Iowa State University
Digital Repository

Retrospective Theses and Dissertations

Iowa State University Capstones, Theses and Dissertations

1990

Persistence and type development: an analysis of multiple variables and psychological type at a small liberal arts college

David George Baumgartner
Iowa State University

Follow this and additional works at: https://lib.dr.iastate.edu/rtd

Part of the Educational Psychology Commons, Higher Education and Teaching Commons, and the Student Counseling and Personnel Services Commons

Recommended Citation

Baumgartner, David George, "Persistence and type development: an analysis of multiple variables and psychological type at a small liberal arts college " (1990). *Retrospective Theses and Dissertations*. 9479.
https://lib.dr.iastate.edu/rtd/9479

This Dissertation is brought to you for free and open access by the Iowa State University Capstones, Theses and Dissertations at Iowa State University Digital Repository. It has been accepted for inclusion in Retrospective Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

www.manaraa.com

91

10481

U·M·I

MICROFILMED 1991

INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Order Number 9110481

Persistence and type development: An analysis of multiple
variables and psychological type at a small liberal arts college

Baumgartner, David George, Ph.D.

Iowa State University, 1990

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

Persistence and type development:

An analysis of multiple variables and psychological type

at a small liberal arts college

by

David George Baumgartner

A Dissertation Submitted to the

Graduate Faculty in Partial Fulfillment of the

Requirements for the Degree of

DOCTOR OF PHILOSOPHY

Department: Professional Studies in Education

Major: Education (Higher Education)

Approved:

Signature was redacted for privacy.

In Charge of Major Work

Signature was redacted for privacy.

For the Major Department

Signature was redacted for privacy.

For the Graduate College

Iowa State University
Ames, Iowa
1990

TABLE OF CONTENTS

CHAPTER I

PROBLEM STATEMENT

"The issue of student retention is one which is of increasing
concern to colleges and universities. With the college-age
population decline that is expected to continue at least into
the next decade, it is imperative that institutions of higher
education develop and implement comprehensive, coherent, and
effective plans for the retention of students. ...A knowledge
of students' needs, specific to one's institution can further
enhance the efforts of counseling centers and offices of student
development. The process of becoming integrated both socially
and academically into the life of the college involves personal
'congruency'. Congruency refers to a good 'fit' between the
needs, abilities, and interests of the student and those of
the institution. Correspondingly, incongruency refers to a
poor 'fit'."

Schreiner (1990, p. C-5)

Retention of college students has, in the last fifteen

years, become a major topic of research and scrutiny. Retention

merits close examination, because forecasters project that

a 23 percent decline will occur nationally among traditional

students by 1997 (Lonabocker, 1982). The Chronicle of Higher

Education Almanac (1990) reports that 31 percent of the college

and university population is now over the age of 21. Due to

this projection, together with the fact that the overall freshman

attrition rate in the United States is 29 percent (ACT 1989),

colleges and universities depend, to a large degree, on their

ability to minimize the attrition rate.

College and university professionals are interested in

retention because of their responsibility to society and their

affected by enrollment and the tuition dollar. Baldridge (1982)
suggested that more than two-thirds of a student's tuition
or subsidy will be lost when a student leaves school. When
tuition drops, the income of the residence facilities and their
auxiliary revenue also drop. For example, if one student drops
out of school the university loses the entire residence hall
fees (room and board) for one year. If the quality of residence
halls drops and campus services decline, this deterioration
discourages student use and thus produces even less revenue.
"A vicious cycle can develop; dropouts, lower revenues, poorer
service, more dropouts" (Baldridge, 1982, p. 37). Student
retention, according to Pascarella (1986), is an institutional
issue with broad influences and implications for the institution
itself. In the book Serving More Than Students, Garland (1985)
warns that a high attrition rate experienced by an institution
may be its single greatest enrollment problem. The three costs
of attrition to an institution, according to Garland, are (1)
Loss of tuition, fees, and auxillary enterprises; (2) Added
pressure on admissions to recoup the losses by increasing
recruiting; and (3) Undermining of diversity, richness, and
cohesiveness.

The attrition phenomena at private colleges are especially
perplexing. Many small private colleges, like Wartburg College

in Waverly, Iowa, where this study was conducted, are tuition driven. Wartburg has a small endowment; virtually the entire operating budget is dependent on tuition and auxiliary enterprises. The need to recruit and retain students is evident. Lam (1984) has estimated that for every ten students who enter an institution of higher education, only four will graduate.

The central purpose of this study is to investigate the relationship between persistence and student differences; i.e., student personality type as defined by the Myers Briggs Type Indicator, students' needs, and their interaction with the university environment by conducting interviews with the entering freshman class. These interviews will provide valuable knowledge about the students the institution serves.

Since the need to recruit and retain students is great, it becomes apparent that college and university administrators may need to recruit students that fit the institution's character and take the appropriate steps to learn all they can about each entering freshman, and at the same time teach students about the environment in which they will be operating. The unavoidable fact is, according to Tinto (1988), that students are unable to put up with stresses because they are not committed to the institution. Structural characteristics of an institution may influence the student's degree of integration or involvement in the institution and limit development (Pascarella, 1985).

Astin (1975) suggested that not only accurate data needs to be collected, but that retention information needs to be shared with all to enhance decision making.

It is possible to find out a large amount of information from students by developing a profile of each entering class. According to Pascarella (1986), student retention can be increased by developing institutional programs that research student life. After several years, a profile will be developed of that institution's student body. In describing the Tracking, Retention, and Academic Integration by Learning Style (TRAILS) at St. Louis University, Kalsbeek (1986) stated that Myers Briggs Type Indicator (MBTI) data and ACT scores, high school G.P.A., and demographic factors are combined in a data bank. Kalsbeek maintained that by keeping such data, universities can answer questions like: How well do different types of students do in different majors? What types drop out at a greater rate than others?

Of equal importance to the institution's knowing the students is the need for students to know their environment. How well students fit the institution can be explained by person-environment theory as defined by Holland (1966). Congruence is the match between personality type and the environmental model. Walsh (1973) suggests two theoretical rules on person-environment satisfaction or fit: (1) Students

tend to be more satisfied the more closely they resemble the dominant pressures in their environment, and (2) Students report more satisfaction in colleges that exhibit heterogeneous profiles. Furthermore, if a person has that fit; i.e., possesses an accurate perception of self and reality, he or she is more likely to select environments congruent with his or her personal orientation (Delworth and Hanson 1980). Holland also predicts that a congruent personality-environment relationship should tend to stimulate achievement satisfaction and reinforce successful coping behavior.

Tinto (1988) argued that whatever action institutions took with respect to retention, it should be done early in the student's college career. Student needs should not be ignored; they need to be addressed in the first year. In the mid-1980s, Wartburg College began looking seriously at their retention rate and decided that if they were to compete effectively in the future and survive and if they were to ensure graduation for students, they also needed to know more about their students. The plan was simple; it included looking at students and the institution in terms of fit. The Career Development Center took an active part in gathering information since most college freshmen are interested in careers. The Chronicle of Higher Education Almanac (1990) reported that 76 percent of entering freshmen in 1989 stated that "to get

a better job" was the reason for attending college. According to Boyer (1987), 90 percent of college-bound, high school seniors and their parents ranked "to have a more satisfying career" as the number one reason to go to college.

If the majority of students come to college for the purpose of career building, it projects career development centers into the forefront of the retention efforts for the university. Sprandel (1985) explains the importance, in the future, for career planning and placement offices to provide services that encourage students to stay in school. Such programs include career awareness, career guidance, and real world counseling. In his book College: The Undergraduate Experience, Boyer (1987) reports that on three separate occasions, from 1969 to 1984, undergraduates were asked to identify the essential outcome of their college education. During the period of this study, "training and skills for an occupation" and "detailed grasp of a specialized field" moved from the bottom to the top.

Operating under the assumption that freshman students are concerned about career issues, and believing that early interaction with entering students was needed, the Wartburg College Career Development Center began looking at institutional fit; that is, the student, the environment, and the institution. Questions of institutional fit, personality, and person-environment theory are addressed in Chapter II.

Is it possible to develop a profile of a student at a particular institution by examining a certain set of variables? Is it possible to determine the relationship, if any, among the variables? Can an institution determine each student's personality type? Can an institution teach students about personality and environment? If these questions are answered in the affirmative, then it may be possible for institutions to recruit students who will be graduated or, at the very least, to have a better understanding of those who are enrolled and be more able to give the students a better idea of who they are and how they relate to their environment.

Purpose of the Study

Most of the literature (Marsh 1966), (Pitcher 1970), (Noel 1977), (Pantages, Creedon 1978), Pascarella 1982), and (Tinto 1987b) suggests, and rightfully so, that retention and persistence are largely functions of high school G.P.A., ACT scores, and the financial condition of the student. The focus on the other contributing variables that describe the differences between persisters and nonpersisters has intensified in recent years because of the previously mentioned need to retain students. These other or auxiliary variables attempt to understand the student by collecting and explaining personality, demographic characteristics, and perceptions of self and future.

In addition, more attention is given to the fit the student has with the institution. In an effort to be successful, small colleges need to personalize their services in an attempt to increase the satisfaction level of students. In a study of environmental influences on student aspiration, Pascarella (1984) stated that in order to fully understand environmental influences, it may be prudent to examine differences among students' actual experiences, involvements, and interactions.

The focus of this study is on individual differences, the relationship between differences, the environment, and the importance of personality type in predicting retention. Specifically, the purposes of this study were:

A. To determine if personality type plays a significant role in persistence

B. To develop a profile of a freshman class by looking at the relationship between multiple variables; i.e., major, ACT score, parents' education, career decisiveness, activity involvement, self-perception, leadership perception, and personality type

C. To meet with students in a personal way in an effort to familiarize them with the college environment and the Career Development Center, and at the same time give each of them useful information relative to the

type of person each is, and the environment in which they all operate

D. To determine if there is a relationship between personality type and career decisiveness

E. To help students become aware of self, strengths, weaknesses, problems, personality type, and environment.

The results of this study will provide college administrators with additional information on the freshman class. Ramist (1981), Pascarella (1987), and Tinto (1987a) suggested the need to know more about students earlier and reported that early integration leads to persistence. This knowledge will provide a sketch or profile of each student. Those administrators interested in retaining students will be able to compare profiles of students who dropped out of Wartburg College with those who persisted to the junior year.

Students who participate in this study and complete the Myers Briggs Type Indicator (MBTI) and review Holland's personality-environment concepts will learn more about themselves and the environment, and also how they differ from other students. By examining personality types, administrators will be able to determine if personality type plays a part in student retention. The entire 1988 entering class of Wartburg College was asked to participate in a study in the fall of 1988.

Research Questions

In formulating this study, the following research questions were identified:

1. Is there a relationship between the 16 MBTI types and persistence?

2. Is there a relationship between the 16 MBTI types and career decisiveness?

3. Is there a relationship between MBTI personality preference and career decisiveness?

4. Is there a relationship between MBTI personality preference and persistence?

Wartburg College

A positive spirit and good will is fostered by growing enrollments. College enrollments have gone up about 23 percent in the last six years while high school graduates in Iowa have decreased by 16 percent. The institution tries to keep this trend going by devoting priorities to instruction, admissions, and financial aid to support student recruitment, and to continue a history of educational excellence. Students are attracted to Wartburg College for strong pre-professional and science programs, an outstanding business curriculum, and strong programs in the helping professions.

Limitations of This Study

The limitations associated with this study are as follows:

1. The study was restricted to the entering class of a small liberal arts college in a small, rural community in the midwestern United States.

2. The study participants were all approximately 18 years of age, Caucasian, and mostly residents of small towns in Iowa and surrounding states; they may not be representative of 18-year-olds, in general.

3. The MBTI is a self-reporting score and accuracy depends on the honesty and accuracy of responses.

4. The interview process solicited responses by students; the answers they gave on the interview day may not be the same responses they would give today. In addition, the accuracy of their answers was dependent on the honesty of their answers and self-perceptions and were descriptors at a certain point in time.

5. The interviews were carried out by paraprofessionals with 25 hours of career education training. Ideally, the interviews would have been conducted by one professional counselor.

6. Test-retest reliability is decreased if the initial raw scores are less than 5.

7. It is possible that some students registered late, after the data were collected; therefore, the persisters may be understated.

8. The MBTI, because of the ipsitive nature of the scales, limits tests of significance. It is a descriptive tool and not an inferential tool.

Definition of Terms

Personality Type	As defined by the Myers Briggs Type Indicator
Career Decisiveness	The extent to which a student is certain of his/her career; expressed as percentage
Activity Involvement	The activities in which a student says he/she will be involved while at Wartburg College. (See Table 2.)
Leadership Perception	The student perception of whether or not he/she is a leader
Self-Perception	A verbal description of self, catagorized into the following areas: Active, aggressive, ambitious, analytical, athletic, caring, cheery, confident,

creative,   eager,   honest,
independent,   intelligent,
nonconfident,   nonsocial,
organized,   religious,
responsible,   sensitive,   and
social.   (See Table 4.)   These
headings   are   synonyms   chosen
by   a   group   of   six   career
education counselors to represent
the various responses.

Major   Academic study in which a student
                         has   chosen   to   specialize.
                         (See Table 3.)

Freshmen   First-time   entering   freshmen
                         in the fall of 1988 at Wartburg
                         College.

ACT Score   The composite ACT Score

Persistence   Successful   completion   of   the
                         freshman and sophomore years

Parent Education   Stated   in   terms   of   whether
                         or   not   they   graduated   from
                         a   post-secondary,   four-year
                         school or college

CHAPTER II

REVIEW OF THE LITERATURE

This chapter will review the literature associated with personality type and person-environment theory and the role of each in persistence and career planning. Personality type will be examined by referring to the MBTI, and person-environment theory will be examined according to Holland's typology.

