Uniquely Urbandale: Study of an Iowa State University off-campus adult student population

by

Christine Knupp Sorensen

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE

Department: Professional Studies in Education
Major: Education (Higher Education)

Iowa State University
Ames, Iowa

1990

TABLE OF CONTENTS

ABSTRACT

The Iowa State University off-campus population of about 250 students taking classes in the Des Moines area at the Extension site in Urbandale during the spring semester of 1990 was the focus of this research project. The Urbandale students are defined as a nontraditional group on the basis of previous studies. The subjects were asked to complete a questionnaire containing demographic information and a Myer-Briggs Type Indicator which purports to measure personality type based on the theories of Carl Jung.

Descriptive information gathered from the ISU Urbandale students included sex, age, race, marital status, number of children, area of residence, employment status, income, classification and degree status, previous college experience, number of courses enrolled in, preferred attendance patterns, areas of study, motivations, reasons for site selection, travel distance to class, financial aid, difficulties in being an ISU student, and mode of receiving information about college. Data gathered are presented along with comparisons to information about nontraditional student populations found in the literature.

Results of the Myers-Briggs Type Indicator are also presented. Selection Ratio Type Table and chi-square analysis techniques were used to compare the Urbandale group with a base population of college students. The Urbandale group was also subdivided by sex and classification and comparisons were made. Significant differences were found for all comparisons.

Suggestions are made for recruitment, retention, instructional methods, and student services for the Urbandale site based on type theory and the results of this study. Implications for further research are also noted.

CHAPTER I. INTRODUCTION

> Education is a people business. . . . If education is a people business and if we know that people are different, then education is a business about the diversity of people. It is about the different goals people have for education. It is about different programs people want in school. It is about the multitude of values and interests of all its constituents (Guild & Garger, 1985, p. 5).

Background

Demographic change

"Higher education is undergoing significant changes in the face of irresistible social force" (Schlossberg, Lynch, & Chickering, 1989, p. xi). The force referred to in the previous quotation is the increasing number of nontraditional students entering institutions of higher education. Projections are that by 1992, 49% of undergraduate students will be over age 25 (Schlossberg et al., 1989), and by 1995 over 55% will be nontraditional students (Lantor, 1990). With life expectancies increasing and the post World War II baby boomers approaching middle age, it has been suggested that the increase in numbers of older than average students, particularly women, entering higher education is a trend that will continue into the 21st

century (Bodensteiner, 1988; Glass & Rose, 1987; Jacobi, 1987; Ross, 1989; Schlossberg et al., 1989). The demographic changes will create enormous educational changes (Schlossberg et al., 1989).

Carol Aslanian (1990) notes that the college student body of the future will be both larger and more diverse, even though high schools will graduate fewer seniors. In the 1980s, 95% of the enrollment growth at postsecondary institutions in Minnesota came from adults. Ninety percent of that growth came from part-time students. One hundred percent of the growth in numbers of full-time students came from adults (Aslanian, 1990). Aslanian (1990) also notes that virtually all graduate schools in the country have become adult schools, with the vast majority of graduate students over the age of 25.

The "Graying of America" is a significant social trend in the United States overall, and for Iowa and the midwest especially, as the number of high school graduates in the north central states in the 1990s will decline dramatically (Ferrari, 1988). In Iowa, as in the rest of the nation, older than average students have become a greater presence on college campuses and Iowa institutions have begun internal evaluations to

determine if services and curriculum meet the needs of adult learners (Lantor, 1990). With declining numbers of high school students, part-time adult students are being sought to maintain enrollments at post-secondary institutions. Studies of adult students have been undertaken to learn more about who these students are, what influences them to select a particular institution, how certain groups are different from others, what they need in terms of programs and services, what their motivational orientation is, and how they go about learning and pursuing an education (Aslanian, 1987; Bodensteiner, 1988; Mishler, Fredrich, Hogan, & Woody, 1982; Payette, 1980; Rogers, Gilliland, & Dixon, 1988; Schlossberg et al., 1989; Wagner, Wagner, & Vinzant, 1989).

A profile of the nontraditional student is important in institutional planning for recruitment, admissions, retention, instruction, and services (Aslanian, 1987; Bodensteiner, 1988; Mishler et al., 1982; Payette, 1980; Rogers et al., 1988; Wagner et al., 1989). Individual institutions must identify their particular adult students and learn more about adult students already enrolled at the institution before developing programs and determining long range

plans (Aslanian, 1987; Griffith, 1989; Lynch, Doyle, & Chickering, 1985; Marlow, 1989; Schlossberg et al., 1989).

Institutions need to do more than admit these nontraditional students. They need to be responsive, understanding the needs, motives, and educational interests of this cohort of students (Bauer, 1981; Glass & Rose, 1987; Ross, 1988; Schlossberg et al., 1989). The Tinto retention model suggests that there needs to be congruence between the needs of the students and the institutional environment (Provost & Anchors, 1987). It is necessary that institutions understand adult learners in order to be responsive and design environments and student services for the adult student segment (Schlossberg et al., 1989). The institution would benefit in terms of building external support systems, increasing retention, and promoting institutional growth (Schlossberg et al., 1989).

Type applications

Some have noted that one way to respond to the needs of nontraditional students in higher education is to respond to personality and psychological types and learning styles (Evangelauf, 1990; Knox, 1980; Provost & Anchors 1987). One theory of psychological type is

based on the work of Carl Jung. Jung wrote that apparently random human behavior is actually logical and results from preferences in patterns of mental functioning. These preferences can lead individuals to find compatible learning environments (Delworth & Hanson, 1989). Jung's concept of type was operationalized by an instrument developed by Katherine Briggs and Isabel Myers. The Myers-Briggs Type Indicator, referred to as the MBTI, measures psychological type in adults and adolescents and is based on the assumption that people develop in different ways leading to different ways of thinking (Fourqurean, Meisgeier, & Swank, 1988; Myers, 1980).

The MBTI can be used by educators to help understand individual differences (Provost & Anchors, 1987; Schlossberg et al., 1989). The MBTI can also be a useful tool in retention efforts and in efforts to integrate students and their environment (Provost & Anchors, 1987). The MBTI has been used in educational settings to design curriculum, for personal and career counseling, for academic advising, for developing retention strategies, for developing orientation courses, and for faculty and staff training sessions on learning preferences (Gelatt et al., 1984; Lynch

et al., 1985; Provost & Anchors, 1987). An MBTI student body profile and population description can tell educators much about the current students and the educational environment and can be a first step in intentional planning (Provost & Anchors, 1987).

Iowa State University background

In November 1989, consultant Carol Aslanian visited the Iowa State University campus to consider the adult student situation on campus. Aslanian noted that Iowa State needs to be concerned about future enrollments, particularly since predictions are that between 1986 and 2004 the Iowa high school graduate population will decline 24%, with 18% of that drop occurring between 1986 and 1992. During the same time, the Illinois high school graduate population, the second most recruited population by Iowa State, will decline 16%. Aslanian noted that currently all Iowa State recruiting efforts are directed at the high school level (Aslanian, 1989). Aslanian also noted that currently 25% of the Iowa State total student population is over age 25, even with no recruitment aimed at this population, and that some recruiting and marketing should increase the enrollments in this age bracket (Aslanian, 1989).

Aslanian recommended expanding weekend and evening programs, instituting some recruitment and marketing strategies aimed at the adult population, and expanding offerings and demand oriented programs at off-campus sites, particularly at Urbandale where Iowa State currently serves over 500 students a year (Aslanian, 1989). At a January 1990 meeting (Adult Student Services Committee, 1990), Iowa State University provost Milton Glick stated that Iowa State should offer more off-campus courses, targeting the Des Moines area in particular since that is where the population is concentrated in this area. The Urbandale course site is the Iowa State off-campus location in the Des Moines area.

Previous studies at the Urbandale class location have shown that the student population of between 250 and 500 students each semester is predominantly nontraditional. Of the students, 85 to 90% were over age 25, 70% were female, 97% were white, 70% lived within ten miles of the class site, 80% had previous college experience, 60% worked full-time, about 60% earned over $30,000 a year, three-fourths of the students financed their own education, 60% were undergraduates, and 75% were seeking a degree

(Almquist, Arp, & Seeger, 1988; McGaha, 1983; McGaha, 1986; Sorensen, 1989).

Statement of Purpose

Understanding the demographic profile and the psychological type distribution of the current population of nontraditional students at the Urbandale off-campus site can help in recruiting, retaining, and meeting the needs of these students and can aid the institution in building a strong program for the future. By looking at how these adults differ from the traditional college populations and how subpopulations within the group differ, recommendations can be made as to how services can be designed for this off-campus population and the impact of learning style preferences can be considered.

Research Questions

1. What is the demographic profile of the Urbandale student population and is this profile consistent with the literature?

2. Will the psychological type distributions of Urbandale students as measured by the MBTI vary significantly from the type distribution pattern expected in the general college population?

3. Will the psychological type distribution pattern of female Urbandale students as measured by the MBTI vary significantly from the traditional female college population?

4. Will the psychological type distribution pattern of male Urbandale students as measured by the MBTI vary significantly from the traditional male college student population?

5. Will psychological type distribution patterns of female students at Urbandale vary significantly from the type distribution patterns of male students at Urbandale?

6. Will the type distribution patterns of Urbandale undergraduate students vary significantly from the type distribution patterns of the Urbandale graduate students?

Definition of Variables

One independent variable for this study will be whether the student population is considered traditional or nontraditional. Traditional students are those attending college directly after high school. Nontraditional students are those not following the traditional pattern. A second independent variable is gender, whether the students are male or female. The

third independent variable to be considered is classification, whether the student is a graduate or an undergraduate student.

Students at the Iowa State University class site in Urbandale will be surveyed using the MBTI and a demographic questionnaire. Frequency distributions for data from the questionnaire will be provided with discussion as to how the distribution matches with data found in the literature. The MBTI distributions will be compared to type data found in the Provost and Anchors book (1987), Applications of the Myers-Briggs Type Indicator in higher education, on college populations in general. The Urbandale student population will also be broken down into subpopulations based on gender and classification and subpopulations will be compared.

The dependent variable for this study will be the distribution of scores on Form F of the MBTI, a self-report instrument designed to identify psychological type. The MBTI provides a four-letter score for each individual, placing individuals into the type categories suggested by Carl Jung and Myers and Briggs (Myers, 1987).

Research Hypotheses

Ha_1: MBTI type distributions of the nontraditional Urbandale student population will be significantly different than the type distribution patterns of the general traditional college student population.

Ho_1: MBTI type distributions will be independent of whether the student population is traditional or nontraditional.

Ha_2: The MBTI type distribution pattern for the nontraditional female Urbandale student population will be significantly different from the type distribution pattern of the general female college student population.

Ho_2: The MBTI type distribution pattern will be independent of whether the female students are part of a traditional or nontraditional population.

Ha_3: The MBTI type distribution pattern for the Urbandale male nontraditional student population will be significantly different than the type distribution pattern of the general traditional male college students.

Ho_3: The MBTI type distributions for male students will be independent of whether the populations are traditional or nontraditional.

Ha_4: The MBTI type distribution patterns for female Urbandale students will be significantly different from the type distributions of male Urbandale students.

Ho_4: The MBTI type distributions will be independent of gender.

Ha_5: The MBTI type distributions for Urbandale undergraduates will differ significantly from the type distributions of Urbandale graduate students.

Ho_5: The MBTI type distributions will be independent of graduate or undergraduate classification.

All hypotheses use two-tailed tests. To determine whether the null hypotheses can be rejected, the study will attempt to determine whether there are significant variations in type distributions on the MBTI when comparing the entire student population at Urbandale, shown by previous studies to be nontraditional (Almquist et al., 1988; McGaha, 1983; McGaha, 1986; Sorenson, 1989), and a pool of college students defined as traditional. Also to be compared will be the female

students at Urbandale and a pool of data on traditional female college students, male Urbandale students, and a pool of data on traditional male college students male and female student groups at Urbandale, and undergraduate and graduate student groups at Urbandale.

Expectations are that the nontraditional Urbandale student population will show significantly different distribution patterns on the MBTI than traditional students, that female nontraditional students at Urbandale will be significantly different than traditional female students in MBTI type distributions, and that male nontraditional Urbandale students and male traditional students will also differ significantly in type distributions. In addition, it is expected that the male and female type distribution patterns at Urbandale will differ significantly and that the graduate and undergraduate type distributions for Urbandale students will differ significantly.

Assumptions and Limitations

One limitation of this study is that no psychological instrument is perfect and that psychological type is only one variable and cannot explain all behavior. A second limitation is that this study may have limited validity outside of Iowa State

University. With a large sample number and a high response rate, findings of this study may have some generalizability to other off-campus nontraditional student populations, particularly if other demographic variables indicate similarity between the populations. A third limitation is that Iowa State University is a land grant institution and findings may not generalize to students of community colleges, private colleges, small liberal arts colleges, and other institutions which may have populations dissimilar to students at Iowa State. An assumption is made that the pool of data on type distributions for college populations is representative of the traditional college student population.

