in the reserve book room or reference section.
- Used indexes (such as the Reader's Guide to Periodical Literature) to journal articles.
- Developed a bibliography or set of references for use in a term paper or other report.
- Found some interesting material to read just by browsing in the stacks.
- Ran down leads, looked for further references that were cited in things you read.
- Gone back to read a basic reference or document that other authors had often referred to.
- Checked out books to read (not textbooks).

Very often  
 Often  
 Occasionally  
 Never

#### Experiences with Faculty

- Talked with a faculty member.
- Asked your instructor for information related to a course you were taking (grades, make-up work, assignments, etc.).
- Visited informally and briefly with an instructor after class.
- Made an appointment to meet with a faculty member in his/her office.
- Discussed ideas for a term paper or other class project with a faculty member.
- Discussed your career plans and ambitions with a faculty member.
- Asked your instructor for comments and criticisms about your work.
- Had coffee, cokes, or snacks with a faculty member.
- Worked with a faculty member on a research project.
- Discussed personal problems or concerns with a faculty member.

## Appendix 1, Continued

**DIRECTIONS:** In your experience at this college during the current school year, about how often have you done each of the following? Indicate your response by filling in one of the spaces to the left of each statement.

Very often  
Often  
Occasionally  
Never

Course Learning

- Took detailed notes in class.
- Participated in class discussions.
- Underlined major points in the readings.
- Tried to see how different facts and ideas fit together.
- Thought about practical applications of the material.
- Worked on a paper or project where you had to integrate ideas from various sources.
- Summarized major points and information in your readings or notes.
- Tried to explain the material to another student or friend.
- Made outlines from class notes or readings.
- Did additional readings on topics that were introduced and discussed in class.

Very often  
Often  
Occasionally  
Never

Art, Music, Theater

- Talked about art (painting, sculpture, architecture, artists, etc.) with other students at the college.
- Gone to an art gallery or art exhibit on the campus.
- Read or discussed the opinions of art critics.
- Participated in some art activity (painting, pottery, weaving, drawing, etc.).
- Talked about music (classical, popular, musicians, etc.) with other students at the college.
- Attended a concert or other music event at the college.
- Read or discussed the opinions of music critics.
- Participated in some music activity (orchestra, chorus, etc.).
- Talked about the theater (plays, musicals, dance, etc.) with other students at the college.
- Seen a play, ballet, or other theater performance at the college.
- Read or discussed the opinions of drama critics.
- Participated in or worked on some theatrical production (acted, danced, worked on scenery, etc.).

Very often  
Often  
Occasionally  
Never

Student Union

- Had meals, snacks, etc. at the student union or student center.
- Looked at the bulletin board for notices about campus events.
- Met your friends at the student union or student center.
- Sat around in the union or center talking with other students about your classes and other college activities.
- Used the lounge(s) to relax or study by yourself.
- Seen a film or other event at the student union or center.
- Attended a social event in the student union or center.
- Heard a speaker at the student union or center.
- Played games that were available in the student union or center (ping-pong, cards, pool, pinball, etc.).
- Used the lounge(s) or meeting rooms to meet with a group of students for a discussion.

Very often  
Often  
Occasionally  
Never

Athletic and Recreation Facilities

- Set goals for your performance in some skill.
- Followed a regular schedule of exercise, or practice in some sport, on campus.
- Used outdoor recreational spaces for casual and informal individual athletic activities.
- Used outdoor recreational spaces for casual and informal group sports.
- Used facilities in the gym for individual activities (exercise, swimming, etc.).
- Used facilities in the gym for playing sports that require more than one person.
- Sought instruction to improve your performance in some athletic activity.
- Played on an intramural team.
- Kept a chart or record of your progress in some skill or athletic activity.
- Was a spectator at college athletic events.

## Appendix 1, Continued

DIRECTIONS: In your experience at this college during the current school year, about how often have you done each of the following? Indicate your response by filling in one of the spaces to the left of each statement.

- Clubs and Organizations
- Very often  
Often  
Occasionally  
Never
- Looked in the student newspaper for notices about campus events and student organizations.
- Attended a program or event put on by a student group.
- Read or asked about a club, organization, or student government activity.
- Attended a meeting of a club, organization, or student government group.
- Voted in a student election.
- Discussed policies and issues related to campus activities and student government.
- Worked in some student organization or special project (publications, student government, social event, etc.).
- Discussed reasons for the success or lack of success of student club meetings, activities, or events.
- Worked on a committee.
- Met with a faculty adviser or administrator to discuss the activities of a student organization.