Over the years much research and time have been devoted to the study of persistence and retenton. A significant number of these studies have concluded that high school G.P.A., ACT scores, and financial condition are the most important determinants in regard to students successfully making their way through school (Pantages and Creedon 1978), (Tinto 1987), and (Pascarella 1986). Academic factors, according to Demitroff (1974), Astin (1975), Noel and Levitz (1985), and Tinto (1987b) are the most reliable predictors of attrition. The notion that nearly all dropouts were experiencing academic problems is simply shortsighted. Many researchers, Cope and Hannah, 1975; Iffert and Clarke, 1965; and Pervin, 1966 found that the majority of dropouts studied had at least a grade average of "C", and many had grades above the average graduate. The problem of college attrition is a complex one and not simply a matter of intelligence (Marsh 1966). Indeed, Shaffer (1981)

concluded that a lack of systematic study has been a problem in attrition research, and that the research has been unable to isolate variables which offer a clear understanding of dropout behavior. As Shaffer suggests, it is not enough to explain a large percentage of the reasons why students drop out of college. Additional study relating to the complexity and interaction of demographic personality and other noncognitive variables is also needed. In the decade of the 1990s and beyond, the competition for students will be keen. Although high school G.P.A. and ACT scores explain why marginal or academically challenged students drop out, they do not explain why seemingly capable students drop out. Many researchers believe it is a matter of several other overlooked variables that relate to the student and institution interaction. Tinto (1987a), for example, posits that incongruence is largely the outcome of the quality of interaction between the student and the institution. Incongruence is the result of a significant mismatch between the needs (academic and otherwise) and interests of the students and those of the institution.

The role of nonacademic factors as a cause for student attrition is well documented over the years. For example, Noel (1977) in a review of 65 dissertations concluded that students dropped out for four reasons: (1) Isolation/loneliness/depression; (2) Boredom of environment

factors; (3) Financial problems; and (4) Incompatibility with the environment. Other researchers like Feldman (1969), Summerskill (1968), and Trent (1968) emphasized noncognitive variables like career aspiration, self-confidence, social inadequacy, lack of campus activity, and poor fit with the environment. In the book, Preventing Students from Dropping Out, Astin (1975) performed a multivariate data analysis on the characteristics of 110 entering freshmen. Findings illustrated the importance of environmental fit and noncognitive variables; i.e., goal direction, behavior, participation, and social status.

In order to study the attrition phenomena, it is important to look at the student-institution fit as did Lenning (1982). Lenning found a number of interaction variables that are supportive of student success: extracurricular involvement, student participation, social interaction, and out-of-class experiences -- to name a few. Several other researchers as well as Holland (1973) further suggested the idea of congruence or fit between student and university. Holland suggested that the congruence or fit between student and university was contingent on similar/dissimilar person-environment theory. Simply stated, a person who had a particular type of personality would be ill-fitted to a dissimilar environment. A review

of Holland's theory of environment modeling will be developed as a supplement to personality type later in this chapter.

A continuing body of knowledge is growing with respect to nonacademic variables that affect college persistence. Pascarella (1985) noted that knowledge exists about certain types of college experiences and the association to certain types of outcomes, but little is known about the ways in which various sources of influence interact and produce outcomes. Bean's synthetic model of intent (1982), and later Pascarella (1982) emphasized four variables that affect student intent to leave school, other than G.P.A. and ACT scores.

1. Background variables - mother/father's education level, hometown size, and location

2. Organizational variables - regulation of life at school, close friends, grades, financial aid, and contact with faculty

3. Environmental variables - family approval, likelihood of job and marriage, finances

4. Outcome and attitudinal variables - practical values, boredom, confidence, goals, and loyalty

Bean's synthetic model was produced to develop student intent to drop out. Vincent Tinto, in his book Leaving College (1987a), stated that students come to experience the character of institutional life through a variety of interactions with

other members of the institution. This interaction with other students, staff, and faculty may lead to incongruence or a mismatch or a lack of fit between the needs and interests of the student and the institution.

A review of the literature covering 25 years relating to the factors considered important in persisters and nonpersisters was completed by Lam (1984). These factors or variables were incorporated into a 39-variable conceptual model. Some of the variables included parents' educational levels, career goals, activity involvement, and various perceptions of the environment. Using multiple regression, Lam was able to generate a list of significant variables. The most significant were student status, distance from hometown, goal attainment, and satisfaction with self and the environment. Another study was done by Allen (1984) at the University of North Carolina whereby major differences were found between persisters and nonpersisters. Differences included student interaction on campus, job expectation, and fit at the school. The basic notion that fit with the environment is important has been supported and documented by many researchers including Durkheim (1951) and his Social Suicide Theory. In addition, Spady (1970) as well as Tinto (1975) agree that successful integration of students and college community is of paramount importance.

Surprisingly, in the last few years the importance of career planning and placement offices, in relation to retention of students, has grown considerably. This is consistent with the literature in recent years that cite the major reasons students attend college. For example, the Chronicle of Higher Education (1989) reported in the Almanac Section that more than 80 percent of the students surveyed stated that they come to college to get a career. Additionally, Astin (1985), in a study of freshmen, reported similar findings, and in a study of college students, Johnson and Troy (1981) found that 77 percent of the students at the University of Maryland, Baltimore Campus, came to the college to get a job. If the majority of students come to college with a career as their paramount concern, it makes the career development and placement specialist a major player in the retention strategy for the university and makes his or her job extraordinarily important and complex. An office which has traditionally been geared for juniors and seniors must also gear up for freshmen and sophomores.

Departments dealing with career issues are offering a variety of programs and services that attempt to address student satisfaction with regard to career goals and future direction. For example, Sprandel (1985) explained how computerized guidance systems like DISCOVER and System of Interaction Guidance Information (SIGI-Plus) have assisted students with matching

career goals, values, and career information. Career counseling is also an important factor when assessing why students stay or leave college. The Strong Campbell Interest Inventory (SCII), Self-Directed Search (SDS) and the Myers Briggs Type Indicator (MBTI) are, according to Noel and Levitz (1985), a way of providing information to students. This type of information is useful to the student when determining how he or she will fit into the world of work in the future. Ironically, on college campuses, the student is often expected to make decisions influencing his or her entire career (Pitcher 1970) without ever experiencing the career or taking one course in the major. Career indecision plays an important role in students' lives (Anderson 1985). Some students who are not decided about their career goals may conclude that they should not be in college.

According to Super (1957), careers are extensions of self-concept and Betz (1980) reminds counselors that careers result from a series of decisions over a lifetime; not just one quick decision.

"Personal Future Building" as described by Beal (1980) is an important function of career planning. Beal suggests workshops or guides for freshmen that promote assistance, future direction, leadership, assertiveness, and study skills. Clearly, career services broadened its responsibilities and mission over the past few years.

Personality and Persistence

In order to thoroughly study the persistence phenomena, a strong case has been developed for the need to study nonacademic variables. As suggested previously, there is a significant amount of research adhering to the notion that personality plays an important part in the success of students in college and whether or not an institution-student fit is achieved. In exploring personality, one instrument, the Myers Briggs Type Indicator, has been used extensively in higher education. Beginning in 1962, when Carl Jung's book entitled Psychological Types was expanded into the Myers Briggs Type Indicator (MBTI), the popularity of the instrument has grown (Myers 1962). In the past two decades alone, more than 1400 articles and books dealing with research and the MBTI have been written (Bibliography 1988). A recent survey of American College Personnel Association (ACPA) members by Anchors, Robinson, and Wood (1984) demonstrates the wide acceptance of the MBTI in higher education. Approximately 100 ACPA members reported that they used the MBTI in career development, academic advising, leadership training, counseling, roommate matching, learning styles, and development of retention strategies (Provost and Anchors 1987).

Kalsbeek (1986) found that by obtaining information from the MBTI and merging it with high school G.P.A., ACT scores,

and demographic information, a university is able to answer questions like, "What personality types drop out at a greater rate than others?" Through discriminant analysis, Defore and Kalsbeek (1985) suggested that personality dimension interacts to produce significant differences in enrollment management of business students. In a study of 2,906 freshmen at Ball State University, Schurr et al. (1989) found that the MBTI judging preference was the best indicator of college performance. Another study of midshipmen at Annapolis revealed that those with the F preference as described by the MBTI, were twice as likely to drop out as those with a T preference. Among factors contributing to persistence rates at a small liberal arts college were activities and leadership (Provost 1985). Personality types that were most likely to persist were ESTJ, ENTJ, ESFP, and ESFJ, while those least likely to persist were ISTP, ESTP, ISFJ, and ENFJ. The author concluded that extraverts tended to be more involved in college activities than their introverted counterparts.

Myers Briggs Type Indicator

The Myers Briggs Type Indicator (MBTI) is used to classify individuals according to personality characteristics. It is a forced choice, self-reporting, paper and pencil instrument based on Carl Jung's theory of type. Jung (1923) believed that the way individuals act is not simply random behavior,

but rather, orderly, consistent, and somewhat predictable. The differences that people display are functions of the dynamics associated with personality and environment. The MBTI was developed by Isabelle Myers to apply Jungian theory. In accordance with Jung's theory, the instrument classifies individuals on each of four dimensions (Myers and McCaulley 1987).

1. Extraversion-Introversion (E-I). This dimension is designed to reflect whether a person is an extravert focused on external environment or an introvert focused on the inner world.

2. Sensing-Intuition (S-N). This dimension reflects whether a person primarily uses their senses to find out about the world around them, or whether a person primarily uses intuition to find out about the environment.

3. Thinking-Feeling (T-F). This dimension reflects how a person makes decisions. Does the person decide in a thinking, logical manner or rather, does a person make decisions based on feeling.

4. Judgment-Perception (J-P). This dimension reflects the lifestyle one adapts to the outer world, whether one chooses a judging attitude or a feeling attitude.

According to the theory (Myers and McCaulley 1987), one pole of each of the four preferences is preferred over the other pole for each of the sixteen types. After taking the MBTI, an individual receives a preference score which is based on the number of times they choose one preference over another. The type scores are derived by one predominant pole in each of the four preferences. For example, an individual who expressed a preference for Extraversion, Sensing, Thinking, and Judgment would be an ESTJ type. There are no wrong answers, preferences, or types. Individuals are understood to be unique and special for whatever their personality type.

Personality and The Environment

When explaining person-environment theory, Pace (1964) posited that the environment shapes behavior. The basic human needs; namely, air, water, shelter, etc. are understandable and necessary for life. Going beyond basic needs to a level of attitudes, knowledge, and values makes the differences associated with birth extremely clear.

In higher education, the question becomes not if the environment is important, but rather, how well does the student fit the environment. It's clear, according to Moos (1987), that a poor match between person and environment can contribute to morale and retention problems. Person-Environment Theory,

as defined by Muchinsky and Monahan (1987) is the degree of fit between two sets of variables. Holland (1973) developed the notion that individuals are happiest and most satisfied or have a high level of congruence between self and environment when they operate in a vocation or college where other students are most similar to themselves. Each student must make an evaluation of the other people in the environment and determine if they would be happy there. Pervin and Rubin (1968) reported that good matches between student and environment result in high performance. A report in 1984 by the National Institute of Education, Involvement in Learning, concludes that the more engaged students were in their education, the more satisfied they were and the greater the likelihood of persisting in college.

Another important aspect of environmental fit is the social support students receive. Dissatisfaction, resulting from the failure of the interpersonal environment to provide for students' needs, according to Brown et al. (1988), would result in behavioral and emotional strain. Wilder and Kellams (1987) suggested that colleges and universities must do more to encourage student involvement in the environment, and that students must demonstrate initiative to utilize what is offered for personal growth.

To John Holland (1966), human behavior is a function of both the individual's personality and the environment. Holland has long been an advocate of the premise that in order to predict human behavior, the environment also needs to be examined. The following is a presentation of Holland's Theory of Personality and Environment.

Holland's Typology Theory and The Environment

Type relationships

Holland developed a Hexagonal Model which shows the relationship between personality types and environments. The shorter the distance between types, the greater the correlation of similarity. The farther apart, the lower the correlation and the lower the similarity. The Hexagonal Model also defines degrees of congruence between person and environment. The most congruent situation for an Artistic person would be an Artistic environment. The most dissimilar situation for an Artistic type would be in a Conventional environment.

How well a student fits the environment is of great importance and, as shown previously in this chapter, linked to attrition. In a study of 1,878 college students, Nafzinger, Holland, and Gottfredson (1975) suggest that person-environment fit is a useful concept that can be used in education and vocational planning.

An overview of Holland's Typology Theory and the environment provides a basis of understanding the linkage between personality and environment. Understanding the differences associated with Holland's six types, leads to a better understanding of how students are different and how important their environment is to their well-being.

Holland (1985) posited that the primary concern of his theory was to explain vocational behavior and suggest some practical ideas to help young, middle-aged, and older people select jobs, change jobs, and attain vocational satisfaction. The theory postulated by Holland provides explanation for three fundamental questions and ideas.

1. What personal and environmental characteristics lead to satisfying career decisions, involvement, and achievement, and what characteristics lead to indecision, dissatisfying decisions, or lack of accomplishments?

2. What personal and environmental characteristics lead to stability or change in the kind of level and work a person performs over a lifetime?

3. What are the most effective methods of providing assistance to people with career problems?

Holland's theory consists of several simple ideas:

1. People can be characterized and categorized by their

resemblance to each of six personality types: Realistic, Social, Investigative, Artistic, Enterprising, and Conventional.

2. The environments in which people live and work can be characterized by their association with six model environments: Realistic, Social, Investigative, Artistic, Enterprising, and Conventional.

3. The matching of people and environment and the study of personality types and environments will produce predictable outcomes: vocational choice, vocational stability, and achievement.

Holland (1985) stated several working assumptions that are at the heart of the theory. They are:

1. In our culture most persons can be classified as one of six types.

2. There are six environment models, and each model is dominated by a specific type of personality.

3. People search for an environment that will let them exercise their skills and abilities as well as express their attitudes and values. For example, the Realistic types seek Realistic environments.

4. Behavior is determined by an interaction between personality and environment. Outcomes of specific

pairings can be predicted when the person's disposition and environment are known.

These four assumptions are supplemented by several secondary assumptions (Holland 1985).

Consistency	Some persons or environments are more closely defined than others. The degree that a person or environment is well defined is its degree of differentiation.
Identity	Personal identity is defined as the possession of a clear and stable picture of one's goals, interests, and talents.
Congruence	Different types require different environments. For example, Artistic types flourish in Artistic environments but would be unhappy in a Realistic environment.
Calculus	A hexagonal model displays relationships within and between types of environments. Distances between the types or environments

are inversely proportional
to the theoretical relationship
between them.

Type Development and Formulation

Holland (1985) uses Statts' theory to describe how types develop. These activities eventually lead to well defined interests. Assuming the interests are pursued, the end result is more specific competencies. These competencies, together with self-concept and values, eventually create a specific disposition or personality type.

Each type is a function of growing up in our culture. The biology, experiences, and interests associated with being human, produce certain preferences. Holland (1985) formulated the following descriptions of the six types.