Rationale

The number of nontraditional students in postsecondary institutions has grown significantly as the United States' demographic profile shifts from being a country of youth to being a country of primarily adults (Adelstein, Sedlacek, & Martinez, 1983; Phipps, 1988). The phenomena of an aging country will be here for many years to come and will effect the demographic profile of college students as part-time

and adult enrollments increase (Adelstein et al., 1983, Mathiason & Neely, 1988; Osterkamp & Hullett, 1983).

The differences between traditional and nontraditional students need to be recognized (Schlossberg et al., 1989). Differences between these two populations have been reported on several variables. Nontraditional students are not as campus oriented and have numerous commitments outside of the academic setting (Hughes, 1983; Wintersteen, 1982). Hughes (1983) also reported nontraditional students as having a need for more practical learning. Smith and Robinson (1988) found traditional students to have an average age of 19.8 and nontraditional students of 35, with nontraditional students more often married, raising children, and commuting farther. Aslanian and Brickell (1988) noted that traditional age students were more likely to be studying full time on campus during the day and in a degree program. Expectations are that traditional and nontraditional students will differ in psychological type when comparing the entire groups and when subdivided by gender.

Male and female nontraditional students have been found to differ significantly on several variables. Women are likely to be older (Aslanian & Brickell,

1988; Bodensteiner, 1988; Mishler et al., 1982; Osterkamp & Hullett, 1983; Sorensen, 1989; Wagner et al., 1989). Females also tend to have less previous education, study more often part time, are more likely to have children, and are more likely to be widowed or divorced (Aslanian & Brickell, 1988; Bodensteiner, 1988; Wagner et al., 1989). Women are more likely to be enrolled in college, but once enrolled, men tend to carry more credit hours (Misher et al., 1982).

Data have also shown that women list more personal reasons for returning to school than men (Adelstein et al., 1983). Zachary, Hannum, and Chapman (1990) found gender differences in the stages adults went through after returning to school. Gilligan (1982) has reported differences in moral reasoning for males and females. Magolda (1989) discussed this developmental difference noting that women are relationship oriented while men are more oriented toward autonomy. Rideout and Richardson (1989) and Chaplain (1989) have made a connection between the differences between the sexes discussed by Gilligan and the thinking-feeling scale on the Myers Briggs Type Indicator. The MBTI does show a difference on the thinking-feeling scale between men and women with men scoring more often on the thinking

end of the scale and women scoring more often on the feeling end of the scale (Chaplain, 1989; Rideout & Richardson, 1989). Expectations are that the nontraditional students at Urbandale will be different in type distributions when divided by gender.

Differences between graduate and undergraduate student populations have also been noted. The Iowa State University Statistical Reports for 1986, 1987, and 1988 show that graduate students are more likely to be older, more likely to attend part time, and tend to be interested in different areas of study than undergraduates (Iowa State University, 1986, 1987, 1988). Aslanian and Brickell (1988) note that undergraduates are likely to be younger, have lower incomes, and are less often married than graduate students. Also noted are differences in preferred areas of study and reasons for attending college (Aslanian & Brickell, 1988). Expectations are that graduate and undergraduate populations at Urbandale will also differ in type distributions on the MBTI.

Significance

Findings of this study would have implications for programming for the Iowa State University off-campus students. What these implications are will be

dependent on the results of the study. This study will also contribute to Iowa State's knowledge about its nontraditional population.

This study would contribute to the literature on nontraditional students and specifically to the literature concerning use of personality assessment with nontraditional student populations. Results could contribute to the data base concerning nontraditional students and Jung's psychological type theory.

CHAPTER II. LITERATURE REVIEW

Overview

This section of the paper will describe the influx of adult students to postsecondary institutions. Previous research on nontraditional students will be presented as well as a profile derived from the literature. The theoretical background and development of the MBTI and Jungian typology will be presented as well as a synopsis of the characteristics of the opposing Jungian functions and previous research using psychological type and student populations. Differences in college students based on gender will be explored with emphasis given to gender differences in moral development and the proposed relationship to the Jungian judging function. Differences between graduate and undergraduate students will also be mentioned.

Description of the Problem

As the graying of America continues and the baby boom generation grows older, returning to school is becoming the norm for many adults. With the continuing decline in the number of traditional college-age students, nontraditional students will be the most

sought after student cohort until the turn of the century (Adelstein et al., 1983; Aslanian, 1987; Carter, 1985; Gelatt et al., 1984; Lantor, 1990; Marlow, 1989; Schlossberg et al., 1989). In the past few years there has been an influx of about 1.5 million adult students to post secondary institutions in America (St. Pierre, 1989; Whyte, 1989). Many of these students are women (Brandenburg, 1974; Hoyt, 1988; Suchinsky, 1982). By 1995, nontraditional students, including large numbers of women and minorities, are expected to be the new majority in colleges and universities accounting for about 60% of all undergraduates (Etaugh & Spiller, 1989; Evangelauf, 1990; Giczkowski, 1990). Baby boomers will account for a large group of adults to be educated (Cross, 1983).

In addition to the baby boom generation, those born between 1945 and 1963, getting older and accounting for a larger proportion of the population, other influences on shifting demographics include declining birthrates and extended life expectancies (Adelstein et al., 1983; Lynch et al., 1985). Higher education must not simply admit these students, but must change to meet the educational needs of the population (Lynch et al., 1985). Numerous calls have

been made for institutions to carefully examine data, identify adults most likely to consider enrollment, determine needs of adult students and how they differ from traditional-age students, and institute change to both improve adult student success and enhance the well-being of the institution (Bers & Smith, 1987; Cookson, 1989; Gelatt et al., 1984; Glass & Rose, 1987; Iovacchini, Hall, & Hengstler, 1985; Ross, 1989; Schlossberg et al., 1989; Wagner et al., 1989; Wintersteen, 1982).

Iowa institutions, facing one of the largest expected declines in high school students in the nation, an increasingly elderly population, and a variety of economic woes, are becoming increasingly competitive for both students and resources (Bodensteiner, 1989; Ferrari, 1988). Iowa State University has seen an increasing percentage of its student body classified as adults. In the fall of 1986, 19% of the student body was over 25. By 1987 that number had increased to 20%, and in 1988 to 21% (Iowa State University, 1986, 1987, 1988). By the fall of 1989, adult students accounted for 25% of the Iowa State student body (Aslanian, 1989).

The Iowa State University administration should be aware of these demographic changes and begin planning for the future (Aslanian, 1989). Lantor (1990) reported that as competition for college students becomes more intense in Iowa, the Iowa Board of Regents has expressed the desire that regents' institutions, including Iowa State, need to develop an effective marketing effort.

In order to develop marketing strategies to recruit nontraditional students--in order to develop retention plans--in order to institute programs to meet the needs of these students--research is necessary (Holt, 1982; Hughes, 1983; Johnson, Wallace & Sedlacek, 1979; Marlow, 1989; Murphy & Achtziger, 1982; Rogers et al., 1988; Ross, 1989; Schlossberg et al., 1989; Smith & Robinson, 1988). Studies of individual campuses, institutional self-assessment, collection of empirical data on adult students and their needs, study of subgroups in the adult population, studies of learning styles and motivations of adults, research on target audiences and potential students, research on current students at an institution, and research on how traditional and nontraditional students differ are all suggested in the literature (Holt, 1982; Hughes, 1983;

Johnson et al., 1979; Marlow, 1989; Murphy & Achtziger, 1982; Rogers et al, 1988; Ross, 1989; Schlossberg et al., 1989; Smith & Robinson, 1988; Wheaton & Robinson, 1983).

Higher education needs to learn appropriate ways to approach adult learning, to understand adult students in terms of development, and to make a commitment to providing access to higher education environments designed for adults (Burnham, 1982; Nowak & Shriberg, 1981). Knowledge about learning style preferences and personality types can help educators develop more effective learning environments (Guild & Garger, 1985). It has been suggested that knowledge of psychological type can be useful in working with adult students (Knox, 1980; Provost & Anchors, 1987; Schlossberg et al., 1989). The MBTI is recommended as a tool to study learning styles and psychological types (Provost & Anchors, 1987; Schlossberg et al., 1989).

Provost and Anchors (1987) suggest using the MBTI to describe student populations, to provide insight into the characteristics of students, to look at the educational environment, and to study the interaction between the student and the environment. They recommend studies of type within the institution to be

used in studying predominant learning styles and for faculty and staff development. Suggestions are also made that MBTI results can be used in designing student involvement opportunities, in academic advising, and in counseling (Anchors, 1985; Provost & Anchors, 1987).

Carlson (1985) notes that the widest usage of the MBTI has been in educational settings. The MBTI results have reportedly been used in a variety of ways including career counseling, personal counseling, student development training, learning style assessment, organizational consultation, school administration, marriage counseling, sales training, team-building models, recruitment and marketing, management training, and outplacement (Anchors, 1985; Carey, Fleming, & Roberts, 1989; O'Brien, 1985; Provost & Anchors, 1987). Typology has also been linked to theories of differences in moral development between men and women and implications for student development have been drawn (Chaplain, 1989; Magolda, 1989; Otis, 1989; Rideout & Richardson, 1989).

Theoretical Background

Jung's typology

In the 1920s, Carl Jung first published his theory of psychological type indicating that apparently random differences in behavior were actually the result of certain psychological differences in the way people prefer to perceive information and make decisions (Carlson, 1985; Fourqurean et al., 1988; Mamchur, 1984b; Myers, 1980, 1987; Yokomoto & Ware, 1982). Jung believed psychological type to be a form of cognitive style and that behavior differences were the result of stable attitudes which determined a person's mode of becoming aware of people, things, or ideas, and a person's method of solving problems or coming to conclusions about what has been perceived (Carlson, 1985; Delworth & Hanson, 1989; Fourqurean et al., 1988; Guild & Garger, 1985; Roberts, 1975).

The preferences Jung describes are, he believes, deeply rooted from early childhood, influenced by life experiences, and developed through repeated use (Yokomoto & Ware, 1982). Jung's theory of type is composed of two pairs of opposing functions and one pair of opposing attitudes with an individual's preference falling somewhere on each continuum

(O'Brien, 1985; Provost & Anchors, 1987). The perceptive function deals with how a person perceives information and the polar opposites are called sensing, S, or intuition, N (Carlson, 1985; Myers, 1980). The judging function determines how a person makes decisions and the polar opposites are termed thinking, T, and feeling, F (Carlson, 1985; Myers, 1980). The opposing attitudes described by Jung are called extroversion, E, and introversion, I, and determine the direction of a person's focus (Carlson, 1985; Myers, 1980).

Type is described as dynamic with individuals capable of using all the functions and attitudes, but naturally preferring one or the other on each continuum (Provost & Anchors, 1987; Yokomoto & Ware, 1982). Jung theorized that every person uses all the functions regularly, but there is a tendency to favor certain mental functions over others and therefore to develop mental capacities in different ways and in different proportions, thus determining a person's preference. A preference could be conceived as a filter through which messages are received and sent, or as similar to left or right handedness (Becker, Bledsoe, & Mok, 1977;

Delbridge-Parker & Robinson, 1989; Lawrence, 1986; McCaulley, 1974; Myers, 1980; Yokomoto & Ware, 1982).

According to Jung, there are also stages of type development. The first stage, occurring during the first half of life, involves developing clear preferences and developing the ability to use those preferences freely to achieve identity. The second stage, occurring later in life, involves development of the lesser used functions and completing the search for identity (Provost & Anchors, 1987). Jung's theory also allows for the effect of the environment on type development, noting that an environment that does not recognize or accept a child's natural preferences can cause a falsification of type and inhibit the expression of a person's true type. Stress in the environment can cause type inconsistencies as well (Provost & Anchors, 1987).

Development of the MBTI

In the 1940s, Isabel Myers and her mother, Katherine Briggs, began to develop an instrument to measure Jung's type preferences (Dillon & Weisman, 1987; Myers, 1980; Provost & Anchors, 1987; Shaker, 1982). The Myers-Briggs Type Indicator, first published in 1943, paralleled Jung's theory in terms of

the three dimensions described earlier, but added a fourth dimension Myers and Briggs described as implicit in Jung's theory (Carlson, 1985; Dillon & Weisman, 1987; Myers, 1980). The dimension added in the MBTI dealt with determining one's orientation to the outer world, and one's dominant function (Carlson, 1985; Myers, 1980; O'Brien, 1985). In 1963 the Educational Testing Service published form F of the MBTI to be used for research, and in 1975 the instrument was made available for more widespread use (Dillon & Weisman, 1987; Provost & Anchors, 1987). A variety of studies have been done over the years to develop norms and determine construct validity and test reliability for the MBTI (Carey et al., 1989; Carlson, 1985; Dillon & Weisman, 1987; O'Brien, 1985; Provost & Anchors, 1987; Rosenak & Shontz, 1988).