- Experience in Writing
- Very often  
Often  
Occasionally  
Never
- Used a dictionary or thesaurus to look up the proper meaning of words.
- Consciously and systematically thought about grammar, sentence structure, paragraphs, word choice, and sequence of ideas or points as you were writing.
- Wrote a rough draft of a paper or essay and then revised it yourself before handing it in.
- Spent at least five hours or more writing a paper (not counting time spent in reading or at the library).
- Asked other people to read something you wrote to see if it was clear to them.
- Referred to a book or manual about style of writing, grammar, etc.
- Revised a paper or composition two or more times before you were satisfied with it.
- Asked an instructor for advice and help to improve your writing.
- Made an appointment to talk with an instructor who had criticized a paper you had written.
- Submitted for publication an article, story, or other composition you had written.

- Personal Experiences
- Very often  
Often  
Occasionally  
Never
- Told a friend why you reacted to another person the way you did.
- Discussed with other students why some groups get along smoothly, and other groups don't.
- Sought out a friend to help you with a personal problem.
- Elected a course that dealt with understanding personal and social behavior.
- Identified with a character in a book or movie and wondered what you might have done under similar circumstances.
- Read articles or books about personal adjustment and personality development.
- Taken a test to measure your abilities, interests, or attitudes.
- Asked a friend to tell you what he/she really thought about you.
- Been in a group where each person, including yourself, talked about his/her personal problems.
- Talked with a counselor or other specialist about problems of a personal nature.

- Student Acquaintances
- Very often  
Often  
Occasionally  
Never
- Made friends with students whose academic major field was very different from yours.
- Made friends with students whose interests were very different from yours.
- Made friends with students whose family background (economic and social) was very different from yours.
- Made friends with students whose age was very different from yours.
- Made friends with students whose race was different from yours.
- Made friends with students from another country.
- Had serious discussions with students whose philosophy of life or personal values were very different from yours.
- Had serious discussions with students whose religious beliefs were very different from yours.
- Had serious discussions with students whose political opinions were very different from yours.
- Had serious discussions with students from a country different from yours.

## Appendix 1, Continued

**DIRECTIONS:** In your experience at this college during the current school year, about how often have you done each of the following?

- Science
- Very often  
Often  
Occasionally  
Never
- Memorized formulas, definitions, technical terms.
- Tried to express a set of relationships in mathematical terms.
- Tested your understanding of some scientific principle by seeing if you could explain it to another student.
- Read articles (not assigned) about scientific theories or concepts.
- Practiced to improve your skill in using some laboratory equipment.
- Showed a classmate how to use a piece of scientific equipment.
- Attempted to explain an experimental procedure to a classmate.
- Went to an exhibit or demonstration of some new scientific device.
- Completed an experiment or project using scientific methods.
- Tried to explain to another person the scientific basis for concerns about pollution, recycling, alternative sources of energy, acid rain, or similar aspects of the world around you.

**DIRECTIONS:** If you are now living in a dormitory or fraternity/sorority, about how often have you done each of the following in that residence unit during the current school year? Indicate your response by filling in one of the spaces to the left of each statement. If you do not live in a campus residence, omit these items.

- Campus Residence
- Very often  
Often  
Occasionally  
Never
- Had lively conversations about various topics during dinner in the dining room or cafeteria.
- Gone out with other students for late night snacks.
- Offered to help another student (with course work, errands, favors, advice, etc.) who needed some assistance.
- Participated in discussions that lasted late into the night.
- Asked others for assistance in something you were doing.
- Borrowed things (clothes, records, posters, books, etc.) from others in the residence unit.
- Attended social events put on by the residence unit.
- Studied with other students in the residence unit.
- Helped plan or organize an event in the residence unit.
- Worked on some community service or fund raising project with other students in the residence unit.

## CONVERSATIONS

**DIRECTIONS:** In conversations with other students at this college during the current school year, about how often have you talked about each of the following?

- Topics of Conversation
- Very often  
Often  
Occasionally  
Never
- Current events in the news.
- Major social problems such as peace, human rights, equality, justice.
- Different life styles and customs.
- The ideas and views of other people such as writers, philosophers, historians.
- The arts — painting, theatrical productions, ballet, symphony, movies, etc.
- Science — theories, experiments, methods.
- Computers and other technologies.
- Social and ethical issues related to science and technology such as energy, pollution, chemicals, genetics, military use.
- The economy — employment, wealth, poverty, debt, trade, etc.
- International relations.

In these conversations with other students, about how often have you done each of the following?

- Information in Conversations
- Very often  
Often  
Occasionally  
Never
- Referred to knowledge you had acquired in your reading.
- Explored different ways of thinking about the topic.
- Referred to something a professor said about the topic.
- Subsequently read something that was related to the topic.
- Changed your opinion as a result of the knowledge or arguments presented by others.
- Persuaded others to change their minds as a result of the knowledge or arguments you cited.

## Appendix 1, Continued

## READING/WRITING

During the current school year, about how many books have you read? Fill in one space in each column.