Realistic

The special heredity and experiences of the Realistic person lead to a preference for activities that entail the explicit, ordered, or systematic manipulation of objects, tools, machines, and animals and to an aversion to educational or therapeutic activities. A Realistic person is predisposed to exhibit the following behavior:

1. Uses realistic competencies to solve problems at work and in other settings.

2. Perceives self as having mechanical and athletic ability and lacking ability in human relations.

3. Values concrete things or tangible, personal characteristics - money, power, and status.

The Realistic person is apt to be: Asocial, Hard-Headed, Materialistic, Persistent, Thrifty, and Uninvolved.

Investigative

The special heredity and experiences of the Investigative person lead to a preference for activities that entail the observational, symbolic, systematic, and creative investigation of physical, biological, and cultural phenomena in order to understand and control such phenomena; and to an aversion to persuasive, social, and repetititve activities. An Investigative person is predisposed to exhibit the following behavior:

1. Uses investigative competencies to solve problems at work and in other settings

2. Perceives self as scholarly, intellectual, having mathematical and scientific ability, and lacking in leadership ability

3. Values science.

The Investigative person is apt to be: Analytical, Cautious, Critical, Curious, Independent, Intellectual, Pessimistic, and Unpopular.

Artistic

The special heredity and experiences of the Artistic person lead to a preference for ambiguous, free, unsystematized activities that entail the manipulation of physical, verbal, or human materials to create art forms or products, and to an aversion to explicit, systematic, and ordered activities.

An Artistic person is predisposed to exhibit the following behavior:

1. Uses artistic competencies to solve problems at work and in other settings

2. Perceives self as expressive, original, intuitive, nonconforming, introspective, independent, disorderly, having artistic and musical ability, and ability in acting, writing, and speaking

3. Values esthetic qualities.

The Artistic person is apt to be: Disorderly, Expressive, Idealistic, Imaginative, Intuitive, Sensitive, and Open.

Social

The special heredity and experiences of the Social person lead to a preference for activities that entail the manipulation of others to inform, train, develop, cure, or enlighten; and an aversion to explicit, ordered, systematic activities involving materials, tools, or machines. A Social person is predisposed to exhibit the following behavior:

1. Uses social competencies to solve problems at work and in other settings

2. Perceives self as liking to help others, understanding others, having teaching ability, and lacking mechanical and scientific ability

3. Values social and ethical activities and problems.

The Social person is apt to be: Cooperative, Friendly, Generous, Helpful, Idealistic, Kind, Social, Understanding, and Warm.

Enterprising

The special heredity and experiences of the Enterprising person lead to a preference for activities that entail the manipulation of others to attain organizational goals or economic gain; and an aversion to observational, symbolic, and systematic activities. An Enterprising person is predisposed to exhibit the following behavior:

1. Uses enterprising competencies to solve problems at work and in other situations

2. Perceives self as aggressive, popular, self-confident, sociable, possessing leadership and speaking abilities, and lacking scientific ability

3. Values political and economic achievement.

The Enterprising person is apt to be: Ambitious,

Domineering, Excitement-Seeking, Extraverted, Self-Confident, and Talkative.

Conventional

The special heredity and experiences of the Conventional person lead to a preference for activities that entail the explicit, ordered, systematic manipulation of data; and an aversion to ambiguous, free, exploratory, or unsystematized activities. A Conventional person is predisposed to exhibit the following behavior:

1. Uses conventional competencies to solve problems at work and in other situations

2. Perceives self as conforming, orderly, and as having clerical and numerical abilities

3. Values business and economic achievement.

The Conventional person is apt to be: Well-Ordered, Materialistic, Dependable, and Likes Well-Defined Tasks.

The Environmental Model

Because human behavior depends upon both personality and the environment in which a person lives, the personality types presented earlier must be supplemented by environmental information. Holland (1985) proposes six model environments to characterize the social and physical environments in our culture. He stated that an environment model may be defined

as the situation or atmosphere created by the people who dominate a given area. For instance, a Social environment would be an atmosphere dominated by Social types. These model environments related to type because the two have some of the same constructs; namely, activities, competencies, values, and personality traits. People and environment can therefore be classified in the same terms and thus predict the outcomes associated with pairing people and environments.

Model Development and Formulation

Model environments are based on the notion that people make up the character of an environment. The environment reflects the interaction of the people within it. Even though people operate within the same environment, their perceptions of that environment or their stimulation within that environment may be different. Holland (1985) listed five useful courses of action to help with the complications associated with describing people and environments. They include the following: (A) Estimate the time spent in the environment, (B) Check to see if the person is in a special subunit, (C) Assess the distribution of power, (D) Determine the person's perception of the environment, and (E) Control the size of the environment.

Environment descriptions match the descriptions for personality types because they share the basic constructs.

Summary

Because of the intense competition for students, colleges and universities have begun to realize, in the past few years, that more attention needs to be given to how well the student fits with the college environment. More attention has been given to understanding the student personality, needs, and problems. It has been established that although ACT scores and high school G.P.A. have much to do with whether or not a student stays in school, it is not the total answer. Attrition is not simply a matter of intelligence (Marsh 1966). Indeed, many researchers (Kalsbeek 1986) and (Shaffer 1981) as well as others see the need of obtaining and retaining more information about students. It is logical that the more known about a student, the greater the understanding between student and institution. In addition, information will be obtained as to how well the student is interacting with the campus environment.

How well a student fits the environment is of great importance and, as shown previously in this chapter, linked to attrition. In a study of 1,878 college students, Nafzinger, Holland, and Gottfredson (1975) suggest that person-environment fit is a useful concept that can be used in education and vocational planning.

An overview of Holland's Topology Theory and the environment provides a basis of understanding the linkage between personality and environment. Understanding the differences associated with Holland's six types leads to a better understanding of how students are different and how important their environment is to their well-being.

The Myers Briggs Type Indicator (MBTI) has been shown to be a useful tool in higher education. Its benefits, as well as ideas for practical application, have been presented here and are part of this study. An entire book on the subject entitled <u>Applications of The Myers Briggs Type Indicator in Higher Education</u> by Provost and Anchors (1987) serves as a leading resource for higher education practitioners. The Myers Briggs Type Indicator was chosen for this study because of its relevance to higher education today. It has been widely associated with student activities, retention, academic advising, and career development.

CHAPTER III

METHODOLOGY

This chapter describes the methods and procedures of the study, including the selection of the sample, interview process, instrumentation, reliability and validity of the instrument, and the statistical procedures employed.

Selection of the Sample

Subjects in this study were students at Wartburg College in Waverly, Iowa. Wartburg is a private, liberal arts college with approximately 1400 students. Of the 1400 students, nearly 80 percent are from Iowa. Approximately 8 percent are international students, and less than 2 percent are minorities.

One week after school began in September, 1988, all entering freshmen were called and asked to participate in the freshman interview process conducted by the Career Development Center. Of the 320 entering freshmen contacted, 248 (78%) agreed to participate. All participants were approximately 18 years of age, lived on campus, and were first-time college students.

Each entering freshman was given a tour of the Career Development Center, asked to respond privately to selected questions, and asked to complete the Myers Briggs Type Indicator. Each student was told that this was a voluntary process and

that their responses to the interview and the MBTI would be part of a study and a collection of research.

The interview process

Prior to this study, in the fall of 1987, more than 200 Wartburg College graduating seniors were asked what they considered to be the major factors associated with their successful graduation from college. Students most often cited activity involvement, choice of major, ACT score, leadership perception, self-perception, career decisiveness, and individual personality. These served as the basis for developing the interview questions for this study. The interview was designed to gather information about students in an effort to: (1) Identify reasons why students fail to persist, (2) Serve as an early intervention referral system, and (3) Get freshmen involved early in career development programs.

In the fall of 1988, 248 entering freshmen were asked to respond to the questions in Table 1. The interviewers included the Director of the Career Development Center and nine career education counselors. Each career education counselor received 25 hours of career education training, and was taught to conduct the interviews in a conversational style as opposed to a blunt question and answer session. The interviewers were also instructed on presenting an objective, caring style. Student responses with respect to activity

TABLE 1. Interview Questions. Questions asked entering freshmen

---

1. What will you be majoring in?

2. Which parents graduated from a 4 year college?

3. Do you plan to attend graduate school?

4. How certain are you of your career decision?

5. Which activities will you be involved in?

6. How would you describe yourself?

7. What are your strengths?

8. What are your weaknesses?

9. What problems are you experiencing so far?

---

involvement, major, and self-perception were categorized as reported in Tables 2, 3, and 4. Student strengths and weaknesses are shown in Tables 5 and 6. Category definitions are presented under definition of terms in Chapter I. The information contained in these six tables serve as descriptors or profiles of that entering class. The descriptors are a function of strength of preferences. Students who had low raw scores (5 or less) may have given information contrary to MBTI theory. In contrast, students with high scores for a certain preference may affirm type theory.

TABLE 2. Activity Involvement Categories.
Activities that entering freshmen were involved in.

None
Sports
Intramural Sports
Science Club
Language
International
Religious Club
Religious Activities
Residence Hall
Political Clubs
Business Clubs
Community Clubs
Cheerleader
Music Club
Band & Orchestra
Leadership
Computer Club
Drama & Arts
Social Work
Academic Club
Peer Helper
Choir
School Organization

TABLE 3. Academic Majors. Majors of entering freshmen.

Accounting
Art
Biology
Business Administration
Business Education
Chemistry
Communication Arts
Computer Information Systems
Computer Science
Economics
Elementary Education
English
French
German
History
Leisure Services
Mathematics
Medical Technology
Music
Music Education
Occupational Therapy
Philosophy
Physical Education
Physical Therapy
Physics
Political Science
Pre-Engineering
Psychology
Religion
Secondary Education
Social Work
Spanish
Undecided

TABLE 4. Self-Perception Categories with Student Descriptors as provided by 248 entering freshmen

NONE	CHEERY	SOCIAL
NON-SOCIAL	Cheerful	Likes to have fun
Not outgoing	Happy	Likes people
Laid back	Laughing	Being with friends
Keep to self	Light hearted	Likes to meet people
Quiet	Joke around	Loves to talk
Reserved	Smiley	Loves life
Loner	Bubbly	Lover
Soft spoken	Fun loving	Loving
Strange	Funny	Not afraid of people
EAGER	Humorous	Talkative
Enthused	**CARING**	Values friends
Enthusiastic	Counsel others	Friendly
Encouraged	Involved	Easy to talk to
INDEPENDENT	Concerned	Easy to get to know
I am who I am	Compassionate	Easy-going
Leader	Helpful	Extravert
Believer in causes	Help others	**NON-CONFIDENT**
Do best I can	Kind	Lazy
Don't get into trouble	Listener	Loud mouth
Eccentric	Nice	Irrational
Good attitude	Willing to help	Insecure
Stubborn	Understanding	Nervous
Stand up for beliefs	Accepting	Not sure of future
Strong ideas	**AGGRESSIVE**	Confused about future
Willing to risk	Assertive	Wants directioN
RELIGIOUS	Pushy	Frustrated
Christian	Opinionated	**CONFIDENCE**
Very religious	Demanding	Strong willed
Stong sense of values	Direct	Strong minded
CREATIVE	Intense	Strong willed for success
Intuitive	Tenacious	Sure of self
Curious	Tough	Well adjusted
Imaginative	**HONEST**	Capable
Interesting	Faithful	Confident
INTELLIGENT	Trustworthy	Secure
Fairly smart	Conscientious	Futuristic
Smart	Dependable	Optimistic
Relatively smart	Loyal	Self-assured
Talented	Factual	Self-confident
Well rounded	Family	**SENSITIVE**
Catch on fast	Sincere	Romantic
ORGANIZED	**AMBITIOUS**	Sentimental
Positive	Determined	**RESPONSIBLE**
Prompt	Studious	Reliable
Perfectionist	Hard working	**ACTIVE**
Well disciplined	Goal oriented	Busy
ANALYTICAL	Gets things done	On the go
Science	Eager to finish school	Sports
Reading	Highly motivated	Go-getter
Logical	Wants to achieve success	Motivated
ATHLETIC	Likes to accomplish task	Try hard
Enjoy running	School is important	Try best
Likes sports	Wants to succeed	Energetic
	Wants to learn new things	

TABLE 5. Self-Reported Strengths reported by 248 entering freshmen.

SENSING TYPES		INTUITIVE TYPES	
with THINKING	with FEELING	with FEELING	with THINKING
ISTJ Concentration, Math, Computers, Science, Persistent, Studying, Problem solving, Leadership, Decision maker, Independence, Too critical.	**ISFJ** Math and business, Responsibility, Active, Decision maker, Outgoing, Dealing with people, Like people, Talkative, Problem-solving, Meeting deadlines.	**INFJ** Helper, Hardworking, Talkative, Friendly, Involvement, Dedication.	**INTJ** 'Idea' type classes, Dedicated, Honesty, Trustworthy, Decision maker, Analyze situations.
ISTP Determination, Friendly, Hardworker, Politics, Finance, Practical, Thoughtful, Organized.	**ISFP** Sciences, Honest, Loyal, Determination, Dedicated, Active, Conscientious.	**INFP** Listener, Friendly, Easy going, Caring, Leadership, Writing.	**INTP** Mechanically inclined, Problem solver, Math, Science.
ESTP Friendly, Getting along with people, Independent, Stubborn, Perfectionist, Leadership, Self-iniated, Easy to talk to, Strong will.	**ESFP** Ability to prioritize, Making friends, Getting to know people, Problem solver, Independence, Outgoing, Like to meet people, Friendly, Likable leader, Honest, Getting along with people, Caring,Math,Dependable, Get things done.	**ENFP** Leadership, Friendly, Easy to talk with, Caring, Personality, Meeting people, Getting involved, Languages,Outgoing, Socialization, Optimistic, Hard working, Talkative.	**ENTP** Hard working, Determined, Motivated, Talking, Independent, Responsible, Get along, Helping others, Confidence.
ESTJ Assertiveness, Math, People oriented, Conscientious, Friendliness, Honesty, Dependable, Talkative, Motivation, Spiritual.	**ESFJ** Friendly, Hardworking, Enjoys people, Open to feelings, Determined, Outgoing, Understanding, Confident, Organized, Responsible, Sensible, Good leader, Love to meet people,Make friends easily, Working with people, Ability to talk.	**ENFJ** Diligent,Sensitive,Like to talk to people,Lc˙ of energy, Perseverance, Strong person-values, Personality,Caring,Self -expression,Get along with people,Ambitious Conversation, Deter- mination, Confidence.	**ENTJ** Leader, Organization, Concentration, Good public speaking, Easy to get along with, Meeting people.

Right side labels: JUDGING INTROVERTS (top), PERCEPTIVE INTROVERTS, PERCEPTIVE EXTROVERTS, JUDGING EXTROVERTS (bottom)

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

TABLE 6. Self-Reported Weaknesses reported by 248 entering freshmen.