The MBTI is now recognized as a respected psychological instrument and is recognized as a reliable method of determining personality types based on Jungian constructs (Guild & Garger, 1985; Haefele, 1974; Myers, 1980; Roberts, 1975; Rosenak & Shontz, 1988; Shaker, 1982). The MBTI has been described as one of the "best designed and most thoroughly validated psychometric instruments around" (O'Brien, 1985,

p. 60). Interest in use of the MBTI and Jung's type theory in education has grown as supporters claim that by developing educational environments and methods based on type theory, individuals can be helped to achieve their full potential (Barrett & Connot, 1986; Guild & Garger, 1985; Lawrence, 1986; Mamchur, 1984a, 1984b; Myers, 1980; Shaker, 1982). In fact, the widest usage of the MBTI has been in educational settings (Carlson, 1985).

Type dimensions and descriptions

To enable readers to have a better understanding of Jung's type theory, brief descriptions of the preferences will be provided. The extroversion-introversion scale determines a person's direction of interest or attitude toward the world. Those with a preference for extroversion prefer to interact with the external world of actions, objects, and persons while those with a preference for introversion are more interested in the inner world of concepts and ideas. Extroverts tend to prefer group activity, verbalize more frequently, be more interested in people, and dislike complicated procedures. Introverts are more likely to need quiet time, choose to work alone, and dislike interruptions (Carlson, 1985; Guild & Garger,

1985; Kiersey & Bates, 1978; Lawrence, 1982; Mamchur, 1984a, 1984b; Myers, 1980; O'Brien, 1985; Provost & Anchors, 1987; Roberts, 1975).

The sensing-intuitive scale represents two different ways of viewing people and situations. Those with a preference for sensing attach more importance to immediate realities and direct experience while those with a preference for intuition focus more on inferred meanings, relationships, and possibilities. The sensing-intuitive preference affects how reality is seen, heard, and experienced. Sensors are described as realistic, practical, observant, systematic, literal, concrete, and detail conscious. Intuitives are described as imaginative, focused on the abstract, impatient with routine, and future oriented (Barrett & Connot, 1986; Carlson, 1985; Delworth & Hanson, 1989; Kiersey & Bates, 1978; Lawrence, 1982; Lawrence, 1984; Mamchur, 1984b; Myers, 1980; O'Brien, 1985; Provost & Anchors, 1987; Roberts, 1975; Shaker, 1982; Yokomoto & Ware, 1982).

The thinking-feeling scale refers to preferences in how people make judgments about information received through their perceptive function and how they approach the decision-making process. Those with a preference

for thinking rely more on logical analysis of data and abstract principles. Decisions tend to be made objectively, and accuracy and thoroughness are important. Those with a preference for feeling tend to make decisions based on internal value systems and subjective analysis, considering the effects of decisions on themselves and others and viewing circumstantial evidence as important (Delworth & Hanson, 1989; Dillon & Weisman, 1987; Guild & Garger, 1985; Jung, 1964; Mamchur, 1984b; O'Brien, 1985; Rideout & Richardson, 1989; Roberts, 1975).

The judging-perceptive attitude, added to Jung's theory by Katharine Briggs and Isabel Myers (Myers, 1980), describes a person's preferred lifestyle and is used to determine which process is dominant. Those preferring the judging attitude tend to live in a planned, organized, orderly manner, preferring structure, schedules, order and closure, and needing a system of accountability and clear expectations. Those with a preference for the perceptive attitude prefer spontaneity, variety, autonomy, choices, and spontaneous opportunities, and tend to feel imprisoned by structure (Barrett & Connot, 1986; Delworth & Hanson, 1989; Dillon & Weisman, 1987; Kiersey & Bates,

1978; Lawrence, 1982; Mamchur, 1984b; Myers, 1980; Provost & Anchors, 1987; Roberts, 1975). Tables 1 and 2 in Appendix A present the four dimensions in typological theory and the 16 types generated by possible combinations of those preferences.

Type and learning style

Kiersey and Bates (1978) discuss learning styles associated with type theory. Those with a preference for sensing and judging (SJ) tend to need structure, like clubs, prefer learning facts, like stability, and learn best through traditional instructional methods. Those with a preference for sensing and perception (SP) love action; need hands on experiences; like competition, change, and variety; and hate routine. This group is the least represented in higher education (Kiersey & Bates, 1978; Myers, 1980). Individuals with preferences for intuition and thinking (NT), value competency, like cognitive structure, tend to be independent learners, and may not have well-developed social skills. Those with preferences for intuition and feeling (NF), need harmony in the environment, recognition and encouragement, personal involvement, and social interaction. These individuals like small

group interactions and have a desire for self-discovery (Kiersey & Bates, 1978).

According to Dillon and Weissman (1987), sensing-thinking types, ST, are attracted to business and practical, matter-of-fact areas of study. Those with preferences for intuition and thinking (NT), are drawn to sciences and math. Those with thinking, judging functions (TJ), are attracted to engineering and law. Those with preferences for intuition and feeling (NF), are drawn to humanities and fine arts, counseling and psychology, and journalism. Those with preferences for sensing and feeling, SF, are drawn to elementary education, nursing, and personal service areas (Dillon & Weissman, 1987).

Typology and moral development

Having discussed Jung's typology, the next step is to discuss possible connections between the typological model of student development and the moral development models of Kohlberg and Gilligan. Kohlberg creates a six-stage theory of moral development with two stages in each of three general levels: the preconventional, conventional, and postconventional (Knefelkamp, Widick, & Parker, 1978). At the preconventional level, moral decisions are based on the punishment and reward

system. At the conventional level, maintaining the social order and meeting the expectations of others are important in moral reasoning (Knefelkamp et al., 1978; Kohlberg, 1975). At the postconventional level, stages five and six, universal rules of equality and justice are dominating factors (Knefelkamp et al., 1978; Kohlberg, 1975). Kohlberg (1975) describes those operating at stages five and six as being concerned with individual rights and legalistic questions with emphasis on procedural rules. Words used to describe decision making at levels five and six include rational, logical, consistent, and abstract (Kohlberg, 1975).

Chaplain (1989) noted that the language used by Kohlberg to describe levels five and six is similar to language used to describe the thinking function in Jungian typology. As one moves up the hierarchy in Kohlberg's stages, there is increasing universalization, impersonalization, and objectivity (Chaplain, 1989). The thinking function in typology has been described as impersonal, objective, logical, analytical, and relying on abstract principles to arrive at decisions (Delworth & Hanson, 1989; Dillon &

Weisman, 1987; Myers, 1980; O'Brien, 1985; Rideout & Richardson, 1989; Delworth & Seeman, 1984).

Kohlberg's description of conventional reasoning sounds somewhat like the feeling function in type theory. Kohlberg talks about helping others, seeking approval, and identifying with persons or groups (Chaplain, 1989; Kohlberg, 1975). In type theory, those with a preference for the feeling function are described as more interested in people, needing approval, and needing to be helpful (Lawrence, 1982; Myers, 1980).

Gilligan (1982) took issue with Kohlberg's theory, noting that women consistently scored lower than men on Kohlberg's scale and claiming that moral development for women was not being accurately measured by Kohlberg's theory. Gilligan claimed that the developmental stages for women were different than those of men (Gilligan, 1982; Magolda, 1989). Gilligan presents the concepts of the "voice of justice" for men and the "voice of care" for women. In describing the differences between men and women, Gilligan (1982, p. 28) describes responses by a young male and a young female to one of the moral dilemmas used by Kohlberg to measure moral development. The female tended to view

the dilemma as a personal relationship issue while the male viewed the situation in terms of logic and law. Women, according to Gilligan (1982), tend to prefer the concept of care and tend to be sensitive to the needs of others, trying not to hurt others, and focusing on relationships in a contextual manner. Males prefer the concept of justice, according to Gilligan (1982), and focus more on individual achievement, autonomy, fairness, and clear decision making while tending to be impersonal. Belenky, Clinchy, Goldberger, and Tarule (1986) described these two ways of thinking as "separate knowing" which is impersonal and objective and "connected knowing" which relies on empathy and understanding.

One can note the similarities between Gilligan's descriptions of the male and female voices of justice and care and the descriptions of the thinking and feeling functions in Jungian typology. Those with a preference for feeling judgment are described in terms of valuing harmony and relationships, relying on personal values, aware of other people and their feelings, and compassionate. Those with a preference for thinking are described as valuing logic, objective analysis, and fairness, impersonal and often unaware of

people's feelings (Mamchur, 1984b). A relationship with Gilligan's theory can also be seen in the fact that more women prefer the feeling function in type theory while more men prefer the thinking function (Chaplain, 1989). In fact, the thinking-feeling function is the only one of the four MBTI dimensions which shows a significant difference based on gender with 60% of the males preferring the thinking function and 60% of the females scoring on the feeling end of the scale (Rideout & Richardson, 1989).

Other authors have previously noted the seeming connection between the male and female voices described by Gilligan and the descriptions of the thinking and feeling functions measured by the MBTI. Chaplain (1989) suggests that the language of Kohlberg resembles the language of a person with a preference for thinking while the language of Gilligan resembles that of a person with a preference for feeling. Chaplain (1989) also notes that the scoring patterns of men and women on the MBTI appear compatible with Gilligan's model.

Otis (1989) conducted a study involving measurement of masculine and feminine traits, MBTI scores, and descriptions of real-life moral dilemmas. The hypothesis studied by Otis (1989) was that those

with a preference for thinking would make moral judgments using more of a justice orientation while those with a preference for feeling would use more care considerations in solving moral dilemmas with sex role orientation affecting the process. Significant relationships between the thinking and feeling preferences and the framework used to solve moral dilemmas were found (Otis, 1989).

Rideout and Richardson (1989) also noted the apparent relationship between the Jungian thinking-feeling dimension and the male and female voices described in developmental theory. Rideout and Richardson (1989) presented a team building model built on the relationship they perceived between these two theories.

One final issue worth noting is that in Gilligan's theory, although claiming there are general differences between men and women, individual men and women may use either voice and there is not a rigid distinction between the sexes (Delworth & Seeman, 1984; Prose, 1990). Type theory also notes that individuals may prefer either the thinking or feeling function although in the general population significantly more females prefer the feeling function and significantly

more males prefer the thinking function (Lawrence, 1982).

Implications for education

It has been suggested that individuals tend to seek learning environments compatible with their patterns of interest and preferences and have a disposition to learn certain ways (Delworth & Hanson, 1989; Provost & Anchors, 1987). Differences in type preferences might cause individuals to experience an educational environment in different ways (Provost & Anchors, 1987). To enhance and create a positive educational environment, practitioners need to be aware of differences between men and women and differences in type (Delworth & Seeman, 1984; Magolda, 1989; Wheaton & Robinson, 1983). Acknowledging these differences and responding through environmental supports can help ensure quality educational outcomes. Typology and moral development theories can be used in career development, recruiting, retention efforts, academic advising, faculty in-service training, and personal counseling to help meet the needs of students, faculty, staff, and the institution itself (Delworth & Seeman, 1984; Magolda, 1989; O'Brien, 1985; Provost & Anchors, 1987; Schlossberg et al., 1989; Shaker, 1982).

A general MBTI student profile may provide insights concerning important dimensions of the environment, recognizing that type distributions show which types of students appear to be drawn to a certain environment (Provost & Anchors, 1987). Looking at the implied connection between type and moral development can give practitioners further insights into the needs of the students and their interaction with the environment.

Previous Studies

Nontraditional students

Part of this study will include demographic information concerning the nontraditional student population at Urbandale. This portion of the study will be descriptive. The following section will present descriptive results of previous studies on nontraditional students and will guide the development of the questionnaire to be developed for Urbandale.

In looking at nontraditional participation in postsecondary education by gender, Winkelpleck (1987) found Iowa State University's nontraditional on-campus population to be 47.2% male and 52.8% female. A study at the university of Northern Iowa (Bodensteiner, 1988,

1989) of 404 nontraditional students found 53.6% to be women. In previous studies at Urbandale, the students were found to be 69% female (Almquist et al., 1988) and 70.7% female (Sorensen, 1989).

How do the Iowa studies compare with other studies across the nation? The College Board (1988) reported results from a nationwide survey showing 60% of nontraditional students are women. Another author (Greenburg, 1989) reported 66% of the nontraditional students she studied were female. Iovacchini et al. (1985) found 54% of the nontraditional students they looked at to be female.

In looking at age categories for nontraditional students, an Iowa State survey of off-campus students (Office of Continuing Education, 1986) found 75% to be in the 23 to 44 age bracket with 17% over age 45. In one Urbandale study (Almquist et al., 1988) the average age was found to be 36, while another Urbandale survey (Sorensen, 1989) reported 73.8% between 25 and 45 and 11% over age 45. At the University of Northern Iowa (Bodensteiner, 1988) the average age was found to be 32.2 with males tending to be younger than females. Winkelpleck (1987) found Iowa State on-campus nontraditional students to be predominantly between 25

and 45. Wagner et al. (1989) used chi-square analysis and found that nontraditional men were significantly younger than nontraditional women students. Aslanian and Brickell (1988) found 33% of adult learners to be 25 to 29, with 23% between 30 and 34, 18% between 35 and 39, and 25% over age 40. The College Board (1988) reported 25% of nontraditional students in a national study to be between 25 and 40 years of age. Finally, Greenberg (1989) found most participants to be between 30 and 44.