Textbooks or assigned books

Non-assigned books

- none  
  fewer than 5  
  between 5 and 10  
  between 10 and 20  
  more than 20

During the current school year, about how many written reports have you made? Fill in one space in each column.

Essay exams in your courses

Term papers or other written reports

- none  
  fewer than 5  
  between 5 and 10  
  between 10 and 20  
  more than 20

## OPINIONS ABOUT COLLEGE

How well do you like college?

- I am enthusiastic about it.  
 I like it.  
 I am more or less neutral about it.  
 I don't like it.

If you could start over again, would you go to the same college you are now attending?

- Yes, definitely  
 Probably yes  
 Probably no  
 No, definitely

## THE COLLEGE ENVIRONMENT

Colleges differ from one another in the extent to which they emphasize or stress various aspects of students' development. Thinking of your own experience at this college, to what extent do you feel that each of the following is emphasized? The responses are numbered from 7 to 1, with the highest and lowest points described. Fill in the space of whichever number best indicates your impression on this seven-point rating scale.

Emphasis on the development of academic, scholarly, and intellectual qualities								
Strong emphasis	7	6	5	4	3	2	1	Weak emphasis
Emphasis on the development of esthetic, expressive, and creative qualities								
Strong emphasis	7	6	5	4	3	2	1	Weak emphasis
Emphasis on being critical, evaluative, and analytical								
Strong emphasis	7	6	5	4	3	2	1	Weak emphasis
Emphasis on the development of vocational and occupational competence								
Strong emphasis	7	6	5	4	3	2	1	Weak emphasis
Emphasis on the personal relevance and practical values of your courses								
Strong emphasis	7	6	5	4	3	2	1	Weak emphasis



## Appendix 1, Continued

**SUPPLEMENTAL QUESTIONNAIRE**

Note: Please use the space (ADDITIONAL QUESTIONS) on the back (page 8) of the questionnaire to answer these questions. Mark each answer according to the directions for that question.

When answering these questions please indicate your response as follows:

- Answer:      (A) Strongly Agree
- (B) Agree
- (C) Neutral
- (D) Disagree
- (E) Strongly Disagree

1. Since coming to Oregon State I have developed close personal relationships with other students.
2. The student friendships I have developed at this university have been personally satisfying.
3. My nonclassroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.
4. My nonclassroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.
5. Few of the faculty members I have had contact with are generally interested in students.
6. It is important for me to graduate from college.
7. It has been difficult for me to meet and make friends with other students.
8. My nonclassroom interactions with faculty have had a positive influence on my career goals and aspirations.

*(over please)*

## Appendix 1, Continued

9. Do you intend to return to Oregon State University in the Fall of 1993?

Answer: (A) for YES  
(B) for NO

(Please answer number 10 if you have been at Oregon State University longer than one year.)

10. To what degree would you say that your involvement in University activities has changed since your Freshman year?

Answer: (A) Much more involved now  
(B) Somewhat more involved  
(C) About the same  
(D) Somewhat less involved  
(E) Much less involved now

**If you have anything else you would like to tell me about your experiences at Oregon State University, and how they influenced your decision to remain or withdraw, please do so in this area or on a separate piece of paper and enclose it in the envelope with your questionnaire. Thanks again for your time and effort.**

Appendix 2  
Variables included in the Discriminant Analysis

<u>VARIABLE</u>	<u>F TO ENTER</u>
Library Experience Scale	.726E-01
Experience with faculty Scale	.1164
Course Learning Scale	2.8503
Art, Music, Theater Scale	1.4020
Art Scale	1.5187
Music Scale	.7114
Theater Scale	.3856
Student Union Scale	.1330
Athletics/Recreation Facilities	.3344
Clubs and Organizations Scale	3.0022
Experience in Writing Scale	.166E-05
Personal Experiences Scale	.2397
Student Acquaintances Scale	.3743
Science/Technology Scale	.909E-01
Topics of Conversation Scale	.4390
Information in Conversation Scale	.933E-01
Satisfaction Index	16.4320
Academic, Scholarly Qualities	3.8180
Aesthetic/Expressive/Creative Quality	3.3396
Emphasis on Being Critical/Evaluative	7.4162
Vocational/Occupational Competence	9.2548
Personal Relevance-Practical Value	8.1999
Relationships with Other Students	7.7733
Relationships with Faculty Members	2.5927
" with Administrative Personnel	1.7778