SENSING TYPES		INTUITIVE TYPES	
with THINKING	with FEELING	with FEELING	with THINKING
ISTJ English, Arts, Not saying no, Organization, Shy, Procrastination, Worrier, Confronting, Motivation, Deviating from goals.	**ISFJ** English, Science, Shy, Giving others orders, Expressing ideas, Insensitive, Time management, Quiet, Not assertive, Indecisiveness, Unsure, Not outgoing, Taking charge.	**INFJ** Perfectionist, Too critical, Not sociable, Ahy, Not aggressive, No self-confidence.	**INTJ** Math, Science, Procrastination, Dislike large groups, Too trusting, Stressful situations.
ISTP English, Concentration, Impatient, Shy, Meeting people.	**ISFP** Sensitive, Emotional, Shy, Easily influenced, Mood swings, Worrier, Perfectionist.	**INFP** Shyness, Temperamental, Can't say no, Too emotional, Indecisive, Wanting to do many things.	**INTP** Act before thinking, Concentration, Impatient.
ESTP Study habits, Too nice, Procrastination, Stubborn, Too much socializing, Confidence.	**ESFP** Getting too busy, Procrastination, Flighty, Doing too many things at once, Shy, Lack of confidence, Impatience, Too sensitive, Not a perfectionist.	**ENFP** Too caring, Impatient, Internalize problems, Indecisive, Doing too many things at once, Seek approval, Hard to say no, Vulnerable, Follower.	**ENTP** Insensitive, Loud, Too much energy, Too hyper, Low self-esteem, Lack confidence, Worrier, Organization.
ESTJ Impatient, Doesn't like being really sociable, Very critical, Demanding of friends, Overbearing.	**ESFJ** Too much outgoing, Worrier, Not very self-confident, Time Organization, Other people's problems, Procrastination, Too independent and impatient, Afraid of being too outgoing, Talk too much, Overbearing.	**ENFJ** Too critical, Impatience, Indecision, Too talkative, Too candid, Spreading self too thin, Don't ask for help, Worrier.	**ENTJ** Study habits, Getting burned out, Short tempered, Math, Science.

(Right margin vertical labels: JUDGING / INTROVERTS / PERCEPTIVE / PERCEPTIVE / EXTROVERTS / JUDGING)

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

In an effort to enhance the differences among the students that the interviews provided, the MBTI was chosen to explain differences in personality.

Instrumentation and Handouts

The Myers Briggs Type Indicator (MBTI) was chosen for the study because of its wide and diverse use in higher education. The descriptors of the subjects are presented, by type, in a 16-cell matrix which was specifically designed by the research expert at the Center for the Application of Psychological Type (CAPT) (McCaulley 1985; Carskadon 1987). In addition, handouts pertaining to Holland's vocational preferences and person-environment theory were handed out and explained.

Instrumentation

The Myers Briggs Type Indicator (MBTI) Form G. is a forced-choice, 126-item instrument. The MBTI is based on Carl Jung's theory of psychological type. According to Jung (1923), the way individuals act in their environments is orderly and a direct result of how people view the world around them.

The MBTI explains personality differences by putting forth four basic preferences or indices as defined in Table 3 by Myers and McCaulley (1985).

EI	E Extroversion or	Whether to direct perception
	I Introversion	judgment mainly on the outer world (E) or mainly on the world of ideas (I)
SN	S Sensing perception	Which kind of perception is
	N Intuitive perception	preferred when one needs or wishes to perceive
TF	T Thinking judgment	Which kind of judgment to trust
	F Feeling judgment	when one needs or wishes to make a decision
JP	J Judgment	Whether to deal with the outer
	P Perception	world in the judging (J) attitude (using T or F) or in the perceptive attitude (using S or N)

Sixteen personality types are possible from the four preferences: E-I, S-N, T-F, J-P. Individuals receive a preference score for each of the preferences. The type is then calculated by which side of the continuum is dominant (has the highest score). For example, an individual who has a high preference score for Extraversion, Intuition, Feeling, and Perception would be typed an ENFP.

Reliability and validity of the Myers Briggs type indicator

Borg and Gall (1983) defined reliability as the level of internal consistency or stability of the measuring device over time. Estimates of reliability are usually presented as correlation coefficients. Reliability coefficients vary between values of .00 and 1.00, with 1.00 indicating perfect reliability. This reliability coefficient reflects the freedom from error variance.

With respect to the MBTI, questions of reliability are usually addressed by split-half reliability and test-retest reliability. Split-half reliability is a correlate of the scores of odd numbered questions with the scores of even numbered questions. The correlates between the even numbered and the odd numbered questions are always underestimated because if the test consists of 126 items, the researcher is actually getting a correlate for a 63-question test or half of 126. Therefore, larger tests are more reliable than shorter tests if conditions are the same. The Spearmore-Brown Prophecy Formula is used to transform the split-half correlate from a 63-item test (split-half) to an entire 126-question test.

Myers and McCaulley (1985) report that the reliability of continuous scores associated with the MBTI are consistent with other personality instruments. With respect to university students, split-half reliabilities are greater than with high

school students. Internal consistencies for university students, as put forth in the MBTI manual, suggest internal consistencies derived from product moment correlations with Spearman Brown Prophecy Formula correction yield correlates in excess of .80.

Carlyn (1977) revealed internal consistencies associated with continuous scores to be adequate for a personality instrument. Split-half reliability ranged from .70 to .90. Split-half reliability by calculating tetrachoric correlations was recommended by Myers (1962) in conjunction with the Spearman Brown Prophecy Formula. Carlyn (1977) suggested, however, that tetrachoric correlates generate false high reliabilities because the statistic assures an underlying normal distribution and the MBTI is not typically normally distributed (Myers and McCaulley 1987).

Test-retest reliabilities associated with the MBTI have been widely reported and found to be correct (Carlyn 1977). Carskadon (1979) in a study of 32 male and 24 female college students found, after administering the MBTI initially and a retest seven weeks later, that test-retest reliability of continuous scores were as follows:

E-I (.79 males, .86 females); S-N (.84 males, .87 females); T-F (.48 males, .87 females); J-P (.63 males, .80 females). Carskadon reported that coefficients were good to satisfactory, but

unfortunately there were poor correlates for the Thinking-Feeling indices for men.

In sum, the reliability of continuous scores is consistent with other personality tests. Split-half reliability ranged from .70 to .90, and test-retest reliability was reported good to satisfactory.

The MBTI was designed to follow Jung's Theory of Psychological Type. Construct validity is the extent to which a test measures a specific trait or construct. In the case of the MBTI, a measure for construct validity would be how well does the instrument measure Jung's theory. Construct validity is a must for any measure of psychological traits (Ary 1985).

The Jungian Type Survey (Myers and McCaulley 1985) measures the same E-I, S-W, T-F, scales as the MBTI. The correlations are considered moderately high and statistically significant.

The distribution of types is actually evidence for construct validity according to Myers and McCaulley (1987). Type tables are 4 x 4 matrices presenting the 16 different types. The samples are described by being placed in one of the 16 cells. If, according to Myers and McCaulley (1987), the cells represent a higher number than the theoretical, then that adds to construct validity.

In a study of pyschologically close persons, Stricker and Ross (1962) found that the MBTI dimensions between close individuals are recognizable. Married couples were studied by Cohen (1981) and scores were in agreement with the spouses' judgment in predicting three dimensions of Jung typology; E-I, S-W, and T-F, and therefore receives construct validational support.

Thompson and Pitts (1981) indicated that the MBTI measures four dimensions and the items generally measure the scales the items are expected to measure. In an additional study, Thompson and Borrello (1986) found consistent supportive evidence regarding the construct validity of the MBTI.

Hypothesis of Study

The study addressed the following hypothesis in Null Form:

1. There is no significant relationship between the 16 MBTI types and undecided students.

2. There is no significant relationship between the 16 MBTI types and persisters and nonpersisters.

3.1 There is no significant relationship between the Extraversion/Introversion preferences and career decisiveness.

3.2 There is no significant relationship between the Sensing/Intuition preferences and career decisiveness.

3.3 There is no significant relationship between the Feeling/Thinking preference and career decisiveness.

3.4 There is no significant relationship between the Judgment/Perception preference and career decisiveness.

4.1 There is no significant relationship between the Extraversion/Introversion preference and persistence.

4.2 There is no significant relationship between the Sensing/Intuition preference and persistence.

4.3 There is no significant relationship between the Feeling/Thinking preference and persistence.

4.4 There is no significant difference between the Judgment/Perception preference and persistence.

Data Analysis

The data from this study will be analyzed in a variety of ways. Methods of analysis were chosen that differentiate between persisters and nonpersisters by focusing on MBTI types and preferences and various multiple variables defined earlier: namely, activity involvement, academic major, self-perception, strengths, weaknesses, and career decisiveness.

It is important to note that the preference scores of the MBTI have been converted to continuous scores as outlined by McDaid (Provost and Anchors 1987, pp. 257-269). I, N, F,

and P continuous scores were added to 100 to create scores greater than 100. Likewise, E, S, T, and J preference scores were subtracted from 100. The result is four sets of continuous scores. The continuous scores range from E to I, S to N, T to F, and J to P. The description of the subjects will be presented by type in a 16-cell matrix, expecially designed by the research experts at the Center for the Application of Psychological Type (Granade et al. 1987). The Chi-square analysis reported in the study is a 2 x 2 matrix performed 16 times.

Statistical Procedures

The data were analyzed by the following procedures:

1. Discriminant Analysis

2. Multiple Regression

3. Chi-square

4. Pearson Product Moment Correlation

5. Frequency and Means

6. Selection Ratio Type Table

The results presented in Chapter IV are from the statistical and description analysis of the MBTI and other independent variables and their relationship to persistence, the dependent variable. The .05 level of significance was used as the minimal acceptable descriptor of difference.

CHAPTER IV

RESULTS

This chapter will present the findings and statistical analysis of the data collected during the project. The research data were subjected to various statistical procedures. This chapter includes information on the sample subjects, frequencies, Selection Ratio Type Tables, Chi-square Analysis, Pearson Product Moment Correlations, Analysis of Variance (ANOVA), Discriminant Function Analysis, and Multiple Regression. Specific comparisons are made between undecided students, persisters, and nonpersisters to MBTI type. In addition, various independent variables; namely, ACT scores, activity involvement, self-perception, career decisiveness, major, strengths, and weaknesses, are compared to type.

Sample

Data were obtained from the entering freshman class of 1988. Of the 320 entering freshmen contacted, 248 (N=248) or 78 percent agreed to participate. All participants were traditional-aged college freshmen, lived on campus, and were first-time college attendees. All 248 students were given a tour of the Career Development Center, interviewed, and given the MBTI. Each student received a packet of handouts which

included Self-Directed Search (SDS) information on Holland
personality codes and the importance of knowing your environment.
The questions the students were asked appear in Table 1. All
participating students were informed that participation was
voluntary on their part, that this was part of a research
project, and that the information obtained from them and others
by the Career Development Center was confidential. They were
encouraged to compare their MBTI results with Holland's codes
and to return to the Career Development Center for follow-up
and clarification.

The description of the subjects will be presented by type
in a 16-cell matrix, specifically designed by the research
expert at the Center for The Application of Psychological Type
(McCaulley 1985; Carskadon 1987).

The type table is designed to highlight similarities and
differences. Table 7 shows the type distribution for the entire
sample of entering freshmen in the fall of 1988 (N=248);
hereafter referred in Center for the Application of Psychological
Type (CAPT) nomenclature as the base population. Of the 248
subjects, 115 were men and 133 were women. (See Table 8 and
Table 9.) The tables show the distribution, by type, of men
and women participating in the study.

These tables also compare males and females to the group
in Table 7, using Selective Ratios (SRTT analysis). The use

TABLE 7. Wartburg College freshmen entering class. N = 248.

SENSING TYPES		INTUITIVE TYPES			
with THINKING	with FEELING	with FEELING	with THINKING		
ISTJ N = 30 % = 12	ISFJ N = 22 % = 9	INFJ N = 11 % = 4	INTJ N = 7 % = 3	J U D G I N G	70
ISTP N = 7 % = 3	ISFP N = 17 % = 7	INFP N = 14 % = 6	INTP N = 11 % = 4	P E R C E P T I V E	49
ESTP N = 13 % = 5	ESFP N = 15 % = 6	ENFP N = 35 % = 14	ENTP N = 10 % = 4	P E R C E P T I V E	73
ESTJ N = 11 % = 5	ESFJ N = 25 % = 10	ENFJ N = 13 % = 5	ENTJ N = 7 % = 3	J U D G I N G	56
61	79	73	34		

INTROVERTS — EXTROVERTS

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

of SRTT analysis is the correct scientific procedure when comparing two groups in terms of type distributions (Carskaden 1987). The SRTT, according to McCaulley (1985) is a good way to answer research questions involving comparisons of groups.

When reading the SRTT, each cell shows the number (N) associated with that type and the percent (%) of the total N of the sample. For example, in Table 8, the total number of males is 115 or 46 percent of the base population (N=248). ISTJ's number 22 or 19.13 percent of the 115 males in the sample. Each box also contains an Index (I) of observed to expected frequencies. The I for ISTJ males is 1.58. An index above 1.0 indicates there are more male student respondents in that type than expected. The I is calculated by dividing the total number of a particular type, INTP, (N=11) by the total sample (N=248). That number (.044) multiplied by the particular sample size (undecided students = 60) is 2.64 (the expected value). The expected value (2.64) is divided into the number of observed observations for undecided students (3). The result is 1.13. An index below 1.0 indicates fewer males in that particular type than would be expected. The ISTJ type is over-represented by males. When examining the female Table 9, ISFJ, ESFJ, and ENFP types have an index of 1.78, 1.49, and 1.2. Thus, these types are over-represented for women.

Comparison of Variables and Type

An integral part of the study was to compare type with selected variables, including majors, undecided students, graduate school bound students, ACT scores, activity involvement, degree of career decisiveness, self-perception, and nonpersisters. The SRTT will be used to compare MBTI type and the previously mentioned variables. The hypothesis stated in Chapter III will be tested.

Graduate school bound

Table 10 compares students who answered "yes" to attending graduate school after they finished their four-year degree. When comparing the Index (I) and percentages (%) in each cell, the INTJ's are over-represented and ESTJ's are under-represented. Some caution must be exercised due to the ipsitive nature of the scales. If results are over-represented in one type, they are likely to be under-represented in the other.