Marital status of nontraditional students is another variable found in the literature. An Urbandale survey (Almquist et al., 1988) found 61% of the students to be married. Winkelpleck (1987) found 57% of Iowa State on-campus nontraditional students to be married. Iovacchini et al. (1985) found 60% married, Wagner et al. (1989) found 51% to be married, and Greenberg (1989) also found a majority to be married. Aslanian and Brickell (1988) in their national study reported 60% of adult students were married; 15% had been married and were currently divorced, separated or widowed; and 25% had never been married.

Bodensteiner (1988) reported that 71% of the female nontraditional students had children while 41%

of the males had children. Winkelpleck (1987) reported 50% of the nontraditional students had school-age children and 30% had preschool-age children. Iovacchini et al. (1985) reported 47% of older students had children while Copas and Dwinnel (1983) reported the figure at 43%.

In looking at ethnic background, Phipps (1988) found the majority of nontraditional students to be white. Iovacchini et al. (1985) indicated 95% were white. Aslanian and Brickell (1988) put the number of white participants at 88%, while in the Iowa State on-campus study 87% were white (Winkepleck, 1987).

Studies have looked at area of residence for adult students. Aslanian and Brickell (1988) found 50% of nontraditional students lived in a city, 35% in the suburbs, and 15% in rural areas. Wagner et al. (1989) found 76% lived within 30 miles of the university they attended and, using chi-square analysis, found that those living farther away were more likely to be younger and male. Sorensen (1989) found 70% of the Urbandale students lived within 10 miles of the class site.

Employment status is another area frequently considered when studying nontraditional students.

Numerous studies have found the majority of nontraditional students to be employed (Bers & Smith, 1987; Brown & Robinson, 1988; College Board, 1988; Iovacchini, Hall, & Hengstler, 1985; Phipps, 1988; Swift, Colvin, & Mills, 1987). Winkelpleck (1987) found 75% of Iowa State's nontraditional students worked. Copas and Dwinnel (1983) found 78% employed. Bodensteiner (1988) found one-third employed full time and one-third part time. Aslanian and Brickell (1988) and the College Board (1988) placed the number of nontraditional students employed full time at about 70% with another 12% employed part time, 5% unemployed or retired, 6% homemakers, and 6% full-time students. An Urbandale study (Almquist et al., 1988) found 53% of the students worked full time and 42% part time.

In looking at income levels, an Iowa State survey of off-campus students (Office of Continuing Education, 1986) found 35% to have incomes over $35,000 a year. An Urbandale study (Almquist et al., 1988) found 30% had incomes over $40,000. Winkelpleck (1987) found 40% with incomes less than $10,000, 47% between $10,000 and $40,000 and 10% over $40,000. Another Urbandale study (McGaha, 1986) found 59% made over $30,000 a year and 35% over $40,000. In their national study, Aslanian

and Brickell (1988) found the median income for nontraditional students to be $27,000 with 27% reporting incomes between $20,000 and $29,000, 31% between $30,000 and $49,000, and 14% over $50,000. Phipps (1988) and Swift et al. (1987) reported incomes between $15,000 and $40,000 with the latter study showing the majority earning over $20,000. Brown and Robinson (1988) found the majority to have incomes over $25,000 while Bodensteiner (1988) found the average income to be over $20,000.

Reporting on studies including student status, the College Board (1988) indicated that 35% of nontraditional students nationwide are graduate students. Copas and Dwinnel (1983) reported the number of adult graduate students at 60% while Aslanian and Brickell (1988) put the number at 30% for graduate students and 70% for undergraduates. However, Aslanian and Brickell (1988) also reported that 21% already had a four-year degree and 26% had graduate coursework or degrees. Aslanian and Brickell (1988), compared their statistics with traditional-age students, 87% of whom are undergraduates and 13% graduate students. Looking at Iowa State University students, Winkelpleck (1987) found 75% to be upper class undergraduates. Surveys in

Urbandale (Almquist et al., 1988; Sorensen, 1989) found about 60% to be undergraduate students.

Are these nontraditional students serious about getting a degree? The College Board (1988) reported 60% were seeking a degree. Aslanian and Brickell (1988) said 92% planned to complete a degree. In Urbandale, 74% indicated an intent to get an Iowa State University degree (Sorensen, 1989). Forty-five percent said they were seeking a bachelor's degree and 37% a master's degree. About 45% of the Urbandale students were classified as juniors or seniors while 45% were classified as graduate students. Winkelpleck (1987) reported that 58% were seeking bachelor's degrees and 75% were classified as juniors and seniors. Aslanian and Brickell (1988) reported that 60% of the nontraditional students were currently enrolled in degree programs. An Iowa State off-campus survey (Office of Continuing Education, 1986) found 66%, as compared to Urbandale's 60%, currently enrolled in a degree program (Sorensen, 1989).

How long had these students been working toward this degree goal? An Urbandale study (Almquist et al., 1988) reported a majority of the students had been studying two or three semesters. When considering how

much previous college experience these students have had, Aslanian and Brickell, 1988) found 35% had studied elsewhere and had transfer credits; however, 63% had no transfer credits. Swift (1987) found 76% had transfer credits and Wagner et al. (1989) found one-half had attended college previously.

It appears from the literature that nontraditional students tend to study part time. Aslanian and Brickell (1988) reported 25% of those they surveyed were full-time students, 25% took one course a year, 26% took two or three courses a year, and 15% took four or five classes a year. The College Board (1988) reported that about 50% of nontraditional students took four courses a year. Iovacchini et al. (1985) reported 50% of adult students took less than eight hours a semester. In a survey at the University of Northern Iowa (Bodensteiner, 1988), the average course load for nontraditional students was nine hours. At Iowa State University (Winkelpleck, 1987), 21% took 3 to 6 credits per semester, 41% took 9 to 12, and 35% took 15 to 18 credits each semester. At Urbandale about 75% of the students were taking only 1 course (Almquist et al., 1988; Sorensen, 1989). An off-campus undergraduate study (Office of Continuing Education,

1986) noted that 43% of the students were taking their first Iowa State course.

When do these nontraditional students prefer to go to school? The College Board (1988) reported that although 50% were daytime students, the students expressed a preference for evening classes. Aslanian and Brickell (1988) reported that 47% study before 4:00 p.m., 50% evenings, and 3% weekends.

What areas of study are these nontraditional students drawn to and what degrees are they currently seeking? Wintersteen (1982) found the largest numbers in general studies, business, and human services. Hughes (1983) found business to be the most popular area. Greenberg (1989), although expecting those in her study to be drawn to vocational and technical areas, found instead a predominance of students taking general education courses, with 35% in the arts and sciences, 22% in business, and 12% in computer science. Iovacchini et al. (1985) found the humanities, computer science, and psychology to be the areas of interest. Winkelpleck (1987) found 33% enrolled in sciences and humanities with business second. The College Board (1988) reported two-thirds of adults were seeking degrees in five areas: business, education, health,

computer science, and engineering. Aslanian and Brickell (1988) found 27% in business, 17% in education, 12% in health, 8% in computer science, and 7% in engineering and noted that adults tend to seek degrees with immediate use.

Not surprisingly, career transitions and a variety of career-related reasons appear to be the predominant motivation for returning to school. Reasons listed include preparation for a new career, career advancement, increased income, to learn new skills, requirements to keep a current job, job loss, and recertification (Aslanian & Brickell, 1988; Bodensteiner, 1988, 1989; Brown & Robinson, 1988; Burnham, 1982; Greenberg, 1989; Iovacchini et al., 1985, Lantor, 1990; Osterkamp & Hullett, 1983; Phipps, 1988; Potter, 1988; Rogers et al., 1988; Ross, 1988, 1989; Smart & Pascarella, 1987; St. Pierre, 1989; Winkelpleck, 1987; Wintersteen, 1982). The literature reports that by far the major reasons adults return to school are related to their career or a job transition (Aslanian & Brickell, 1988; Gelatt et al., 1984). Some authors have noted that men return more often for career reasons while women are more likely to return for personal or family transition reasons (Bers &

Smith, 1987; Gelatt et al., 1984; Governanti & Clowes, 1982; Koos, 1970; Ross, 1988; Schlossberg et al., 1989). Mezirow and Marsick (1978) and Rogers et al. (1988), however, reported finding females more motivated by career reasons than men. A variety of authors have noted that some kind of trigger event in an adult's life motivates a return to school (Bachur, 1986; Bigelow, 1981; Blaukopf, 1981; Carbone, 1982; Cross, 1981; Gleazer, 1973; Phipps, 1988; Rabinowitz, 1982; Roehl, 1981; Zwerling, 1986).

What motivates selection of a particular institution by the adult learner? The predominant reason appears to be location. Bers and Smith (1987) reported convenience as the major reason followed by cost. Aslanian and Brickell (1988) and the College Board (1988) report 70% of adult students choose a college due to convenient location, with the next two most reported reasons being curriculum and cost. Wintersteen (1982) reported almost 50% chose an institution because of location. Not surprisingly, other studies have found that adult students generally live within 10 or 15 miles of the class location (Aslanian & Brickell, 1988; Sorensen, 1989; Winkelpleck, 1987).

In looking at financial aid statistics, Bodensteiner (1988, 1989) reported that 75% of adult students finance their own education and 17% receive employer aid, with students receiving employer aid generally males employed full time in white collar jobs. Aslanian and Brickell (1988) reported that 60% received no financial aid and 40% employer aid. Iovacchini et al. (1985) reported 50% of the nontraditional students paid their own way. An Iowa State study (Office of Continuing Education, 1986) found off-campus students either paid their own way or received employer aid, and Sorensen (1989) found over half of the Urbandale students indicating they did not need financial aid.

How did these students receive information about the college they chose to attend? Wintersteen (1982) found the majority received information from friends or former or current students. Ross (1989) found most adult students had learned of the program from personal contacts with other students and faculty, and 25% from the news media.

Difficulties in becoming a student reported in the literature include lack of financial aid, poor academic advising, lack of class availability, inconvenient

class times, and lack of child care (Aslanian & Brickell, 1988; Bodensteiner, 1989; Wintersteen, 1982). Greenberg (1989) noted the following difficulties for adult students: lack of convenient scheduling, lack of accessible information, lack of advising, and lack of institutional commitment and recognition of adult students. Schlossberg et al. (1989) list dispositional barriers, such as self-perceptions; situational barriers, such as life circumstances, lack of money, lack of time; and institutional barriers, such as restricted schedules and other current educational practices. Faculty attitudes, role conflict, rigidity in the academic bureaucracy, limitation on degrees that can be earned off-campus, and psychological factors are also problems noted in the literature (Burke, 1987; College Board, 1988; Gelatt et al., 1984; Holt, 1982; Potter, 1988; Wintersteen, 1982). The data found in the literature are illustrated in Table 3 in Appendix A.

Differences between traditional and nontraditional students have been reported in studies by Hughes (1983), Wintersteen (1982), Schlossberg et al., (1989), Smith and Robinson (1988), and Aslanian and Brickell (1988). Differences between the sexes have been found

in several studies of nontraditional students (Adelstein et al., 1983; Aslanian & Brickell, 1988; Bodensteiner, 1988; Greenberg, 1989; Mishler et al., 1982; Osterkamp & Hullett, 1983; Sorensen, 1989; Wagner et al., 1989). Differences between graduate and undergraduate students have also been noted (Aslanian & Brickel, 1988).

The studies discussed have presented information in terms of percentages and frequencies. Chi-square analysis has been used in some of the studies to determine differences between traditional and nontraditional students and between the sexes (Adelstein et al., 1983; Bodensteiner, 1988, 1989; Johnson et al., 1979; Smith & Robinson, 1988). These studies have shown differences on several descriptive variables.

MBTI studies

Many studies using the Myers-Briggs Type Indicator have been done in the field of education. Studies have found that certain academic disciplines have more of certain types than would be expected based on the type distribution of the general population (Provost & Anchors, 1987). Lawrence (1984) reported that sensing-perceptive and intuitive-perceptive types were

significantly affected by instructional models. A study by Yokomoto and Ware (1982) found differences in the sensing and intuitive types in preferred learning styles. Myers (1980) reported studies showing sensing types consistently scoring lower on IQ tests than intuitives.

A study at the University of Florida found remedial education classes to contain predominantly sensing types (Lawrence & McCaulley, 1982). Significance at the .01 level was found in one study of reading problems, indicating that sensing students had a more difficult time reading than intuitives (Tillman, 1976). Studies by Myers (1980) and McCaulley (1974) have also found sensing types overrepresented in remedial programs.

A variety of studies, including several longitudinal studies, have shown significantly higher dropout rates for sensing students (Lawrence, 1982; Mamchur, 1984b; McCaulley, 1974). Myers sampled about 500 dropouts and found all but 2 to be sensing types (Lawrence, 1982). Various studies using MBTI have found relationships between type preference and academic achievement, aptitude, and career choice (Fourqurean et al., 1988).

In 1987, a study at Iowa State University of talented and gifted students found significant differences between this group and the normal population (Delbridge-Parker & Robinson, 1989). The MBTI results for the talented and gifted students were compared to a base sample of 1,943 high school graduates using the Selection Ratio Type Table PC software. Differences were found in the introvert, intuitive, and perceptive categories. Using chi-square procedures, these differences were found to be statistically significant at the .001 level (Delbridge-Parker & Robinson, 1989).