## Appendix 2 continued

Variables included in the Discriminant Analysis

<u>VARIABLE</u>	<u>F TO ENTER</u>
Gain in Vocational Training	6.1231
" in Specialization further Education	.8608
Gain in Broad General Education	1.1746
Gain in Career Information	5.9502
Gain in Understanding of the Arts	2.3799
Gain in Acquaintance with Literature	.602E-01
Gain in writing Clearly/Effectively	1.5772
Gain in Familiarity with Computers	.7980
Gain in Awareness of other Philosophies	1.9955
Gain in Developing own Values/Ethics	.863E-01
Gain in Understanding Yourself	1.0903
Gain in Understanding other People	2.5765
Gain in Ability to be a Team Member	9.7651
Gain in Developing Health and Fitness	.942E-01
Gain in Understanding Science	.864E-01
Gain in Understanding Science/Technology	.980E-01
Gain in Awareness of New Technology	.2358
Gain in Ability to think Analytically	7.9770
Gain in Quantitative Thinking	1.6675
Gain in Ability to put Ideas Together	2.5349
Gain in Ability to Learn on Own	5.8889
Gain in Seeing importance of history	.1486
Gain in Knowledge about the World	.1935

Appendix 3  
 - - DISCRIMINANT ANALYSIS - -

Number of Cases by Group

INTEND TO RETURN TO OSU	Number of Cases		Label
	Unweighted	Weighted	
YES	70	70.0	
NO	13	13.0	
Total	83	83.0	

On groups defined by "Do you intend to return to Oregon State University in Fall of 1993?"

Stepwise variable selection

Selection rule: Maximize minimum Mahalanobis Distance (D squared) between groups

Maximum number of steps.....	5
Minimum Tolerance Level.....	.00100
Minimum F to enter.....	1.0000
Maximum F to remove.....	1.0000

Canonical Discriminant Functions

Maximum number of functions.....	1
Minimum cumulative percent of variance...	100.00
Maximum significance of Wilks' Lambda....	1.0000

Prior probability for each group is .50000

Variables used in the Analysis

<u>VARIABLE</u>	F to enter	D Squared
SATISFACTION INDEX	18.332	1.672071
ABILITY TO BE A TEAM MEMBER	5.3122	.4845204
VOCATIONAL/OCCUPATION COMPETENCE	4.0004	.3648692
ABILITY TO THINK ANALYTICALLY	3.6245	.3305845
COURSE LEARNING SCALE	.70754	
WHERE LIVING NOW DURING SCHOOL	.42052	
ESTIMATE OF MOST COLLEGE GRADES	.82937	
PART OF EXPENSE PROVIDED BY FAMILY	2.4426	.2227842
VERBAL SCORE ON SAT'S	.79163	
MATH SCORE ON SAT'S	.41346	
TSWE SCORE ON SAT'S	.93857E-02	

## Appendix 3, Continued

Summary Table

Action	Vars	Wilks'		Minimum	
Step Entered	In	Lambda	Sig.	D Squared	Sig.
1 SATISFACTION INDEX	1	.81544	.0001	1.67207	.0001
2 PART OF EXPENSE	2	.78917	.0001	1.97367	.0001
3 WHERE LIVE NOW	3	.76096	.0001	2.32080	.0001
4 VERBAL SCORE/SAT'S	4	.73855	.0001	2.61534	.0001
5 TEAM MEMBER	5	.72044	.0001	2.86676	.0001

## Canonical Discriminant Functions

Percent of Function	Cumulative Eigenvalue	Canonical Variance	After Wilks' Percent	Correlation
1*	.3880	100.00	100.00	.5287

\* marks the one canonical discriminant function remaining in the analysis.

Standardized Canonical Discriminant Function Coefficients

	FUNCTION 1
SATISFACTION INDEX	.97708
ABILITY TO BE TEAM MEMBER	.30455
WHERE LIVING NOW DURING SCHOOL YEAR	.43815
PART OF EXPENSE PROVIDED BY FAMILY	-.46209
VERBAL SCORE ON SAT'S	-.31786

## Structure Matrix:

Pooled-within-groups correlations between discriminating variables and canonical discriminant functions.  
(Variables ordered by size of correlation within function)

	FUNCTION 1
SATISFACTION INDEX	.76372
ABILITY TO BE TEAM MEMBER	.41111
ABILITY TO THINK ANALYTICALLY	.40057
PART OF EXPENSE PROVIDED BY FAMILY	-.27877
VOCATIONAL/OCCUPATIONAL COMPETENCE	.24311
QE: COURSE LEARNING SCALE	.17914
VERBAL SCORE ON SAT'S	-.15870
MATH SCORE ON SAT'S	-.13779
WHERE LIVING NOW DURING SCHOOL YEAR	-.11567
TSWE SCORE ON SAT'S	.06892
ESTIMATE OF MOST COLLEGE GRADES	.03305

## Appendix 3, Continued

Canonical Discriminant Functions evaluated at Group Means  
(Group Centroids)

Group	FUNCTION	1
1	.26519	
2	-1.42796	