Activity involvement, majors, and self-perceptions

The top activity preferences and frequencies are presented in Table 11. Almost 16 percent of the participants said that they would not be involved in activities in college. Of the activities mentioned, sports (37%) received the highest mention. Fourteen (6%) chose to participate in choir, while seventeen (7%) participated in various school organizations. Students with Introverted Sensing (IS) and Extraverted Intuition (EN)

TABLE 8. Entering freshmen males at Wartburg College. N = 116.

SENSING TYPES		INTUITIVE TYPES		
with THINKING	with FEELING	with FEELING	with THINKING	
ISTJ N = 22 % = 19.13 I = 1.58	**ISFJ** N = 1 % = 0.87 I = 0.10	**INFJ** N = 6 % = 5.22 I = 1.85	**INTJ** N = 7 % = 5.22 I = 1.85	J U D G I N G — 36 I N T R O V E R T S
ISTP N = 6 % = 5.22 I = 1.85	**ISFP** N = 8 % = 6.96 I = 1.01	**INFP** N = 7 % = 6.09 I = 1.08	**INTP** N = 10 % = 8.70 I = 1.96	P E R C E P T I V E — 31
ESTP N = 11 % = 9.57 I = 1.82	**ESFP** N = 4 % = 3.48 I = 0.58	**ENFP** N = 10 % = 8.70 I = 0.62	**ENTP** N = 5 % = 4.35 I = 1.08	P E R C E P T I V E — 30 E X T R O V E R T S
ESTJ N = 7 % = 6.09 I = 1.37	**ESFJ** N = 5 % = 4.35 I = 0.43	**ENFJ** N = 4 % = 3.48 I = 0.66	**ENTJ** N = 3 % = 2.61 I = 0.92	J U D G I N G — 19
46	18	27	25	

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

TABLE 9. Entering freshmen females at Wartburg College. N = 133.

SENSING TYPES with THINKING	with FEELING	INTUITIVE TYPES with FEELING	with THINKING	
ISTJ N = 8 % = 6.02 I = 0.50	ISFJ N = 21 % = 15.79 I = 1.78	INFJ N = 5 % = 3.76 I = 0.85	INTJ N = 1 % = 0.75 I = 0.27	J U D G I N G I N T R O V E R T S 35
ISTP N = 1 % = 0.75 I = 0.27	ISFP N = 9 % = 6.77 I = 0.99	INFP N = 7 % = 5.26 I = 0.93	INTP N = 1 % = 0.75 I = 0.17	P E R C E P T I V E 18
ESTP N = 2 % = 1.50 I = 0.29	ESFP N = 11 % = 8.27 I = 1.37	ENFP N = 25 % = 18.80 I = 1.33	ENTP N = 5 % = 3.76 I = 0.93	P E R C E P T I V E E X T R O V E R T S 43
ESTJ N = 4 % = 3.01 I = 0.68	ESFJ N = 20 % = 15.04 I = 1.49	ENFJ N = 9 % = 6.77 I = 1.29	ENTJ N = 4 % = 3.01 I = 1.07	J U D G I N G 37
15	61	46	11	

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

TABLE 10. Freshmen who said they would attend Graduate School. N = 110.

| SENSING TYPES | | INTUITIVE TYPES | | |
with THINKING	with FEELING	with FEELING	with THINKING	
ISTJ N = 16 % = 14.55 I = 1.20	ISFJ N = 7 % = 6.36 I = 0.72	INFJ N = 5 % = 4.55 I = 1.02	INTJ N = 6 % = 5.45 I = 1.93	J U D G I N G — I N T R O V E R T S 34
ISTP N = 3 % = 2.73 I = 0.97	ISFP N = 5 % = 4.55 I = 0.66	INFP N = 5 % = 4.55 I = 0.81	INTP N = 5 % = 4.55 I = 1.02	P E R C E P T I V E 18
ESTP N = 7 % = 6.36 I = 1.21	ESFP N = 10 % = 9.09 I = 1.50	ENFP N = 17 % = 15.45 I = 1.10	ENTP N = 6 % = 5.45 I = 1.35	P E R C E P T I V E — E X T R O V E R T S 40
ESTJ N = 1 % = 0.91 I = 0.20	ESFJ N = 7 % = 6.36 I = 0.63	ENFJ N = 7 % = 6.36 I = 1.21	ENTJ N = 3 % = 2.73 I = 0.97	J U D G I N G 37
27	29	34	20	

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type
Selected Ratio Type Table (SRTT)

- 18 percent and 19 percent, respectively - were the most likely not to participate in activities. The most popular activities among Introverted Sensing (IS) types were sports as well as business, science, and religious clubs. The Introverted Intuitive (IN) types preferred band, choir, and sports. Extraverted Sensing (ES) types participated in sports, choir, and school organizations while the Extroverted Intuitive (EN) types preferred a wider range of activities, although sports was the most popular.

Students were asked in the interview process to describe themselves. The answers they gave were separated into categories and are displayed in Table 12. The term Non Social appears most often among the I types and least often among the E types. Religious appears most often among the IN and IS groups, while Ambitious, Caring, and Cheery appear most often among the ES and EN groups.

Table 13 displays the student academic majors by type. The largest number of accounting majors were ESFJ, ISTJ, and ISFJ types. Biology majors were significantly represented by the ISFJ type. Psychology majors were most likely to be an ENFP, while the ESTJ's had the largest number of business administration majors. Most of the elementary education majors were ESFJ's.

TABLE 11. Activity Involvements. Activities freshmen said they were involved in. N = 248.

SENSING TYPES		INTUITIVE TYPES	
with THINKING	with FEELING	with FEELING	with THINKING

ISTJ N = 30	ISFJ N = 22	INFJ N = 11	INTJ N = 7
None 6 Sports 13 Intramural Sports 1 Science Club 2 Religious Club 1 Business Club 1 Leadership 1 Computer Club 1 Choir 3 School Organization 1	None 2 Sports 6 Intramural Sports 1 Religious Club 2 Religious Act. 1 Business Club 2 Band & Orchestra 2 Leadership 1 Drama & Arts 1 Social Work 1 Choir 1 School Organization 2	None 1 Science Club 1 Music Club 2 Band & Orchestra 1 Leadership 1 Peer Helper 1 Choir 3 School Organization 1	None 2 Sports 4 Choir 1

ISTP N = 7	ISFP N = 17	INFP N = 14	INTP N = 11
None 3 Sports 3 Intramural Sports 1	None 3 Sports 7 Intramural Sports 1 Science Club 1 Religious Act. 1 Computer Club 1 Peer Helper 1 Choir 1 School Organization 1	None 1 Sports 2 Intramural Sports 2 Language 1 Religious Act. 1 Band & Orchestra 2 Leadership 1 Choir 1 Drama & Arts 2 School Organization 1	None 3 Sports 5 Residence Hall 1 Political Club 2

ESTP N = 13	ESFP N = 15	ENFP N = 35	ENTP N = 10
Sports 12 Residence Hall 1	None 2 Sports 4 Intramural Sports 1 Religious Act. 1 Business Club 1 Communication Club 1 Choir 3 School Organization 2	None 9 Sports 7 International 2 Religious Club 1 Religious Act. 2 Residence Hall 1 Political Club 2 Business Club 1 Band & Orchestra 3 Leadership 1 Social Work 2 School Organization 3	None 1 Sports 6 Intramural Sports 1 International 1 Drama & Arts 1

ESTJ N = 11	ESFJ N = 25	ENFJ N = 13	ENTJ N = 7
Sports 5 International 1 Political Club 1 Communication Club 3 Choir 1	None 4 Sports 7 Intramural Sports 3 Language 1 Religious Act. 2 Business Club 1 Communication Club 1 Band & Orchestra 1 Academic Club 1 School Organization 4	None 1 Sports 3 Language 1 Religious Club 1 Residence Hall 1 Cheerleader 1 Leadership 1 Drama & Arts 1 Social Work 1 School Organization 2	None 1 Sports 3 Political Club 1 Cheerleader 1 Band & Orchestra 1

Right margin (vertical text): JUDGING INTROVERTS / PERCEPTIVE INTROVERTS / PERCEPTIVE EXTROVERTS / JUDGING EXTROVERTS

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

TABLE 12. Self Perception. Self-perceptions of 248 entering freshmen.

SENSING TYPES		INTUITIVE TYPES		
with THINKING	with FEELING	with FEELING	with THINKING	

ISTJ N = 30		ISFJ		INFJ		INTJ		
None	1	N = 21		N = 11		N = 7		
Non Social	10	Non Social	6	Non Social	3	Intelligent	1	**J**
Independent	5	Eager	2	Religious	2	Athletic	1	**U**
Intelligent	5	Independent	2	Creative	1	Cheery	1	**D**
Organized	1	Athletic	1	Honest	1	Ambitious	2	**G**
Analytical	1	Cheery	2	Ambitious	2	Social	2	**I**
Athletic	1	Caring	2	Social	1			**N**
Cheery	1	Honest	1	Responsible	1			**G I**
Aggressive	1	Ambitious	1					**N**
Non Confident	1	Social	2					**T**
Social	1	Confidence	1					**R**
Confidence	1	Active	1					
Ambitious	3							
Active	2							

ISTP		ISFP		INFP		INTP		
N = 7		N = 17		N = 14		N = 10		**P R**
None	1	None	1	Non Social	2	Creative	1	**E O**
Non Social	1	Non Social	3	Independent	2	Intelligent	1	**R V**
Creative	1	Independent	1	Organized	1	Analytical	2	**C E**
Athletic	1	Religious	2	Cheery	3	Athletic	1	**E R**
Ambitious	1	Analytical	1	Caring	2	Aggressive	1	**P T**
Non Confident	1	Ambitious	4	Aggressive	1	Social	1	**T S**
Active	1	Social	1	Honest	1	Non Confident	1	**I**
		Non Confident	2	Social	1	Active	2	**V**
		Confidence	1	Active	1			**E**
		Active	1					

ESTP		ESFP		ENFP		ENTP		
N = 13		N = 15		N = 34		N = 10		**P**
Non Social	2	Independent	1	Non Social	2			**E**
Independent	2	Cheery	2	Independent	2	Non Social	1	**R**
Analytical	1	Caring	5	Creative	1	Independent	2	**C**
Athletic	2	Aggressive	1	Intelligent	1	Analytical	1	**E**
Cheery	1	Honest	1	Organized	2	Aggressive	1	**P**
Ambitious	1	Ambitious	1	Cheery	2	Ambitious	1	**T**
Social	3	Social	4	Caring	4	Social	2	**I E**
Active	1			Ambitious	4	Non Confident	2	**V X**
				Social	14			**E T**
				Confidence	1			**R**
				Active	1			**O**

ESTJ		ESFJ		ENFJ		ENTJ		
N = 11		N = 25		N = 13		N = 7		**J V**
		None	1	Eager	1	Creative	1	**U E**
		Non Social	1	Religious	1	Caring	1	**D R**
Non Social	1	Independent	1	Intelligent	1	Aggressive	1	**G T**
Caring	1	Intelligent	1	Caring	2	Ambitious	1	**I S**
Aggressive	2	Organized	2	Social	6	Social	3	**N**
Ambitious	3	Cheery	4	Active	2			**G**
Social	2	Caring	3					
Confidence	2	Ambitious	1					
		Social	7					
		Sensitive	2					
		Active	1					
		Athletic	1					

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

TABLE 13. Academic Major. Academic majors of 248 entering freshmen.

SENSING TYPES		INTUITIVE TYPES	
with THINKING	with FEELING	with FEELING	with THINKING
ISTJ N = 30 Accounting 3 Biology 6 Business Administration 4 Chemistry 4 Communication 1 Computer Science 2 Economics 1 Math 4 Physical Education 1	**ISFJ** N = 22 Accounting 4 Biology 1 Business Administration 2 Chemistry 2 Communication 1 Elementary Education 3 Leisure Services 1 Medical Technology 1 Music Education 1 Occupational Therapy 1 Physical Therapy 1 Social Work 2 Undecided 2	**INFJ** N = 11 Accounting 1 Chemistry 1 Computer Science 2 History 1 Music Education 1 Political Science 1 Psychology 1 Social Work 1	**INTJ** N = 7 Biology 2 History 1 Leisure Services 1 Math 1 Psychology 1 Undecided 1
ISTP N = 7 Accounting 1 Business Administration 1 Computer Science 1 Political Science 1 Undecided 3	**ISFP** N = 17 Accounting 2 Biology 1 Business Administration 4 Communication 1 Computer Science 1 History 1 Math 2 Music Education 1 Psychology 1 Social Work 1 Undecided 1	**INFP** N = 14 Business Administration 3 English 1 German 1 Math 1 Music Education 1 Philosophy 1 Psychology 3 Undecided 3	**INTP** N = 11 Accounting 1 Biology 1 German 1 Math 2 Physical Education 1 Physics 1 Political Science 1 Pre-Engineer 1 Undecided 2
ESTP N = 13 Accounting 1 Biology 2 Business Administration 2 Computer Science 1 Economics 1 Elementary Education 1 Math 1 Psychology 2 Secondary Education 1 Undecided 1	**ESFP** N = 15 Accounting 1 Biology 2 Business Administration 1 Communication 3 Elementary Education 1 Math 1 Music 1 Music Education 2 Psychology 2	**ENFP** N = 34 Art 1 Biology 1 Business Administration 2 Business Education 2 Computer Science 1 Elementary Education 2 English 1 Math 2 Music Education 1 Physical Therapy 1 Political Science 3 Psychology 8 Undecided 10	**ENTP** N = 10 Biology 3 Business Administration 1 Computer Information Systems 1 Math 1 Political Science 2 Undecided 2
ESTJ N = 11 Biology 1 Business Administration 6 Communication 1 Elementary Education 1 Social Work 1 Undecided 1	**ESFJ** N = 25 Accounting 3 Biology 3 Business Administration 4 Computer Science 1 Elementary Education 7 French 1 Math 1 Music Education 1 Psychology 1 Undecided 2	**ENFJ** N = 13 Biology 1 Business Administration 4 Chemistry 1 Computer Information Systems 1 English 1 Math 1 Philosophy 1 Political Science 1 Religion 1 Social Work 1	**ENTJ** N = 7 Business Administration 3 Computer Science 1 History 1 Psychology 1 Spanish 1

(Right margin vertical labels: JUDGING INTROVERTS — INTROVERTS PERCEPTIVE — PERCEPTIVE EXTROVERTS — JUDGING EXTROVERTS)

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

TABLE 14. Undecided Students. Entering freshmen who said they were undecided by type.
N = 33.