A study at St. Louis University found sensing-thinking types overrepresented in business areas, sensing-feeling types overrepresented in nursing, and intuitive-thinking types overrepresented in the college of arts and sciences with significant differences found using the self-selection ratio (Provost & Anchors, 1987). Data also show introverted-intuitive types scoring highest and extroverted-sensing types scoring lowest on ACT and SAT tests (Provost & Anchors, 1987).

The thinking-feeling dimension has been found to account for significant differences in dropout studies in certain programs (Provost & Anchors, 1987). For the

Teaching, Retention, and Academic Integration by Learning Style, TRAILS, project at St. Louis University, software programs similar to the Selection Ratio Type Table program available from CAPT were used for analysis (Provost & Anchors, 1987). Another study with college students found statistically significant patterns in extracurricular activities based on type (Provost & Anchors, 1987).

As mentioned earlier in this paper, research has shown significant differences between men and women on the thinking-feeling scale (Myers, 1980). Recent studies have attempted to link the thinking-feeling scale to the care and justice orientations proposed by Gilligan (1982) in her discussion on differences in male and female moral decision making (Chaplain, 1989; Magolda, 1989; Otis, 1989; Rideout & Richardson, 1989). Differences in type between graduate and undergraduate students have also been found on the extroversion-introversion scale of the MBTI (Fourqurean et al., 1988).

In research using the MBTI, frequency distributions are used to describe a sample. The Selection Ratio Type Table computer program calculates a selection rate by dividing observed frequencies by

expected frequencies and provides chi-square analysis of the data. The most appropriate form of analysis for determining whether certain types are found more frequently in a particular sample than would be expected when compared to a base population is the 2X2 contingency table analysis (Provost & Anchors, 1987). The null hypothesis most common in research involving the MBTI is that proportions of types in the sample will not differ from proportions in the base population if type does not affect selection into that sample. The base population used in comparison should be related to the hypothesis being tested to ensure the validity of the SRTT analysis (Provost & Anchors, 1987).

Need for this Study

Though much research has been done on college students in general using the Myers-Briggs Type Indicator, little has been done specifically with the nontraditional student population. Researchers have noted that there are striking differences between traditional and nontraditional students on other variables (Schlossberg et al., 1989). This study will be focused on nontraditional off-campus commuter students. Although many postsecondary institutions

have in the past viewed part-time commuting students as peripheral to the goals of the university (Osterkamp & Hullett, 1983), increasing numbers of these students are an important trend on college campuses of today. As a group these students are difficult to serve and most colleges have little data on them (Jacoby, 1989). Research and change needs to occur to integrate these students within the institution and meet their educational needs (Schlossberg et al., 1989). Jacoby (1989) states that fewer than three in five adult students attend college full time and that part-time commuter students need more attention. Jacoby (1989) suggests that institutions learn more about who these students are, when they go to class, what their academic goals are, what problems they face, what motivates them to attend school, and what institutions need to do to enhance program availability and help these students feel that they matter to the institution. More information is needed about this particular segment of the student population.

This study could be beneficial to Iowa State University in helping design programs for implementation at off-campus centers. Two studies recognize the important role four-year public

institutions, such as Iowa State, play in educating adult students. Aslanian and Brickell (1988) point out that 82% of all nontraditional students attend public colleges. Greenberg (1989) found that for the population of nontraditional employed students she studied, a clear preference emerged for public baccalaureate and master's level colleges and doctoral level universities. Of those in the study, 36% chose to attend a four-year public college or university while 29% chose public community colleges, even though twice as many private colleges were available for them to attend (Greenberg, 1989). Aslanian (1989), in her report to Iowa State, noted that Iowa State could do more to serve the adult student population at Urbandale.

If this study shows that the population under consideration is similar to other nontraditional populations examined in the literature in terms of descriptive variables, justification may be offered for using type theory as an organizing construct for providing services and environments for adult students not only at Urbandale but in other institutions as well. Findings may be useful to educators interested in adult students and how they learn. Findings might

also prove useful in looking at areas of retention, recruitment strategies, advising, counseling, and orientation programs. Finally, findings of this study will contribute to the body of knowledge and may provide a base for future research.

CHAPTER III. METHODOLOGY

Subjects

The subjects for this study will be the entire student population attending classes at the Iowa State University off-campus site in Urbandale. Research in the fall of 1989 involving 222 students showed that this student group is predominantly nontraditional (Sorensen, 1989). Eighty-five percent of the students responding in the fall of 1989 were over age 25 and fewer than 5% were full-time students. This group of students will be the nontraditional student population for purposes of this study.

Permission to conduct this study will be sought from the off-campus coordinator, the Central Area Extension director, the adult student office, and the individual class instructors scheduled to teach in Urbandale during the spring semester of 1990. As the entire student population will be used for this study, no sampling procedures are necessary.

Each student will receive a questionnaire coded by class and participant number as well as a form F Myers-Briggs Type Indicator and answer sheet, both also precoded to match the demographic questionnaire. For

example, for the first class to be surveyed, instruments for all class members will be coded 01 with the next two digits designating the participant number. The four-number code will be placed at the top right-hand corner of each form given to the student, including all attachments, and will look like 0101, 0102, 0103, etc. No names will be placed on any of the instruments to maintain anonymity. The coding described is necessary in order to match the demographic information with the MBTI results to enable subgroup comparisons. The coding is also necessary to provide students with access to their own individual Myers-Briggs Type Indicator results should they so desire.

Instrumentation

Instruments necessary to conduct this study include letters of information for faculty members with classes to be included in the study, information forms for each student, questionnaires asking for demographic information, MBTI Form F test booklets and answer sheets, and a Selection Ratio Type Table computer program to compare MBTI results. Information letters will be given to each instructor requesting class time for students to participate in the study, explaining

the purpose of the study, how the study will be conducted, and how results will be used. Individual students will be provided a letter of information at the time of the survey administration. Student participation in the study will imply consent. The student letters will explain the purpose of the research, who will have access to the results, and how results will be utilized. The letter will also explain that participation in any or all portions of the study is completely voluntary.

The questionnaire will be designed by the researcher and based on variables concerning adult student populations found in the literature. The MBTI Form F test booklets and answer sheets will be purchased from the Center for Application of Psychological Type in Gainesville, Florida. The Selection Ratio Type Table computer program to be used in analyzing the type data will be provided by Dr. Dan Robinson in the Department of Professional Studies at Iowa State University in Ames, Iowa. The SRTT software is also available from CAPT.

The MBTI is a highly quantified, well known, and respected psychological instrument, better normed than similar instruments, more sophisticated than other

learning style assessments, and providing specific methods of administration and scoring (Carlson, 1985; Guild & Garger, 1985; Provost & Anchors, 1987; Shaker, 1982). Studies to determine construct validity of the instruments have been positive showing correlations with other instruments to be consistent with type theory (Carey et al., 1989; Carlson, 1985; Rosenak & Shontz, 1988). Original split half reliability studies showed coefficients over .80 with later studies on test-retest reliabilities also yielding favorable results (Carlson, 1985). Carlson found higher preference scores had a lower chance of change on retest and mood manipulation did not significantly alter scores. Test-retest scores appeared to be more stable with age with coefficients ranging from .69 to .83 (Carlson, 1985). Test-retest reliabilities for Form F of the MBTI, which contains 166 questions, has given coefficients of .87 with split half reliability scores of .90 (Dillon & Weissman, 1987). According to O'Brien (1985, p. 60), the MBTI is one of the "best designed and most thoroughly validated psychometric instruments around." The MBTI is a self-report instrument with forced choice questions and a weighted scoring system. Further information on validity and

reliability can be obtained from the MBTI manual (Myers & McCaulley, 1985).

Procedure

In December 1989, permission to conduct this study was sought from the Iowa State University off-campus credit programs manager, the Central Area Extension Director, and the Adult Student Program coordinator. A list was obtained from the off-campus coordinator of all classes to be taught in Urbandale in the spring semester of 1990 as well as the names of the instructors scheduled to teach those classes.

During the first week of January the instructors scheduled to teach at Urbandale were contacted by the researcher by phone. The researcher explained the purpose of the study and how the results would be used. Instructors were told that participation by students was voluntary and the researcher asked the instructor to voluntarily allow time during the first class period of the spring semester for students to participate. Instructors were also told that a class profile would be provided describing the predominant learning styles of the class as a whole. If the instructor agreed to provide class time, a time and date were scheduled.

Following the phone conversations, all instructors were mailed a letter outlining the purpose of the study, how the study would be conducted, how results would be utilized, and how much class time would be devoted to student participation in the study. The letter reiterated that participation was voluntary and verified the times and dates scheduled by phone. If an instructor refused during the phone conversation to allow class time, the letter asked the professor to reconsider and noted that the researcher would be on-site during the first night of classes and would appreciate the opportunity to at least ask students if they would like to participate following class.

During the first class meetings for spring semester 1990, the researcher went in person to each classroom for which instructor permission had been obtained. The researcher briefly described the purpose of the research and how results would be used and explained that participation by the students was completely voluntary. Students were told that if they chose to participate, they would be provided with a group interpretation of the MBTI scores during a program in March by Dr. Dan Robinson from Iowa State. Individual sessions could also be scheduled for

interpretations of MBTI results for those unable to attend the March session.

The students were informed that class instructors would be provided with a class learning style profile but not with individual identifiable scores. Students were told that all instruments and attachments are coded and that no names or identifying characteristics of individuals would be utilized in the study. It was also explained that attached to each packet of materials was a small business card containing a four-digit number. This was the card with the code number for the individual student. The number matched the number on all instruments and attachments and must be kept and returned in order to receive individual scores and interpretations of the MBTI. No score would be provided without a card. This was to ensure that confidentiality of an individual's scores was maintained.

A letter containing all of the information presented verbally was also included in the packets of materials handed to the students. Students could choose to participate by completing both the questionnaire and the MBTI or by completing only one of the instruments. Students could also choose not to

participate at all. On the letter explaining the study there were two boxes, one to check if a student chose not to participate and the second to check if the student had taken the survey in a previous class. By having the students check that they were choosing not to participate, the researcher was able to determine exactly how many nonparticipants there were and could also look at participation rates by class. By providing a box to check if the survey had been taken in another class, the researcher was able to avoid duplication of nonparticipant counts and was also able to determine how many students were enrolled in more than one class. This system also provided a method to keep students from taking the survey twice.

Along with the card and the letter, each packet contained the questionnaire developed by the researcher, an MBTI Form F test booklet, and an answer sheet. Instruments used in the study were self-report and students took a maximum of 45 to 50 minutes to complete. Participation occurred during class time with the researcher present and instruments were collected at the end of the allotted time. Those choosing not to participate took a break or, with instructor permission, returned home. There are

generally three to five classes per night Monday through Thursday nights at the Urbandale site with classes scheduled from 6:15 to 9:45 p.m. Classes began in the spring semester between January 22 and February 2 at the Urbandale site.

Data from the demographic questionnaire were entered into the mainframe computer at Iowa State University and the SPSSX statistical package was utilized for analyzation. The MBTI type, coded from 1 to 16, was also entered into the computer using the individual ID number to match the demographics and the MBTI results. Frequency tables were generated for the entire group and broken down by sex and classification.

The MBTI data were analyzed using the SRTT computer program and using as a comparison group a base population of over 9,000 college students found in the Provost and Anchors 1987 book, Applications of the Myers Briggs Type Indicator in Higher Education. This base population, split by gender, was also used in the same-sex comparisons. Also compared were the MBTI results for males and females at the Urbandale site and MBTI results for the graduate and undergraduate populations. Chi-square analysis was used as the most appropriate method of analyzing nominal data. Type

distributions which classify students into type categories are nominal data.

A group presentation was done at the Urbandale site in March to allow students to obtain their individual type profiles. Dr. Dan Robinson from Iowa State conducted the presentation. Frequencies of types at the Urbandale site and implications for teaching and learning styles were discussed.

Analysis of the information was completed in April. Class profiles were provided to instructors in April along with a packet of information regarding type theory and implications for teaching and learning. A final written report for this study will be completed in June. Copies of the report will be sent to the Urbandale class site, the off-campus coordinator, the Central Area Extension director, and the adult student program coordinator. Copies of Chapters Four and Five of this study will also be provided to individual instructors and students upon request.

Human Rights

Research subjects are entitled to freedom from harm, informed consent, and privacy. Subjects were free to choose not to participate in this study. Students were informed of the purpose of the study and

how results are to be used. Consent was implied by the student completing the self-report instruments. Students and instructors will be provided with access to results and to the final report. Students may read the copy of the final report to be placed at the class site, or may leave a name and address for the final chapters to be mailed. Students may contact the extension office to request copies.

Students were also provided with an opportunity to attend a group presentation of the MBTI results and obtain their individual type profiles. Notification about the MBTI meeting was posted in all classrooms at least one week prior to the date of the presentation. Students were also allowed to schedule individual interpretations of their MBTI results or instructors could request class interpretations.

To maintain anonymity, students were identified by code number only on all instruments. Even the researcher was not able to identify results with names. No student names or class names were used on the instruments themselves or on any written reports. No ID numbers were used in reports. Results were presented in frequency format with comparisons done between the Urbandale population and a base population

sample of college students. The number of students participating, the frequencies of responses for the total group and by subgroups were used, but no individual identifying information was provided.

Analysis

The two major groups to be compared in this study were the Iowa State University nontraditional population at Urbandale and a pool of data for college students in general found in the literature. The Urbandale students completed the MBTI and demographic survey. All students attending classes in Urbandale in the spring semester of 1990 were given the opportunity to participate.

The independent variable was the students' attendance at the Urbandale site, defined earlier as nontraditional, or being a part of the general traditional college population. Other independent variables considered included gender of the participant and classification as an undergraduate or a graduate student.

The method used to analyze the MBTI data was the selection ratio type table method and chi-square analysis. These are the most appropriate methods for analyzing type data for two reasons. First of all,

Jungian types are not normally distributed in the population. Second, type instruments such as the MBTI provide scores which place students in categories. Students are identified as either an introvert or an extrovert, a sensor or an intuitor, a thinker or a feeler, a judging type or a perceptive type. For the purposes of this study the strength of the preference is not under consideration. What is being looked at is the frequency of types occurring at the Urbandale site and comparing those frequencies with frequencies in the general college student population. Nominal data are being considered; therefore nonparametric tests are most appropriate (Harwell, 1988).

The level of significance chosen for this study was an alpha level of .05. No severe effects were expected to occur in the event of a Type I error as no immediate change was anticipated at the class site without further research by the institution. The researcher was also trying to limit the amount of Type II error possible which might occur due to positive results being masked by distribution problems. The results of this study will be of interest to future researchers studying type theory and to educators

interested in applying type concepts when working with nontraditional populations.

Analysis will enable the researcher to either reject or retain the null hypotheses. Rejection of a null hypothesis would indicate that (a) the nontraditional student population at Urbandale differs significantly from the traditional student population in type distribution pattern, (b) female nontraditional students or male nontraditional students differ significantly from their counterparts in the traditional population, (c) male and female nontraditional students differ from each other, and (d) graduate and undergraduate nontraditional students differ in type distribution patterns.

If rejection of the null hypotheses cannot occur, it may indicate that type is independent of whether a student is traditional or nontraditional, male or female, or graduate or undergraduate. A type II error might also have occurred with positive results masked by distribution problems related to the fact that personality types are not normally distributed in the population.

CHAPTER IV. RESULTS

Response Rates

A survey was conducted of the 256 students enrolled at the Iowa State University off-campus class site in Urbandale. Two hundred and thirty of the demographic questionnaires were completed and returned for a response rate of 89.9%. One hundred and ninety-two Myers-Briggs Type Indicators were completed and returned for a response rate of 75% for the personality instrument.

Of the female respondents, 134 completed both the MBTI and the demographic questionnaire while 17 completed the questionnaire only. Of the 151 females responding, 88.7% participated fully and 11.3% partially. For the 79 males responding, 58 completed both the demographic information and the MBTI while 21 completed the demographic section only. Of the males, 73.4% participated fully while 26.6% had only partial participation.

When divided by classification, 100 graduate students, 86 undergraduate students, and 6 unclassified students completed both the demographics and the MBTI. An additional 5 undergraduates completed the

demographic information only and 33 unclassified students completed the demographic information only. For the undergraduates there was a 94.5% full participation rate with 5.5% partially participating. Of the graduate students 100% participated fully. However, for the unclassified students, 84.6% completed the demographic questionnaire only and 15.4% completed the MBTI as well as the demographics. This information is depicted in Table 4 in Appendix A.

Demographic Information

All demographic information is depicted in Table 5 of Appendix A. These figures may be compared to the information found in the literature which is contained in Table 3.

Sex

Of the participants 65.7% were females and 34.3% males. There were a few more females in the undergraduate group, 68.1% compared to 62.6% female graduate students. Of the unclassified students 65.9% were females. Males tended to make up a slightly higher proportion of the graduate student body, accounting for 37.4%, with 31.9% of the undergraduate population composed of males.

Age

When looking at the age variable it was found that 0.4% of the Urbandale student population was under age 20 with that entire proportion coming from female unclassified students. Of the respondents overall, 13% were found in the 20 to 24 age bracket. Of the females, 13.2% were in the 20 to 24 age bracket, and 12.7% of the males. Of the undergraduates 19.1% were 20 to 24 and 8.85% of the graduates and 9.85% of the unclassified students fell into this age range.

The majority of the students were in the 25- to 45-year-old bracket. Of the total number of students responding to the demographic questionnaire, 79.6% indicated they were in this age range. Sixty-eight and one-half percent of the females were 25 to 45, while 83.5% of the males fell into this group. When looked at in terms of classification, 76.6% of the undergraduate students were 25 to 45, 81.4% of the graduate students were in this category, and 83% of the unclassified students. Of respondents, 6.9% were over age 45 with 8.7% of the females over age 45 compared to 3.8% of the males. Of the undergraduates, 4.3% indicated they were over age 45 compared to 9.8% of the graduates and 4.9% of the unclassified students.

Marital status

Of the participants, 65.9% were married, while 27.9% were single, and 6.1% divorced. When broken down by gender, 63.6% of the females were married compared to 70.5 of the males, 27.2% of the females were single compared to 29.5% of the males, and 9.3% of the females were divorced while none of the male students listed themselves as divorced.

When looking at marital status by classification some interesting patterns can be observed. Of the undergraduates, 52.1% were married while 37.2% were single and 10.7% divorced. This compares to 72.5% of the graduate students married, 24.2% single, and 3.3% divorced. In the unclassified category, 78% were married, 17.1% single, and 4.9% divorced.

Children at home

Fifty-two and one-half percent of the student population reported having no children at home while 47.5% had children. Of the females, 53.1% reported having no children compared to 51.4% of the males. When looking at classification, 56.2% of the undergraduates reported having no children at home while 48.4% of the graduates had no children, and 41%

of the unclassified respondents reported having no children.

Ethnic group

In looking at the ethnic background of the Urbandale students, 95.2% listed themselves as white, 2.6% black, 0.9% Hispanic, 0.9% Asian, and 0.4% other. Of the females, 96% were white while 93.7% of the males were white. In looking at ethnic background by classification, 91.5% of the undergraduates were white, 97.8% of the graduates and 97.6% of the unclassified students were white.

Area of residence

Students were asked whether they lived in the city, the suburbs, a small town, or in a rural area. Of those responding, 46.7% lived in the city, 26.2% in the suburbs, 15.7% lived in a small town, and 11.4% listed their residence as rural. Forty-seven percent of the females were found to live in the city with 29.1% in the suburbs, 13.2% in a small town, and 10.6% in rural areas. Of the males, 46.2% lived in the city, 20.5% in the suburbs, 20.5% in small towns, and 12.8% in rural areas. Of the undergraduates, 54.3% lived in the city, 23.4% in the suburbs, 13.8% lived in small

towns, and 8.5% in rural areas. This compares with the graduate population of whom 39.6% lived in the city, 27.5% in the suburbs, 17.6% in small towns, and 15.3% in rural areas.

Employment status

Of the Urbandale students, 71.2% reported being employed full time, 15.7% had part-time employment, 6.6% were homemakers, 3.1% were full-time students, and 3.5% were unemployed. There appears to be a difference in employment rates between the genders. Of the females, 64.2% reported full-time employment compared to 84.6% of the males; 18.5% of the females reported working part time compared to 10.3% of the males; 9.9% of the females were full-time homemakers with none of the men reporting that status; 3.3% of the females were full-time students compared to 2.6% of the males; and 4% of the females were unemployed compared to 2.6% of the males. In comparing the figures for the graduates and undergraduates, 67% of the undergraduates reported working full time compared to 75.8% of the graduate students and 73.2% of the unclassified students; 20.2% of the undergraduates were employed part time compared to 11% for the graduates and 12.2% for the unclassified group; 4.3% of the undergraduates were homemakers with

7.7% of the graduates marking that category and 9.8% of the unclassified students; 4.3% of the undergraduates were full-time students, as were 3.3% of the graduates while none in the unclassified group reported being a full-time student; 4.3% of the undergraduates were unemployed compared to 2.2% of the graduate students and 4.9% of the unclassified students.

Income

In looking at income levels, the research showed that 7.1% of the student population reported earning less than $10,000 per year; 8.9% reported incomes between $10,000 and $19,000; 19.2% earned between $20,000 and $29,000; 19.6% between $30,000 and $39,000; 17% between $40,000 and $49,000; and 28.1% over $50,000 a year. Breaking the figures down by gender and combining some of the categories, the figures show that 19.8% of the females earned under $20,000 per year compared to only 9.1% of the males in that category; 32% of the females reported incomes between $20,000 and $39,000 with 52% of the males reporting incomes in that range; 48.3% of the females reported incomes over $40,000 a year while 39% of the males reported incomes at that level.

In looking at income levels by classification, the findings show 23.4% of the undergraduates earning less than $20,000 a year compared to 12.1% of the graduates and 7.7% of the unclassified students. Reporting incomes in the $20,000 to $39,000 range were 37.2% of the undergraduates, 39.6% of the graduates, and 38.4% of the unclassified students, while 45.8% of the undergraduates, 48.3% of the graduates, and 53.9% of the unclassified students reported earning over $40,000 a year.

Educational level

In asking for the highest level of education achieved, 1.7% of respondents indicated high school, 2.2% one year of college, 11.4% two years of college, 31% three years of college, 18.3% four years of college, 28.8% some graduate study, and 6.6% indicated they already had a master's degree. In looking at educational levels by gender, 2.6% of the females reported having only a high school education with none of the males marking that category; 13.9% of the females and 12.9% of the males reported have one to two years of college; 50.3% of the females and 47.5% of the males reported having three to four years of college;

33.2% of the females and 39.6% of the males reported having some graduate study or a master's degree.

Educational level based on classification shows that 3.2% of the undergraduates reported having only a high school education, 25.5% had one to two years of college, and 63.4% had three years of college. Of the undergraduates, 6.4% indicated they already had a four-year degree with 1.1% indicating they already had some graduate education. For the graduate students, 32.5% reported having a four-year degree, 59.8% had some graduate education already, and 7.7% reported already having a master's degree. In the unclassified group, 2.4% had only a high school education, 7.3% two years of college, 14.6% three years of college, 36.6% had a four-year degree, 24.4% had some graduate study, and 14.6% indicated they already had a master's degree.

Degree intentions

The students were asked to indicate if they intended to get a degree from Iowa State University. Of those responding, 75.1% indicated yes, 11.8% maybe, and 13.1% no. Males and females were about equal in the percentage of these responses with 74.5% of the females indicating yes, 12% maybe, and 13.3% no, as compared to the males where 75.9% indicated yes, 11.2%

maybe, and 12.7% no. However, when compared by classification a difference did emerge as 91.5% of the undergraduates indicated an intent to get an Iowa State degree with an additional 5.3% indicating maybe, and only 3.2% answering no. These figures compare with 71.4% of the graduate students indicating degree intentions with 12.1% indicating maybe, and 16.5% no. Of the unclassified students, 46.3% said they intended to get a degree, 26.8% indicated maybe, and 26.8% said no.

If they intend to get a degree, which degree are they seeking? Bachelor's degree, 49.6%; master's degree, 45.8%; doctoral degree, 1.3%; and those seeking certification, 5.8%. For the females, 51.7% were seeking a bachelor's degree, 34.2% a master's, 0.7% a doctoral degree, and 7.4% certification. For the males, 45.5% were seeking a bachelor's degree, 39% a master's, 2.6% a doctoral degree, and 2.6% certification. By classification, 95.7% of the undergraduates were seeking a bachelor's degree and 2.1% a master's. In the graduate group, 12.1% indicated they were seeking a bachelor's degree, 63.6% a master's, 1.1% a doctoral degree, and 12.1% certification. In the unclassified group, 25% said

they were working towards a bachelor's degree, 52.5% for a master's, 5% were seeking a doctoral degree, and 2.5% certification.

If these students intend to get a degree from Iowa State, are they officially enrolled in a degree program as a degree seeking student? Fifty and one-half percent said yes, while 49.5% said no. There was a slight difference between the males and females with 51.4% of the females and 48.7% of the males indicating yes and 48.6% of the females and 51.3% of the males indicating no. The difference was greater when looking at responses by classification as 71.3% of the undergraduates indicated yes, they were officially in a degree program, and only 28.7% indicated no. For the graduate students, 48.4% indicated yes and 51.6% said no. However, in the unclassified group only 7.8% said yes while 92.7% said no.

Previous college credit

Of the students participating in this study, 17.9% had transferred credits to Iowa State from a two-year institution, 17.9% had transfer credits from a four-year institution, 13.4% had transfer credits from both two and four-year institutions, 21.4% had received a bachelors degree from another institution, and 5.5% had

taken some graduate coursework at another institution. However, 23.9% said they had no transfer credits, indicating that all their postsecondary education was through Iowa State. In looking at the males and females, 14.5% of the males had credits from two-year colleges, 16.1% from four-year colleges, 17.7% from both two and four-year institutions, 16.1% had an undergraduate degree from elsewhere, 3.2% had graduate credits from another institution, and 32.3% indicated they had no credits from another institution. For the females, 19.4% had two-year credits, 18.7% had four-year credits, 11.5% had credits from both two and four-year colleges, 23.7% had degrees from other institutions, 6.5% had graduate credits from elsewhere, and 29.1% of the females had no transfer credits.