SENSING TYPES		INTUITIVE TYPES		
with THINKING	with FEELING	with FEELING	with THINKING	
ISTJ N = 3 % = 9.09 I = 0.75	ISFJ N = 2 % = 6.06 I = 0.68	INFJ N = 1 % = 3.03 I = 0.68	INTJ N = 1 % = 3.03 I = 1.07	J U D G I N G I N T R 7
ISTP N = 3 % = 9.09 I = 3.22	ISFP N = 2 % = 6.06 I = 0.88	INFP N = 3 % = 9.09 I = 1.61	INTP N = 2 % = 6.06 I = 1.37	P E R C E P T I V E O V E R T S 10
ESTP N = 1 % = 3.03 I = 0.58	ESFP N = 0 % = 0.00 I = 0.00	ENFP N = 10 % = 30.30 I = 2.15 x = 8.23	ENTP N = 2 % = 6.06 I = 1.50	P E R C E P T I V E E X T R O V E R T S 13
ESTJ N = 1 % = 3.03 I = 0.68	ESFJ N = 2 % = 6.06 I = 0.60	ENFJ N = 0 % = 0.00 I = 0.00	ENTJ N = 0 % = 0.00 I = 0.00	J U D G I N G 3
8	6	14	5	

☐ .05 level of significance x (1) 3.8

Undecided student

Hypothesis Number I: There is no significant relationship between the 16 MBTI types and undecided students.

The undecided students presented in Table 14 numbered 33 or 13 percent of the base population (N=248). The largest number of undecided students were ENFP's. The Index (I) ratio for the ENFP undecided students is 2.15; more than twice the expected amount. This is significant at the .01 level. Chi-square analysis demonstrates a significant relationship among the ENFP type and undecided students--Chi-square (1) = 6.6 at the .01 level of significance. As demonstrated by Table 14, the ENFP X^2 value is 8.23, is greater than 6.6, and therefore is significant. This means that the observed difference between the categories is greater than by chance alone at the P>.01 level of significance. Therefore, Hypothesis Number I is rejected for only one of the 16 MBTI types and undecided students.

Persisters and nonpersisters

Hypothesis Number 2: There is no significant relationship between the 16 MBTI types and persisters and nonpersisters.

Table 15 demonstrates that the Null Hypothesis was rejected on only two of sixteen types.

Nonpersisters are defined as those who did not return for their junior year. Nonpersisters are displayed by type

TABLE 15. Nonpersisters. Entering freshmen who did not persist to the sophomore year.
N = 60.

SENSING TYPES		INTUITIVE TYPES			
with THINKING	with FEELING	with FEELING	with THINKING		
ISTJ N = 10 % = 16.67 I = 1.38	ISFJ N = 0 % = 0.00 I = 0.00 .007	INFJ N = 1 % = 1.67 I = 0.38	INTJ N = 1 % = 1.67 I = 0.59	J U D G I N G I N T R O V E R T S	12
ISTP N = 2 % = 3.33 I = 1.18	ISFP N = 3 % = 5.00 I = 0.73	INFP N = 3 % = 5.00 I = 0.89	INTP N = 3 % = 5.00 I = 1.13	P E R C E P T I V E	11
ESTP N = 3 % = 5.00 I = 0.95	ESFP N = 3 % = 5.00 I = 0.83	ENFP N = 14 % = 23.33 I = 1.65 x = 5.55	ENTP N = 4 % = 6.67 I = 1.65	P E R C E P T I V E E X T R O V E R T S	24
ESTJ N = 2 % = 3.33 I = 0.75	ESFJ N = 7 % = 11.67 I = 1.16	ENFJ N = 1 % = 1.67 I = 0.32	ENTJ N = 3 % = 5.00 I = 1.77	J U D G I N G	13
17	13	19	11		

ISFJ ☐ p>.001 Fisher's Exact Probability   ENFP ☐ .05 level of significance x (1) 3.8

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

in Table 15. When comparing preferences, note that more than
61 percent of the nonpersisters were Extraverts while 39 percent
were Introverts. Sensing and the Intuition preferences were
even at 50 percent each, while the Thinking and Feeling
preferences were 47 percent and 53 percent, respectively.
The largest difference occurred in the Judgment Perception
preferences where 41 percent of the J's did not persist and
58 percent of the P's did not. None of the ISFJ's dropped
out, while 40 percent of the ENFP's did.

Chi-square analysis demonstrated significant differences
among the ENFP type for nonpersisters. Table 15 shows that
the X^2 value for the study is 5.55; greater than 3.8 at the
.05 level of significance. Therefore, the observed difference
between the categories is greater than by chance alone. In
addition, the ISFJ type had no nonpersisters. A Fishers Exact
Probability shows a significant difference at the .01 level
of significance. A Fishers Exact Probability was used instead
of a Chi-square Analysis because there are less than five
observations in the ISFJ cell.

Based on the ENFP and the ISFJ types, Hypothesis Number
2 was rejected on two of the 16 types.

Table 16 displays the means, standard deviations, and
minimum as well as maximum continuous scores on the four
preferences. It is important to remember that the preferences

TABLE 16. Means, Standard Deviations and Minimum and Maximum Continuous Scores on the Four Preferences and a Composite Type for Persisters and Nonpersisters based on the Means of Continuous Scores across the Four Preferences.

	PERSISTERS				NONPERSISTERS			
	MEAN	STD.DEV.	MIN.	MAX.	MEAN	STD.DEV.	MIN.	MAX.
E - I	98.49	26.74	31	163	96.80	22.51	55	151
S - N	95.70	26.03	33	147	96.10	25.36	41	151
T - F	104.97	23.06	39	139	98.57	23.11	43	133
J - P	98.97	26.23	47	161	105.05	27.22	48	149

COMPOSITE				
PERSISTERS	E	S	F	J
	98	95	104	98
NONPERSISTERS	96	96	98	105
	E	S	T	P

are a continuum where I, N, F, and P designations are above 100 and E, S, T, and J designations are below 100. It is possible to determine, by comparing mean continuous scores, the most persistent and nonpersistent types. When comparing the E-I preference, both mean scores for persisters and nonpersisters are below 100, so both are classified as an E. The S-N preference means are also below 100, so S is the dominant. When comparing the T-F preference, it is clear that persisters have means above 100, while nonpersisters have means below 100. Therefore, persisters can be classified as F's while nonpersisters may be classified as T's. The J-P preference is interesting because the persisters are below 100 so the J is dominant while nonpersisters are above 100 so the P is dominant. In summary, the composite type, based on the continuous score means of the four preferences, is ESFJ for those who persisted and is ESTP for those who did not persist.

Table 17 describes many of the differences between persisters and nonpersisters. Males made up only 46.4 percent of the base population (N=248), but accounted for 55 percent of the nonpersisters (N=33). In comparison, only 45 percent of the nonpersisters were females. It is interesting that only 15 percent of the nonpersisters were undecided students. This is about 2.5 percent more than the undecided students who persisted. In addition, of the 33 undecided students,

TABLE 17. COMPARISON OF PERSISTERS AND NONPERSISTERS

	PERSISTERS N = 188		NONPERSISTERS N = 60	
	N	%	N	%
MALES	82	43.6	33	55
FEMALES	106	56.4	27	45
UNDECIDED	24	12.8	9	15

PARENTS GRADUATED
from FOUR YEAR COLLEGE

NEITHER	101	53.7	27	45.0
MOTHER	20	10.6	2	3.3
FATHER	26	13.8	10	16.7
BOTH	40	21.3	20	33.3

ACT COMPOSITE $X = 22.8$ $X = 20.6$

PREFERENCE DISTRIBUTION

E	92	48.94	37	61.67
I	96	51.06	23	38.33
S	110	58.51	30	50.00
N	78	41.49	30	50.00
T	68	36.17	28	46.67
F	120	63.83	32	53.33
J	101	53.72	25	41.67
P	87	46.28	35	58.33

only 27 percent dropped out. The 128 students whose parents did not attend college, dropped out at the rate of 21 percent, while the dropout rate of nonpersisters in this category was 45 percent. This compares to 51 percent for persisters. Two-thirds of the 60 students whose parents both attended college, stayed in school. Ninety percent of the 22 students whose mothers only attended college, persisted.

The mean ACT composite score for persisters was 22.8 and only 20.6 for nonpersisters. INFJ's, ENTP's, and ENFJ's had the highest means: 25.81, 25.30, and 24.53 respectfully. The ACT composite means for the ESTP and ISTP types were the lowest recorded, at 19.23 and 19.71.

Career decisiveness

All 248 students were asked to choose the percentage that best described their career decisiveness. The choices were 0%, 25%, 50%, 75%, or 100%. Table 18 shows the results expressed in mean percentages by type. For example, the mean percentage for career decisiveness chosen by ISTJ is 66.66%. The highest percentages were reported by the ESTP, ESTJ, ESFJ, and the ENTJ types; 73.07%, 72.72%, 75%, and 71.42%, respectively. The lowest means were turned in by ISTP's (46.42%) and INTP's (54.54%). When comparing Extraverts with Sensing (ES) to Extraverts with Intuition (EN), Introverts with Sensing (IS) and Introverts with Intuition (IN), it is interesting that

the ES is highest with a mean of 71.03% and the EN is next with a mean of 64.16%. This is in comparison to the IS with a mean of 58.48% and IN with a mean of 59.12%.

MBTI Personality Preferences

The MBTI has four personality preferences--EI, SN, TF, and JP. The SN and TF describe preferences toward Perception and Judgment while the other two, EI and JP, reflect attitudes of orientation to the inner and outer world (Myers and McCaulley 1987).

Intercorrelations of MBTI preferences

Table 19 shows the intercorrelations of the four MBTI preferences - EI, SN, TF, and JP - as calculated by the Pearson Product Moment Correlation. By examining the table, it is clear that EI, SN, TF, and JP preferences tend to be independent of each other. Also, there is a low positive correlation between SN and JP. These data are consistent with what Myers and McCaulley (1987) reported about 11,000 eighteen-to-twenty-year olds.

Table 16 shows that, when the continuous score means for type are calculated, the preferences toward Extraversion, Sensing, Feeling, and Judgment are the strongest. Anchors (1988), in a study of 472 students, and Myers and McCaulley

TABLE 18. Career Decisiveness. Means--Career Decisiveness expressed in %-sure of career decision by type. N = 248.

| | SENSING TYPES | | INTUITIVE TYPES | | |
with THINKING	with FEELING	with FEELING	with THINKING	
ISTJ % = 66.667	ISFJ % = 59.09	INFJ % = 65.90	INTJ % = 60.71	J U D G I N G I N T R O V E R T S
ISTP % = 46.42	ISFP % = 61.76	INFP % = 55.35	INTP % = 54.54	P E R C E P T I V E
ESTP % = 73.07	ESFP % = 63.33	ENFP % = 54.28	ENTP % = 67.50	P E R C E P T I V E E X T R O V E R T S
ESTJ % = 72.72	ESFJ % = 75	ENFJ % = 63.46	ENTJ % = 71.42	J U D G I N G

Note. Form adapted from CAPT-MBTI, Center for the Applications of Psychological Type Selected Ratio Type Table (SRTT)

TABLE 19. Pearson Product Moment Interrcorrelations between MBTI preferences.

	E - I	S - N	T - F	J - P
E - I	1.000	-.289	-.195	-.186
S - N		1.000	.171	.399*
T - F			1.000	.099
J - P				1.000

*p< .05

(1985) in a study of 15 colleges and universities, found the same results with the exception of the JP preference. Both authors reported a higher dimension for P's than J's.

Table 20 describes the total percentages by males, females, persisters, and nonpersisters across the four preferences. When comparing the percentages in Table 20, note that males differed from women across all four preferences. The composite male type, by comparing percentages, is an ISTJ, while the females are an ENFJ. Nonpersisters differed from persisters on two of the four Hypotheses 3.1-3.4: There is no significant relationship between the four MBTI Personality Preferences, EI, SN, TF, and JP and career decisiveness.

The Pearson Product Moment Correlation Analysis of Variance (ANOVA), and Multiple Regression were used to analyze the

TABLE 20. Percentages by males, females, persisters and nonpersisters across personality preferences. N = 248.

GROUP	E - I	S - N	T - F	J - P
MALES	57% I	55% S	60% T	53% P
FEMALES	60% E	57% N	80% F	54% J
NONPERSISTERS	62% E	50% S	53% F	58% P
PERSISTERS	51% I	59% S	64% F	54% J

relationships between personality preference and career decisiveness. The independent variables are Extraversion and Introversion, Sensing and Intuition, Thinking and Feeling, and Judgment and Perception. The dependent variable is Career Decisiveness. The goal of this statistical analysis was to determine if there was a relationship and to explain the variance associated with the dependent variable.

Pearson Product Moment Correlations revealed negative correlations between Career Decisiveness and the four preferences: EI (-.07), SN (-.05), TF (.03), and JP (-.11). Table 21 represents a summary of the Multiple Regression Analysis.

None of the four independent variables was a significant predictor of Career Decisiveness. Using Stepwise Multiple

TABLE 21. Multiple Regression Summary Dependent Variable Career
Decisiveness.

	Multiple R	R	Adjusted R	Group Mean	Std.Dev.
Judging - Perceptive J - P	.1073	.0115	.0075	100.45	26.55
Introversion-Extroversion I - E	.1416	.0198	.0117	98.09	25.75
Thinking-Feeling T - F	.1464	.0214	.0093	103.42	23.19
Sensing-Intuition S - N	.1480	.0219	.0056	95.79	25.82

Regression, the JP variable loaded first and accounted for

.01152 of the variance. The EI variable followed and added

.0082 percent of explained variance. The TF preference was

followed by the SN preference and collectively added   only

.002 of additional explained variance. The total variance

explained by the independent variables as shown by R squared

is .0219. Based on these data the relationship between the

four MBTI preferences and Career Decisiveness is weak and is

not a good predictor of Career Decisiveness. Therefore,

Hypothesis Number 3.1 to 3.4 is not rejected.

TABLE 22. Wilks' Lambda Univariate F ratios across the four preferences.

VARIABLE	F	WILKS' LAMBDA	SIGNIFICANCE
I - E	.376	.99985	.8464
S - N	.681	.99972	.7943
T - F	4.47	.98195	.0356 *
J - P	1.75	.99286	.1873

* p < .05

Persistence

Hypothesis 4.1 to 4.4: There was only one significant relationship between the four MBTI preferences (EI, SN, TF, and JP) and persisters and nonpersisters.