In the undergraduate group, 33% had transfer credits from two-year institutions, 25.5% from four-year institutions, 19.1% from both two and four-year institutions, 4.3% had a bachelor's degree from another institution, and 19.1% had transferred no credits to Iowa State. For the graduate students, 47.3% indicated they had received a bachelor's degree at another institution, 9.9% had graduate credits from elsewhere, and 42.3% indicated they had no credits from another

institution. In the unclassified group, 5.9% each had credits from either two or four-year colleges while 20.6% had credits from both, 32.4% had received a bachelor's degree at another institution while 2.9% had taken some graduate coursework at another institution, and 32.4% had no transfer credits.

How long had these students been working toward the degree they were now seeking? Thirty-two percent indicated less than one year, 38.2% from one to three years, 18% four to five years, and 11.8% over five years. For the females, 34.7% indicated they had been working towards a degree for less than one year, 40.1% from one to three years, 16% from four to five years, and 8.7% over five years. In the male group, 26.9% said less than one year, 34.6% from one to three years, 10.6% from four to five years, and 17.9% over five years.

When looked at by classification, 14.9% of the undergraduates, 32.6% of the graduates, and 72.5% of the unclassified students indicated they had been studying for this degree for less than one year; 43.6% of the undergraduates, 43.2% of the graduates, and 12.5% of the unclassified students said from one to three years. Twenty-five and one-half percent of the

undergraduates, 15.4% of the graduates, and 7.5% of the unclassified students indicated they had been studying from four to five years; 17% of the undergraduates, 8.8% of the graduates, and 7.5% of the unclassified students had been seeking a degree for over five years.

Class enrollment patterns

Of the students surveyed, 79.4% were taking only one class in the spring semester at Urbandale, 16.7% were taking two classes, 2.6% three classes, and 1.3% four classes. Seventy-eight percent of the females and 82.1% of the males were taking only one Urbandale course, 16% of the females and 17.9% of the males were taking two courses, 4% of the females were taking three courses, and 2% four classes. None of the males were taking more than two courses.

In the undergraduate group, 57.4% were taking one class, 33% two classes, 5.3% three classes, and 3.2% four classes the spring semester in Urbandale. In the graduate group, 91.2% were taking only one class, 6.6% two classes, 2.2% three classes, and no graduate students were taking four classes. All of the unclassified students were taking only one class in Urbandale.

When students were asked if they had taken courses in Urbandale previous semesters, 53.3% said they had, while 46.7% said they had not. Previous enrollment at the site was indicated by 56.7% of the females and 50.6% of the males. Those who said they had not taken a course at the Urbandale location before were 43.3% females and 49.4% males. For the undergraduates, 61.7% were previous Urbandale students and 38.3% were not; 51.6% of the graduate students had attended the site previously while 48.4% had not. For the unclassified students, 35% had been to the Urbandale class site before while 65% had not.

Twenty and one-half percent of the students indicated that they were concurrently enrolled in classes on campus in Ames. Seventeen percent of the females and 27.3% of the males were taking classes in Ames in addition to their coursework in Urbandale; 30.9% of the undergraduates, 15.4% of the graduates, and 7.3% of the unclassified students were enrolled in classes both in Urbandale and at the Iowa State campus in Ames.

In addition, 6.6% of the Urbandale students were currently enrolled in a class at another institution; 6.3% of the females and 7% of the males were taking

courses from Iowa State as well as from another institution in the spring semester. By classification, 5.3% of the undergraduates, 5.5% of the graduates, and 9.8% of the unclassified students said they were taking a class at another institution during the semester this survey occurred.

Attendance preferences

Students were asked when they would prefer to take classes. The evenings were the best choice for 87.1%, with 3.6% saying early mornings, 8% daytime hours, and 1.3% indicating weekends. A preference for evening classes was stated by 85.1% of the females and 90.9% of the males; 4.1% of the females and 2.6% of the males said during the day; and 0.7% of the females and 2.6% of the males said they would prefer to take classes on the weekend. There appeared to be some difference in preferred class times between the different student classifications with 78.7% of the undergraduates, 93.4% of the graduates, and 95.1% of the unclassified students expressing a preference for evening classes. Early morning classes were preferred by 7.4% of the undergraduates and 1.1% of the graduates while no unclassified students expressed this preference. During the daytime hours, 13.9% of the undergraduates

said they would prefer to attend class, with only 2.2% of the graduates and 2.4% of the undergraduates marking this choice. None of the undergraduates wanted to attend class on the weekend, but 3.3% of the graduate students and 2.4% of the unclassified students would prefer weekend classes.

The semester system was preferred to the quarter system for class attendance by 80.8% of the students; 84.4% of the females and 74% percent of the males said they preferred semesters. A preference for semesters as opposed to quarters was expressed by 81.9% of the undergraduates, 77% of the graduates, and 79.5% of the unclassified students.

Areas of study

In what areas are the students in Urbandale currently studying? Liberal studies, 29.9%; education, 23.8%; business, 11.5%; agriculture, 7.9%; political science, 6.6%; child development or family environment, 8.8%; and 11.4% in a variety of other areas. There were some differences in areas between the sexes. While 30.4% of the females were in education, only 11.7% of the males were in that area; 17.7% of the males were in business, while 8.1% of the females were in that area of study; 21.6% of the males were studying

in the area of agriculture as opposed to only 1.4% of the females; and 11.5% of the females were in child development or family environment while 3.8% of the males were in those areas. The other areas of study were roughly equivalent. Differences were also noted between the graduates, undergraduates, and unclassified students with 55.3% of the undergraduates indicating they were in liberal studies while 10% of the unclassified students chose this area and none of the graduate students. Forty-four percent of the graduate students were in education while 25% of the unclassified students were in the education area, and only 3.2% of the undergraduates. The business area was marked by 19.1% of the undergraduates, 7.7% of the graduates, and 2.5% of the unclassified students. In the area of agriculture there were 12.1% of the graduates, 17.5% of the unclassified students, and 1.1% of the undergraduates. Twelve and one-half percent of the unclassified students, 8.8% of the graduate students, and 2.1% of the undergraduates were in the political science area while 15% of the unclassified students, 9.9% of the graduates, and 6.4% of the undergraduates chose the areas of family environment or child development.

The areas above were what students indicated they were currently studying. But, if they could choose any area to study, what would it be? Twenty-one percent said education, 18.1% said business, 16.7% indicated liberal studies, 11% said psychology, 6.2% mentioned public administration, 3.1% health fields, 8.3% family environment or child development, 2.6% counseling, 7.5% agriculture, and 5.3% other areas.

Are there differences in preferred area of study between the sexes? Education was chosen by 24.8% of the females and 14.1% of the males; 29.5% of the males and 12.1% of the females chose business. Males and females were about equal in choosing liberal studies as a preferred area with 16.7% and 16.8%, respectively. Psychology was the choice of 14.1% of the females and 5.1% of the males; 8.1% of the females and 5.1% of the males chose public administration; 4.7% of the females indicated a preference for health fields while no males mentioned that choice. Areas of child development or family environment were chosen for study by 10.8% of the females and 3.8% of the males; 4% of the females indicated counseling while no males indicated that choice; 3.8% of the males chose agriculture while 2% of the females chose that area.

Differences also appeared in areas of preferred study between the different classifications of students. Education was chosen by 37.4% of the graduates and 22.5% of the unclassified students while only 4.3% of the undergraduates chose that area. Business was chosen as a preferred area of study by 29.8% of the undergraduates, 9.9% of the graduates, and 10% of the unclassified students. Liberal studies was chosen by 30.9% of the undergraduates as opposed to 5.5% of the graduates and 7.5% of the unclassified students. Psychology was chosen by 14.9% of the undergraduates, 15% of the unclassified students, and 5.5% of the graduates. Public administration was selected by 9.9% of the graduates, 10% of the unclassified students, and only 1.1 % of the undergraduates. Indicating health fields were 3.2% of the undergraduates, 2.2% of the graduates, and 5% of the unclassified students. Child development or family environment fields of study were preferred by 9.9% of the graduates and 15% of the unclassified students. Expressing an interest in counseling were 2.1% of the undergraduates and 4.4% of the graduates. Eleven percent of the graduates and 15% of the unclassified students said they would like to study agriculture

while only 1.1% of the undergraduates chose that field.

Motivations

Students were asked to choose the most important motivation for their return to school. Job advancement accounted for 45.9% of the overall responses, 3.1% noted career change, 7% to increase income, and 9.6% continuing education requirements for their job. Personal goals or personal enrichment were noted by 29.3% of respondents; 1.3% said fewer family constraints, and another 1.3% said to feel better about themselves. Other answers accounted for 1.9% of responses. Job advancement as a primary motivation was indicated by 40.4% of the females while 56.4% of the males chose this reason. Four percent of the females and 1.3% of the males noted career change, 10.6% of the females and 7.7 of the males indicated required continuing education, 8.6% of the females and 3.8% of the males indicated a desire to increase their income. Personal goals or personal enrichment reasons were chosen by about equal percentages of males and females, 29.5% and 29.2%, respectively. Returning to school to feel better about themselves was claimed by 1.3% of the males and females. Of the females, 1.3% noted a return

due to fewer family constraints, 2% due to financial ability now, and 2.6% other reasons, although no men indicated these reasons. For the undergraduates, 38.3% each marked job advancement and personal goals or enrichment; 8.5% and 7.3%, respectively, indicated increased income and continuing education requirements as motivations. A return to school for a career change reason was indicated by 3.2% while 2.1% each marked fewer family constraints and financial ability. For the graduate students, 49.5% indicated job advancement as the primary factor, 13.2% continuing education requirements, 3.3% career change, and 5.5% increased income. Indicating a personal goal or enrichment as the reason for returning to school were 26.3% of the graduates while 2.2% indicated other reasons. In the unclassified student group, 56.1% noted job advancement as the motivation, 4.9% each noted continuing education requirements and increased income, and 2.4% for career change reasons. Of this group, 24.5% said their return was due to a personal goal or for personal enrichment while 2.4% said it was to feel better about themselves.

Reasons for selecting ISU

Students were also asked to list their primary motivation for choosing the Iowa State Urbandale site

for class attendance. Location was indicated as the primary reason by 64.2% while 8.7% indicated cost. Another 8.7% indicated the choice was due to the type of program offered. Seven percent said it was because of the Iowa State University reputation while 4.4% noted the academic quality of Iowa State and 7% listed various other reasons. Indicating location as the main determinant in choosing a college to attend were 64.9% of the females and 62.8% of the males. Cost was indicated by 10.6% of the females and 5.1% of the males. Six percent of the females and 14.1% of the males said the choice was due to the type of program offered, 6.6% of the females and 7.7% of the males chose Urbandale because of the Iowa State reputation, and 5.3% of the females and 2.6% of the males because of the academic quality.

In looking at the different classifications, 63.9% of the undergraduates, 67% of the graduates, and 65.9% of the unclassified students said they chose the Urbandale classes because of location. The selection was based on cost by 7.4% of the undergraduates, 9.9% of the graduates, and 9.8% of the unclassified students. Eight and one-half percent of the undergraduates, 7.7% of the graduates, and 9.8% of the

unclassified students chose Urbandale because of the type of program offered; 9.6% of the undergraduates, 3.3% of the graduates, and 9.8% of the unclassified students claimed they chose ISU because of its reputation; 8.5% of the undergraduates and 3.3% of the graduates based their choice on issues of academic quality. None of the unclassified students chose this reason.

Distance to class

Since location seems to be of primary importance for most students in choosing a class location, how far do students travel to class? At the Urbandale site about 20% of the total group across all categories travel under 10 minutes to class; 33.2% of the students traveled 10 to 19 minutes to class; 38.3% of the females were in this group and 23.4% of the males; 38.3% of the undergraduates lived within 10 to 19 minutes of the class site with 36.6% of the unclassified students indicating this distance and 26.4% of the graduate students marking this choice. Driving 20 to 29 minutes to class were 18.6% of the group including 16.8% of the females, 22.1% of the males, 20.2% of the undergraduates, 15.4% of the graduates, and 22% of the unclassified students.

Traveling 30 to 44 minutes to class were 13.3% of the students with 11.4% of the females and 16.9% of the males in this category. Also traveling 30 to 44 minutes were 6.4% of the undergraduates, 18.7% of the graduates, and 7.3% of the unclassified students. Eight percent of the Urbandale students drove 45 to 59 minutes to class. In this group were 8.7% of the females and 9.1% of the males, 4.3% of the undergraduates, 4.9% of the unclassified students, and 15.3% of the graduate students. Four percent of the students traveled over an hour to class including 3.4% of the females and 5.2% of the males, 3.3% of the graduate students and 9.8% of the unclassified students. None of the undergraduate students traveled over an hour.