The main interest in testing this hypothesis was to determine how well the MBTI preferences predict persistence and nonpersistence. Discriminant Function Analysis was used to test the hypothesis. Although Multiple Regression and Discriminant Function Analysis are similar in that both have two or more predictor variables and a single dependent or criterion variable, Discriminant Function Analysis was chosen over Multiple Regression because it is the statistic of choice when the dependent variable is limited to a person's group membership (Borg and Gall 1983). In the case of this study,

TABLE 23. Discriminant Function.

FUNCTION	EIGENVALUE	CANNONICAL CORRELATION
1	.038	.1928

the dependent variable is dichotomous, for a person must either persist or not persist.

Table 22 reveals the Wilks' Lamda Univariate F Ratio. The test supported only one significant difference on the Thinking Feeling preference P<.05. The hypothesis is rejected since there is a significant difference between persisters and nonpersisters with respect to the Thinking Feeling preference. The results indicate a very high Wilks' Lamda approaching 1.0 on all variables. The closer to 1.0, the closer the group means are to each other; therefore, there is low between-group variability. Values close to 0 occur when within-group variability is small compared to total variability.

Since this is a two-group Discriminant Function Analysis, there is only one Discriminant Function displayed in Table 23. The Eigenvalue is based on a ratio of Between Groups and Within Groups sums of squares. A high Eigenvalue represents good functions. The Eigenvalue in the table is .038; extremely

TABLE 24. Discriminant Function Classification Results.

	ACTUAL GROUP	CASES	PREDICTED	GROUP MEMBERSHIP
			.1	2
1.	PERSISTER	188	186	2
			98.9%	1.1%
2.	NONPERSISTER	57	57	0
			100%	0%

Percent of "Grouped" Cases Correctly Classified: 75.92%

low. The Canonical Correlation is .193. The .193 square or .038 represents the variance associated with group differences.

How well the Discriminant Function predicted group membership is displayed in Table 24. Prior probabilities predicted group membership at .76 for persisters and .23 for nonpersisters. The data show that the Discriminant Function correctly classified persisters 98.9 percent of the time (N=186) and failed 1.1 percent of the time (N=2). However, 57 or 100 percent of those classified or predicted as nonpersisters stayed in school. No students were correctly classified as nonpersisters. The percentage of the groups correctly classified overall was 76 percent.

CHAPTER V

SUMMARY AND DISCUSSION

The major portion of this chapter contains a discussion
of the results of the study and the relationship with other
research and related literature.

Briefly, the problem associated with this study centered
around Person-Environment congruence and the importance of colleges
and universities understanding the relationship between the
institution and the student in an effort to increase retention.
The study focused on what one small liberal arts college did
to become better acquainted with students and also what it did
to acquaint students with their environment. In 1988, 248 entering
freshmen at Wartburg College were interviewed and administered
the Myers Briggs Type Indicator. The research question focused
on the MBTI and how well it related to a variety of noncognitive
variables and persisters and nonpersisters. The research questions
included: What is the relationship between MBTI type and
persistence? What is the relationship between MBTI type and
undecided students? Is there a relationship between personality
preference and persistence? Is there a relationship between
personality preference and career decisiveness?

A discussion of the results is organized according to the
hypotheses associated with MBTI type and MBTI personality
preference.

MBTI Type

A significant part of this study dealt with comparing selected variables with type. Those variables were: graduate school bound freshmen, activity involvement, academic majors, self-perception, career decisiveness, and persisters and nonpersisters. Indeed, the real strength of the study is in the comparative relationship between type, persistence, and the aforementioned variables. The methodology in this study is unique because a large number of entering freshmen were interviewed and their actual responses were catagorized by type and compared to the literature.

Graduate school bound freshmen

In a comparison of graduate school bound freshmen and MBTI type, the INTJ's are over-represented and the ESTJ's are under-represented. This is consistent with type descriptions whereby ESTJ's tend to be impatient and have a large need for immediate gratification. Clearly, graduate school can often last several years, thereby delaying an ESTJ's need for goal gratification. In contrast, the INTJ types tend to be in careers that require graduate school degrees. University teachers, lawyers, chemistry scientists, and engineers are examples listed by Myers and McCaulley (1985) as the top occupations for ISTJ's. In sharp contrast, the greater percentage of ESTJ's tend to be high school graduates, restaurant managers, teachers, bank

officers, or factory supervisors. Further support for ISTJ graduate school proneness is displayed by Provost and Anchors (1987) in a type table which reports ISTJ's frequency toward university teaching; it is clearly greater than any other type. While nearly 45 percent of the students in the base population said they would go on to graduate school, an analysis of the Wartburg College Placement Reports (1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989) clearly shows that only 18-22 percent of Wartburg students have gone on to graduate school within seven months of graduation.

Activities involvement, majors, and self-perception

In the previous chapters of this dissertation, a definite link was established between activity involvement and persistence. The need for student/institutional fit was emphasized. One way to enhance that fit is to ascertain student involvement and determine activity involvement by type. Once this is completed, programs and plans can be developed to foster involvement. One of the questions that Provost and Anchors (1987) cited as needing more research was, "What activities appeal to which types?" Students in this study were asked what activities they participated in. Surprisingly, 16 percent of the interviewees said that they would not participate in extracurricular activities in college. Almost 21 percent of the total ENFP types said they would not

participate in activities in college. This is interesting since ENFP's tend to be highly social and involved. The "none" responses were equally distributed between Extraversion and Introversion and Judging and Perception. Most students listed sports as an activity in which they would be involved. This is consistent with a study of 189 sophomores whereby sports were identified by almost all of the 16 types (Provost 1982).

The largest number of accounting majors were ESFJ, ISTJ, and ISFJ. This is consistent with a study done by Isabel Myers (Myers & McCaulley 1987) where business majors tended to be ES, SI, and ST preference. This study and the Myers study were also consistent for the ISFJ type which preferred biology and medicine.

Information reported by Myers and McCaulley (1987) of the Test Bank data for teachers showed that the majority of elementary education teachers were the ESFJ type. This finding is consistent with this study where the majority of elementary education majors were ESFJ. This may be because, in theory, the ESFJ type (extraverted feeling with sensing) is a person who enjoys helping others on a daily basis.

A very interesting part of this study centered around how the 248 students described themselves. Each student was asked to describe him/herself; the categories are displayed in table 12. The term "nonsocial" appears most often among the I types. This is consistent with the I and E preferences (Myers and McCaulley 1987).

The majority of the introverts classified themselves as nonsocial while the majority of the extraverts classified themselves as social - although there were crossovers. This is consistent with previous literature Provost and Anchors (1987), Myers and McCaulley (1987), and Hirsh and Kummerow (1989).

A contradiction does occur when the descriptors provided by the students are compared to descriptors found in the literature. Hirsh and Kummerow (1989) provided a list of hallmarks or descriptors for each particular type. When the Wartburg students' selection of descriptors are compared to the hallmarks, very few connect. A possible explanation may be that the students are concerned with intellectual, activity, and lifestyle issues, whereas Hirsh and Kummerow's hallmarks may be more characteristic of a broader perspective.

Undecided students

Hypothesis Number I: There is no significant relationship between the 16 MBTI types and undecided students.

This hypothesis was rejected on only one of the 16 types. The largest number of undecided students were ENFP type. This is somewhat consistent with what was presented by Provost and Anchors (1987) whereby Saint Louis University academic majors ranked by percentage of personality preference showed that the majority of the undecided were ESFP types.

87

Choosing a major depends to a large degree on how students make decisions. Students vary in the way they make decisions, according to Provost and Anchors (1987). Patterns can be identified among students who are undecided. For example, undecided students tend to be Introversion-Perception (IP), while Extraversion-Judgment types (EJ) tend to be more set on a major. This may be true because EJ's tend to be decisive and enjoy closure. On the other hand, IP's tend to be more reflective and take longer to make decisions. In this study EJ's made up only 9 percent of the undecided students while IP's made up more than 30 percent of the undecided students. When looking at the Judging dimension separately, it's interesting that 33 percent were undecided when, in contrast, the Perception (P) dimension accounted for about 70 percent of the undecided students. The theory behind these findings is consistent with Hirsh and Kummerow (1989) where they describe the (J) as preferring life to be decisive and a (P) as adapting life to what comes along.

Persisters and Nonpersisters

Hypothesis Number 2: There is no significant relationship between the MBTI types and persisters and nonpersisters.

This hypothesis was rejected on only two of the 16 types; ISFJ and ENFP. The ISFJ type was significant because none of the base population dropped out. In contrast, ENFP was significant

because more students dropped out than by chance alone. More
than 61 percent of the nonpersisters were Extraverts compared
to 39 percent Introverts. This is the reverse of a study performed
by Schurr, Ruble, and Henrikson (1989) on six departments and
more than 3,000 freshmen. ENFP's may be nonpersisters in this
environment because of the emphasis placed on structure. This
is also true on career planning issues where the ENFP tends to
be less structured and exhibits a tendency to postpone making
a decision. The study found 63 percent of the Extraverts and
37 percent of the Introverts graduated. J's were also more likely
to graduate than P's. This is consistent with the findings of
this study where nonpersisters tended to be P's, not J's.

Types with low persistence rates tend to be ISTJ, ENFP,
ESFJ, AND ENTP types, accounting for 16.67 percent, 23.33 percent,
11.67 percent, and 6.67 percent, respectively or 58 percent of
the nonpersisters. By comparison, Provost (1985) in a study
of students at a small liberal arts college found that ESFJ's
were high persisters together with ESFP's, ESTJ's, and ENTJ's.
She also found low persisters to be ISTP, ESTP, ISFP, AND FMFT.
None of the findings were consistent with the results of this
study. One reason could be environment and the difference in
fit between types of students at one institution and that of
another. Another study by Provost (1982) found that the lowest
persistence was found among ISTP, ISFP, ESTP, AND ENFJ students.

This further supports the notion that persistence is not only a function of type, but also environment. Provost and Anchors (1987) present two tables classifying persisters for two small colleges that further support the notion that persistence is not peculiar to specific types.

When comparing the means and standard deviations of the scores across the four preferences of persisters and nonpersisters, it was possible to determine a composite persister and nonpersister. The persister would tend to be ESFJ, while the nonpersister would tend to be ESTP.

This may be expected since Wartburg is a highly structured environment. Moreover, the teacher-student relationship as it exists at Wartburg College is consistent with what an ESFJ type would want; namely, the helpful classroom professor who builds a supportive environment for learning.

By contrast, the ENTP type at Wartburg College may find the environment of a highly respected accounting, pre-med, or science department too structured. This type seems to dislike long-range planning, theories, or concepts (Hirsh and Kummerow 1989).

Anchors (1988) in a study of 472 students, and Myers and McCaulley (1985) in a study of 15 colleges and universities, found the same results as this study did, relative to continuous

score means, with the exception of the JP preference. Both the authors reported a higher score for P's than for J's.

Career decisiveness

The MBTI is a useful tool in career counseling. People choose occupations for different reasons. In theory, certain careers should attract specific types; they do, but not exclusively. Many persons decide on a career based on money, prestige, outside influence, geographic location, promotability, and desirability. Consequently, the 16 MBTI types are spread across every conceivable occupation.

It's obvious that not all career choices are good matches. The MBTI assumes that choice is a function of desiring work that is intrinsically interesting and will allow the use of preferred attitudes and preferences (Myers and McCaulley 1987). The MBTI develops a type of picture of the student as a person. The counselor and the student can check it for accuracy and utility (Pinkney 1983).

Deciding on a career is not an easy thing as evidenced by the number of times people change careers in a lifetime. Students entering college for the first time may have problems deciding on a career. This study showed that certain types seemed to be more decisive about career decisions. The highest percentage means were reflected by Extraverted-Sensing types. In addition,

Extraverted-Judging types, ESTJ, ESFJ, AND FNTJ were all over 70 percent. This is not unusual since EJ types are prone to making premature career decisions (Provost and Anchors 1987). ESTJ's tend to be highly organized, goal directed, and very decisive. The ESFJ is highly organized and likes to cover all the angles. They spend a lot of time researching and organizing information. ENTJ's deal swiftly and directly with problems and concerns. They organize their own environment (Hirsh and Kummerow 1989). In contrast, the ISTP's and INFP's had the lowest career decisiveness means. Perhaps this is true because ISTP's tend to gather all the facts before making a decision. They are at their best in situations that require some sort of immediate action. ISTP's tend to take the path of least resistance in making career decisions. INTP's tend at times to find a career direction and work toward it or rebel against society and its rules (Hirsh and Kummerow 1989).

MBTI Personality Preference

The relationship between personality preference and the MBTI with respect to career decisions and persistence and nonpersistence as developed by this study was disappointing.

The intercorrelations of the MBTI personality preferences were low: .39 being the highest between SN and JP. This is consistent with other authors (Myers and McCaulley 1987) in a

study of eleven thousand 18- to 22- year-olds and Anchors (1988) in a study of 472 freshmen.

Hypothesis 3.1 to 3.4: There is no significant relationship between the four MBTI personality preferences; EI, SN, TF, JP and career decisiveness. This hypothesis was not rejected. None of the four independent variables were good predictors of career decisiveness.

Hypothesis 4.1 to 4.4: There is no significant relationship between the four MBTI personality preferences EI, SW, TF, and JP and persisters and nonpersisters. This hypothesis was not rejected. None of the four independent variables were good predictors of persisters and nonpersisters.

The Wilk's Lamda Statistic showed very high numbers -approaching 1.0 across all variables. This would indicate that group means are close to each other and therefore, have low between group variability. This was demonstrated by an extremely low Elgen value which reinforced the notion of a poor discriminant function.

A possible explanation for the high Wilk's Lamda is probably due to the homogeneity of the ethnic study. As defined earlier, the population is white, 18 years old, predominantly from the same state, highly active in high school, has good test scores, and is enrolled in a private, selective liberal arts college in a rural community.

Implications

This study showed that the MBTI is a useful tool in higher education. The instrument is an excellent resource for comparing multiple variables and personality type. It has been shown to be useful in career counseling and advising ability. The data presented clearly show the advantages of collecting information from students and developing a class profile. The MBTI serves as a unique way to categorize information according to personality.

The strength of the study is the importance of the information provided by the students about themselves. The information was the result of open-ended questions, not standardized tests. The information obtained would be of interest to academic advisors, career counselors, and college administrators who are interested in how students view themselves. During the interviews several people were referred to the counseling center.

The disappointing part of the study was the inability of the MBTI to predict career decisiveness and persisters and nonpersisters. One explanation may be the population itself. The sample representative of the population is homogeneous in a variety of ways; a small liberal arts midwestern college, almost all white, middle class, small town students. Better results may have been obtained if this study was repeated at a larger, diverse school.

Another limitation of the study centers around career decisiveness and the question which asks students to rate their

career decisiveness. This procedure was implemented because it could be part of the study and fit into the students' busy time frame. If more time were available for each student, a standardized test of career decisiveness or maturity should be given.

It would be difficult, as a result of these findings, to offer generalities about all college campuses. These findings do, however, fit nicely into the small liberal arts colleges of the Midwest.

The broadest implications of these findings, of course, deal with early intervention. Counselors, along with residence hall and orientation professionals could use this information to help students at risk make the proper adjustments to the environment. For example, an ISFP may need help or guidance in a social context. This need could be met by intrusive advising and counseling.

Knowledge of student type could prove beneficial in the residential living environment on campus. Type could be used to make roommate assignments. In addition, sharing type information with students could help to explain differences and resolve type conflict.

Students who reported that they were not participating in student activities could be contacted by letter or phone call, and the benefits associated with being involved in campus

activities could be stressed. Certain types could be referred to campus organizations whose members (and their interests) have created an environment more conducive to their areas of comfort.

Student problems, as given in the interview, could be an opportunity to intervene positively in students' lives. In this study, several students were having severe family and emotional problems; they were referred to the counseling center. Additionally, some students' self-perceptions indicated that they were suffering from low self-esteem and emotional overload, thereby becoming candidates for intrusive counseling and advising.

Students who responded affirmatively to being undecided could be contacted and given an opportunity to participate in major advising and career planning programs. Information pertaining to career decisiveness could be provided to each student. Information pertaining to careers appropos of type could be explained.

Lawrence (1982) suggests that people have different learning styles, and that teachers have different teaching styles. Knowing students' types could facilitate optimum learning if the students were placed in teaching environments which complement their learning styles. For example, an ENFP person would exhibit learning patterns different from an ISTJ. The ISTJ person may enjoy the lecture format whereas the ENFP person would be in favor of less structure and more variety.

Additional research areas would enhance the study by finding the answers to some pending questions. For example: (1) Why did the students leave Wartburg College?, (2) How many students tranferred to other institutions?, and (3) How many students dropped out altogether? This information could prove useful in correcting problems with the environment, especially if the data show a pattern.

In an effort to further define type, students could be asked why they attended a liberal arts college. Studies could match students' answers with type.

Using type and interview responses as an early intervention strategy, students with personal, career, and academic problems could be referred to appropriate agencies within the institution for assistance. Follow-up studies could be made to determine the success rate of the referral system.

In career counseling, the Strong Campbell Inventory and the MBTI could be used in tandem to facilitate in major and career choice advising. Data from the two instruments could be compared and shared with the student. Possible studies may include a comparison of Holland's six types and the sixteen types of the MBTI.

Conclusion

This study pointed out what students say about themselves in an interview. The information is valuable for higher education

professionals who strive to increase retention and improve the fit between the college and the community. More studies and more work need to be done that capitalize on the knowledge of differences. The Myers Briggs Type Indicator may be a way to bring student and college closer together.

REFERENCES

Allen, D. (1984). <u>Fall freshmen survey</u>. North Carolina University.
    (ERIC Document Reproduction Service No. ED 278 290)

Anchors, S. (1988). <u>The relationship of psychological type</u>
    <u>to the accomplishment of student development tasks.</u>
    Unpublished. Dissertation: Iowa State University.

Anchors, S., Robinson, P., & Wood, C. (1984). A survey of Myers
    Briggs type indicator users in the American College Personnel
    Association. Orono, ME: University of Maine.

Anderson, E.C. (1985). Forces influencing student persistence and
    achievement. In Noel and Levitz (EDs.), <u>Increasing Student</u>
    <u>Retention</u>. San Francisco: Jossey Bass.

Ary, D. (1985). <u>Introduction to research in education.</u> New York:
    Holt, Rinehart, and Wilson.

Astin, A. (1975). <u>Preventing students from dropping out</u>.
    Washington: Jossey Bass.

Astin, A. (1985). <u>Achieving educational excellence</u>.
    San Francisco: Jossey Bass.

Baldridge, J. (1982). <u>The enrollment crisis</u>. Washington: AAHE.

Beal. (1980). <u>What works in student retention</u>. Iowa City:
    American College Testing.

Bean, J. P. (1982). Conceptual models of student attrition.   In
    E. T. Pascarella (Ed.), <u>Studying student attrition</u>.
    San Francisco: Jossey Bass.

Betz, E. (1980). The counselor role. In Delworth, U. & Hanson, G.
    (Eds.), <u>Student services</u>. San Francisco: Jossey Bass.

Bibliography. (1988). Gainsville, Florida: Center for Application
    of Psychological Type.

Borg, W. & Gall, M. (1983). <u>Education research: An introduction</u>.
    New York: Longinson.

Boyer, E. (1987). <u>College: the undergraduate experience in America</u>.
    New York: Harper and Row.

Brown, S., Lent, R., Alpert, D., Hunt, G. & Brady, T. (1988). Perceived social support among college students: Factor structure of the social support inventory. Journal of Counseling Psychology, 35(3), 472-478.

Career Development Center. (1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989). Wartburg College Placement Report.

Carlyn, J. (1977). An assessment of the Myers Briggs Type Indicator as an alternative in career counseling. The Personnel and Guidance Journal. p. 173-177.

Carskadon, T. (1979). Test-retest reliabilities of continuous scores on form G of the Myers Briggs Type Indicator. Research in Psychological Type. 2, 83-84.

Carskadon, T. (1987). New tools in MBTI research. Journal of Psychological Type, 13, 71-72.

The Chronicle of Higher Education Almanac (1989).

The Chronicle of Higher Education Almanac (1990). p. 14-25.

Cohen, D. (1981). A construct validity study of the Myers Briggs Type Indicator. Educational and Psychological Measurement. 41, 883-891.

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

Creamer, D. (1990). College student development: Theory and practice for the 1990's. Alexandria: ACPA.

Delworth, J., Hanson, G., & Associates. (1980). Student services. San Francisco: Jossey Bass.

Demitroff, J. (1974). Student persistence. College and University, 49, 553-565.

Durkheim, E. (1951). Suicide: A study in sociology. New York: The Free Press.

Feldman, K. A. (1969). The impact of college on students. San Francisco: Jossey Bass.

Figler, H. (1975). Evaluating skills and abilities questionnaire.
    Worksheet.

Garland, P. (1985). Serving more than students: A critical
    need for college student personnel services.
    ASHE - ERIC Higher Education Report No. 7, Washington, D.C.

Granade, J.G., Hatfield, H.H., Smith S.S., & Beasley, J.E.
    (1987). The Selection Ratio Type Table PC Program.
    Gainesville, FL: Center for Applications of Psychological
    Type.

Hirsh, S. & Kummerow, J. (1989). Life types. New York:
    Warner Books.

Holland, J. L. (1966). The psychology of vocational choice: A
    theory of personality types and model environment.
    Waltham, MA: Blaisdell.

Holland, J. L. (1973). Making vocational choices: A theory of
    careers. Englewood Cliffs, NJ: Prentice Hall.

Holland, J. L. (1985). Making vocational choices: Personality
    and environment. Englewood Cliffs, NJ: Prentice Hall.

Holland, J. and Gottfredson. (1975). Testing validity of some
    theoretical signs of vocational decision making ability.
    Journal of Counseling Psychology. 22, 411-422.

Iffert, R. E. & Clark, B. S. (1965). College applicants,
    entrants, dropouts. Washington, D.C. U. S. Government
    Printing Office.
    (ERIC Document Reproduction Service No. ED 055 560)

Johnson, D. & Troy, W. (1981). Activities and needs of
    University of Maryland students.
    (ERIC Document Reproduction Service No. 231 283)

Jung, C. (1923). Psychological types. New York: Harcourt,
    Brace.

Kalsbeek, D. (1986). Linking learning style theory with
    retention research: The TRAILS project. AIR 1986 Annual Forum
    Paper. Paper presented at the annual forum of the Association
    for Institutional Research. Orlando, Florida.
    (ERIC Document Reproduction Service No. ED 280 424)

Lam, Y. L. (1984). Predicting dropouts of freshmen: A logit regression analysis. The Journal of Educational Administration, 22(1), 74-82.

Lawrence, G. (1982). People types and tiger stripes. Gainesville, Florida: Center for the Application of Psychological Type.

Lenning, O. T., Beal, P. & Saver, K. (1980). Retention and attrition: Evidence for action and research. Boulder: National Center for Higher Education Management Systems.

Lenning, O. T. (1982). Variable selection and measurement concerns. In E. T. Pascarella (Ed.), Studying student attrition. San Francisco: Jossey Bass.

Lonabocker, L. (1982). Can an institution construct a dropout profile? College and University, 58(1), 76-83.

Londracek, F. (1985). Career development: A life span development approach. London: Erzbaum.

Marsh, L. M. (1966), College dropouts: A review. Personnel and Guidance Journal, 44, 475-481.

McCaulley, M. (1985). The selection ratio type table: A research strategy for comparing type distributions. Journal of Psychological Type, 10, 46-56.

Moos, R. (1987). Person-environment congruence in work, school, and health care settings. Journal of Vocational Behavior, 31, 231-247.

Muchinsky, P. & Monahan, C. (1987). What is person-environment congruence? Supplementary vs. complementary models of fit. Journal of Vocational Behavior, 31, 268-277.

Myers, I. (1962). Manual for the Myers Briggs type indicator. Palo Alto, CA: Consulting Psychologists Press.

Myers, I. & McCaulley, M. (1985). Manual: A guide to the development and use of the Myers Briggs type indicator. Palo Alto, CA: Consulting Psychologists Press.

Nafzinger, D.H., Holland, J.L., and Gottfredson, G.D. (1975). "Student-College Congruency as a Predictor of Satisfaction." Journal of Counseling Psychology, 22 (2), 132-139.

Noel, L. (1977). College student retention: A bibliography of recent dissertations. Iowa City: American College Testing.

Noel, L. & Levitz (1985). Increasing student retention. San Francisco: Jossey Bass.

Pace, C.R. (1964). The influence of academia and student subcultures in college and university environment. UCLA.

Pantages, T. & Creedon, C. (1978). Studies of college attrition: 1910-1975. Review of Educational Research, 48, 49-101.

Pascarella, E. (1982). Studying student attrition. San Francisco: Jossey Bass.

Pascarella, E. (1984). College environmental influences on students' educational aspirations. Journal of Higher Education. 55 (6) 752-766.

Pascarella, E. (1985). Students' affective development within the college environment. Journal of Higher Education, 56 (5), 640-659.

Pascarella, E. (1986). A program of research and policy development on student persistence at the institutional level. Journal of College Student Personnel, 27 (2), 100-107.

Pervin, L. A. (1966). The later academic, vocational and personal success of college dropouts. In Pervin, Reile (Eds.), The college dropout and the utilization of talent. Princeton: Princeton University Press.

Pervin, L. & Rubin, D. (1968). Student dissatisfaction with college and the college dropout: A transactional approach. Life Types. New York: Warner Bowles.

Pinkney, J. (1983). The Myers Briggs Type Indicator as an alternative in career counseling. The Personnel and Guidance Journal, 61, 173-177.

Pitcher, R. W. (1970). Why college students fail. New York: Funk and Wagnals.

Provost, A. & Anchors, S. (1987). Applications of the Myers Briggs type indicator in higher education. Palo Alto, CA: Consulting Psychologists Press.

Provost, J. (1982). Personality type and leisure satisfaction as factors in college attrition. Doctoral Dissertation, University of Florida.

Provost, J. (1985). "Type watching" and college attrition. Journal of Psychological Type, 9, 16-23.

Ramist, L. (1981). College student attrition and retention. New Jersey: The College Board.

Schreiner, L. (1990). Guide for RMS coordinators and advisors. Noel/Levitz Centers: Coralville.

Schurr, K., Ruble, V., & Henriksen, L. (1989). Effects of different university admission practices on the MBTI and gender composition of a student body, graduation rate and enrollment in different departments. Journal of Psychological Type, 18.

Shaffer, G. S. (1981). Use of the biographical questionnaire in the early detection of dropouts. Southeastern Psychological Associates Paper. (ERIC Document Reproduction Service No. ED 208 288)

Spady, W. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. Interchange, 1, 64-85.

Sprandel, H. (1985). Career planning and counseling. In Noel & Levitz (Eds.), Increasing student retention. San Francisco: Jossey Bass.

Stricker, L. J. and Ross, J. A description and evaluation of the MBTI. Educational and Psychological Measurement. 46, 745-751.

Summerskill, J. (1968). Variable selectors and measurement concerns. In E. T. Pascarella (Ed.), Studying student attrition. San Francisco: Jossey Bass.

Super, D. (1957). The psychology of careers. New York: Harper and Row.

Thompson, B. and Borrello, G. (1986). Construct validity of the MBTI. Educational Psychological Measurement. 46, 745-751.

Thompson, B. and Pitts, M. (1981). The use of factor adequacy coefficient. _Journal of Experimental Education_, _50_, 101-104.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. _Review of Educational Research_, _45_, 89-125.

Tinto, V. (1987a). _Leaving college_. Chicago: University of Chicago Press.

Tinto, V. (1987b). _The principles of effective retention_. Paper presented at the Maryland College Personnel Association, Largo, MD. (ERIC Document Reproduction Service No. ED 301 267).

Tinto, V. (1988). Stages of student departure. _Journal of Higher Education_, _59_ (4), 438-452.

Trent, J. W. (1968). _Beyond high school_. San Francisco: Jossey Bass.

Walsh, W. B. (1973). _Theories of person-environment interaction: Implications for the college student_. Iowa City: American College Testing.

Wilder, M. & Kellams. (1987). _Commitment to college and student involvement_. American Educational Research Association Paper. (ERIC Document Reproduction Service No. ED 290 368)

given me a true desire to do research and has shown me the importance for professionals to continue working to improve their understanding and appreciation of research in their fields. All my committee members - Larry Ebbers, Dan Robinson, George Kizer, Bill Miller, and Helen Shuster have contributed much to my development.

I also wish to acknowledge others in the profession who have served as role models, friends, and advisers during my education. Tom Hansmeier, Tom Thielen, and Tom Romanin have given me a sense of pride in the profession and serve as standards for my future development.

In addition, I wish to acknowledge the help and support given to me by colleagues at Kent State University. Robert Young, Dick Bredemeier, Jean Correia, Kimberly Blewett, Pamela Van De Weert, Hobson Hamilton, Dan Shull, and Amy Moore deserve consideration for their many words of encouragement and acts of support.