Information

How did the students surveyed learn about the availability of Iowa State University classes in Urbandale? Those learning of the classes from relatives or friends were 21.8%; from employers, 5.8%; from newspapers, 11.6%; from radio, 5.3%; from posted flyers, 8.4%; from catalogs or brochures, 35.5%; and 11.6% from other sources or do not remember.

There appeared to be some differences between the sexes in how information was received. Of the females, 26.5% learned of the classes from relatives or friends while 12.8% of the males received information from that source. Of the women, 4.1% learned of the courses from employers compared to 7.5% of the men. The information was read in a newspaper by 13.6% of the females and 7.7% of the males while 6.8% of the women heard about the classes on the radio compared to 2.6% of the men. Posted flyers were seen by 9.5% of the females and 6.4% of the males. Catalogs or brochures reached 50% of the males, but only 27.9% of the females.

In looking at how the different classifications of students found out about the classes, 20.2% of the undergraduates, 18.7% of the graduates, and 26.8% of the unclassified students learned of class availability from relatives or friends. None of the undergraduates heard about the Urbandale courses from employers compared to 17.5% of the graduate students and 14.6% of the unclassified students. Reading about the classes in a newspaper were 11.5% of the undergraduates, 9.9% of the graduates, and 14.6% of the unclassified students. Around 5% for each group heard about the classes on the radio; 6.4% of the undergraduates, 12.1%

of the graduates, and 2.4% of the unclassified students saw a posted flyer. Catalogs or brochures reached 38.3% of the undergraduates, 24.2% of the graduates, and 26.8% of the unclassified students.

Financial aid

How are these students paying for their education? The majority of students reported receiving no financial aid and paying their own way through school. Sixty-five percent overall received no financial aid, 20.4% received employer aid, 5.8% had loans, 4% grants, 1.3% scholarships, and 5.5% received aid from other sources.

Of the females, 70.7% received no financial aid compared to 53.9% of the males. Receiving employer aid were 26.3% of the males compared to 17.3% of the females. Six percent of the females had loans as did 5.3% of the males, 2.7% of the females and 6.6% of the males had grants while 0.7% of the females and 2.6% of the males had scholarships.

For the undergraduate students, 57.4% had no aid, 20.1% employer aid, 10.6% loans, 6.4% grants, and 1.1% scholarships. For the graduate students, 73.6% received no aid, 15.4% employer aid, 2.2% had loans, 2.2% grants, 1.1% scholarships. In the unclassified

group, 56.1% had no financial aid, 34.1% were receiving employer support and 2.4% of the students indicated receiving each of the other forms of aid listed.

Difficulties

Students were also asked what had caused them the most difficulty in becoming an Iowa State student. The limited number of night classes was noted by 46.7%, 19.2% had difficulty with the lack of flexible class scheduling, 10.2% indicated a lack of academic advising, 7.8% indicated child care problems, 5.4% said lack of financial aid, 4.2% said lack of admissions information, and 6.6% had other reasons. In looking at difficulties listed by gender, 45.5% of the females and 49.1% of the males said limited night classes, 16.4% of the females and 24.6% of the males said lack of flexible scheduling, 12.7% of the females and 5.3% of the males said lack of academic advising, 10.9% of the females indicated child care difficulties as compared to 1.8% of the males, 3.6% of the females and 8.8% of the males said lack of financial aid, 4.5% of the females and 3.5% of the males indicated problems with lack of admissions information.

Were problems different for graduates and undergraduates? Forty-three percent of the

undergraduates, 40.4% of the graduates, and 65.5% of the unclassified students had difficulty with limited night classes. Nineteen percent of the undergraduates, 12.1% of the graduates, and 6.9% of the unclassified students indicated lack of flexible class scheduling; 7.4% of the undergraduates, 9.9% of the graduates, and 3.4% of the unclassified students noted a lack of academic advising. Child care difficulties were noted by 4.3% of the undergraduates, 7.7% of the graduates, and 6.9% of the unclassified students; 5.3% of the undergraduates, 3.3% of the graduates, and 3.4% of the unclassified students said lack of financial aid; while 6.4% of the undergraduates, 5.5% of the graduates, and 3.4% of the unclassified students indicated a lack of admissions information.

Myers-Briggs Results

Urbandale students

The distributions of the 16 type categories described in the Myers-Briggs may be seen on Table 6 in Appendix A. In looking at the individual dimensions, there were about equal numbers of extroverts and introverts in the Urbandale student population. There were also the same number of sensors and intuitors.

Some difference was seen on the thinking and feeling scale with more students scoring on the feeling end of the scale. There were also more students scoring on the judging side of the scale than on the perceptive side on the lifestyle continuum. Students with preferences for introversion-sensing and students with preferences for extroversion-intuition outnumbered the students with preferences for introversion-intuition and extroversion-sensing.

The Selection Ratio Type Table was used to compare the Urbandale student group with a base group of 9,182 college students. Significant differences were found. The Urbandale student population contained more students with a preference for feeling and fewer students with a preference for thinking than would be expected when compared with the base group. This difference was significant at the .01 alpha level. The group as a whole also contained more perceptive types and fewer judging types than expected with significance at the .001 alpha level.

Results showed significantly more extroverted-perceptive types at the .01 level and fewer extroverted-judging types at the .05 level than would be expected. There were more intuitive-feeling types

and fewer intuitive-thinking types than expected with significance at the .05 level.

Comparisons also showed significantly more sensing-perceptive students with significance at the .01 level, fewer intuitive-judging types with significance at the .05 level, and more students with preferences for feeling and perception while fewer had preferences for thinking and judging with significance for those two groups at the .001 level. In the four-letter type combinations, analysis showed significantly fewer ISTJ and ENTJ types in the Urbandale group than expected when compared to the traditional student group with significance at the .05 level. There were significantly more ENFP students in the Urbandale group with significance at the .001 level and more ESTP students than expected with significance at the .05 level. Results of the Selection Ratio Type Table analysis can be seen in Table 7 in Appendix A.

Gender comparisons

The distribution of the male and female Urbandale students in the 16 type categories can be seen on Table 8 in Appendix A. There were slightly more introverted females and slightly more extroverted males. There were more intuitive females and more

sensing males. The females were predominantly feeling types while the males were predominantly thinking types. Both males and females showed more preferences for judging than perception, although the males more so than the females.

When the Urbandale female students were compared with a base population of 4,736 female college students using the Selection Ratio Type Table analysis, significant differences were found. More perceptive types and fewer judging types were found among the females than would be expected in the general female college student population with significance at the .001 level. The number of extroverted-perceptives exceeded the expected rate with significance at the .001 level while the number of extroverted-judging types was fewer than expected with significance at the .01 level. There were more sensing-perceptive types with significance at the .01 level and more intuitive-perceptive types with significance at the .05 level. There were also significantly more feeling-perceptive types at the .01 level and fewer thinking-judging types at the .05 level. When looking at four-letter combinations, the female student population at Urbandale had significantly more ESTP types with

significance at the .001 level and more ENFP types with significance at the .01 level than the traditional female student group. These results are illustrated in Table 9 in Appendix A.

When the Urbandale male students were compared to a base group of 4,446 male college students, only one significant difference was found. There were fewer intuitive-thinking types in the Urbandale group than expected with significance at the .05 level. There were fewer ESTP types than expected in the male Urbandale group with significance at the .001 levels and significantly more ENFP males at the .01 level. These data are shown in Table 10 in Appendix A.

The male and female student populations at Urbandale were then compared using the Selection Ratio Type Table. Results are depicted in Tables 11 and 12 in Appendix A. The population contained significantly more feeling females and significantly more thinking males with significance at the .001 alpha level. The male group had significantly more extroverted-judging types than the female group with significance at the .05 level, and significantly more sensing-thinking types than the female group with significance at the .001 level. The females, on the other hand, had

significantly more sensing-feeling types than the males with significance at the .001 level. The males had significantly more thinking-judging types at the .001 level, while the females had significantly more feeling-perceptive types at the .05 level and more feeling-judging types with significance at the .01 level. The female students at Urbandale showed significantly more ISFJ types and significantly fewer ISTP types than the males at the .01 levels, and significantly fewer ESTJ types at the .001 level. The male student group had significantly more ISTP and ESTJ types with significance at the .01 and .001 levels, respectively. The male group also had fewer ISFJ and ENFP types than the female group with significance at the .01 level.

Comparisons by classification

The distributions of the undergraduate and graduate students in the 16 type categories can be seen in Table 13 in Appendix A. There were more extroverts in the undergraduate group and more introverts in the graduate group. There were more sensors in the undergraduate group and more intuitives in the graduate group. There were more thinkers in the undergraduate group and more feelers in the graduate

group. There were more judging types than perceptive types in both groups.

The graduates and undergraduates were compared using the Selection Ratio Type Table with significant differences found. The undergraduate population contained significantly more extroverts and significantly fewer introverts than the graduate group with significance at the .01 level. The undergraduate group had significantly fewer introverted-judging types, intuitive-feeling types, sensing-judging types, and significance was found at the .001 level. The undergraduates also had fewer introverted-sensing types than the graduates with significance at the .01 level. There were more intuitive-thinking types and more thinking-perceptive types in the undergraduate population than expected when compared to the graduates with significance at the .001 level. In four-letter type comparisons, the undergraduates had more ISTJ and INTP types than the graduate population with significance at the .001 level. There were significantly more ESTJ undergraduates at the .05 level. The undergraduate group had fewer ISTP and ESFJ types than the graduate group with significance at the .01 level and fewer ENFJ types with significance at the

.001 level. These results can be seen in Table 14 in Appendix A.

The students classified as undergraduates at the Urbandale site were also compared with the base college student population of 9,182 students and significant differences were found. There were significantly more perceptive types and fewer judging types in the Urbandale group than expected when compared to the general college student population with significance found at the .001 level. There were more extroverted perceptive types significant at the .01 level and fewer extroverted-judging types with significance at the .05 level. Significantly more sensing-perceptive types were found in the Urbandale undergraduate group when compared to the base group with significance at the .001 level. It was also found that the Urbandale group contained more feeling-perceptive types at the .01 alpha level and fewer feeling-judging types with significance at the .05 level. In the four-letter type categories the Urbandale undergraduate group contained significantly fewer ISFJ and ESTJ types with significance at the .01 and .001 levels, respectively. When compared with the traditional group, the Urbandale population also had significantly more ISTP types at

the .01 level, more ESTP types at the .001 level, and more ENFP types at the .05 level. These results are depicted in Table 15 in Appendix A.

Answers to Research Questions

The demographic profile of the Urbandale student population appears consistent with the literature. This similarity can be seen by comparing Tables 3 and 5 in Appendix A.

The psychological type distribution of the Urbandale group varied significantly from the distribution pattern of the general college population. The null hypothesis that whether the group was traditional or nontraditional was independent of type was rejected. The probability that this occurred by chance was less than 5 in 100. These results are illustrated in Table 7 in Appendix A.

The null hypothesis that type distribution patterns for females would be independent of membership in a traditional or nontraditional student group was rejected with a probability of less than .05, as was the null hypothesis that type distributions of male college students was independent of participation in a traditional or nontraditional group. These results can be seen in Tables 9 and 10 in Appendix A.

The null hypothesis that type distribution patterns were independent of sex was also rejected, as was the null hypothesis that distributions were independent of classification as a graduate or undergraduate student. Both null hypotheses were rejected with significance levels less than .05. These results can be seen in Tables 11, 12, and 14 in Appendix A. Areas of significance for type distributions in all comparisons can be seen in Table 16 in Appendix A.

All null hypotheses for this research project were rejected and all alternative hypotheses were accepted. The Urbandale college student population appears to be significantly different from the traditional college population, the males attending classes at Urbandale are significantly different from the females, and the undergraduates differ significantly from the graduate students. In addition, on the demographic variables described, the Urbandale student population appears to be very similar to other nontraditional student populations described in the literature.

CHAPTER V. CONCLUSION

The purpose of this study was to describe the Iowa State University off-campus student population at the Urbandale Extension site and to test hypotheses concerning differences between these nontraditional students and a base group of college students. The researcher was interested in typological differences, as measured by the Myers-Briggs Type Indicator, between traditional and nontraditional students, between males and females, and between graduate and undergraduate nontraditional students. An attempt was also made to determine whether the Urbandale student profile fit the profile found in the literature for nontraditional students.

The method of study used was a questionnaire developed from a search of the literature and input from thesis committee members and from those departments from which permission was sought to conduct the study. The Myers-Briggs Type Indicator Form F was also administered. Both instruments used were self-report measures.

Every class taught at the Urbandale site during the spring semester of 1990 was given the opportunity

to participate. Analysis was done using SPSSX for frequency distributions and the SRTT software program for chi square analysis of the MBTI data.

Demographic Findings

Literature comparisons

The Urbandale student profile was found to fit the data found in the literature on nontraditional students. About 65% of the Urbandale students were female while the literature reports between 60 and 70% of the nontraditional student group is female. The largest age group found in the literature is 25 to 45 with 70 to 75% of nontraditional students in that interval. Of the Urbandale students, 79.6% were between 25 and 45.

The Urbandale group reported slightly fewer divorced students than the literature. The literature reported about 60% married, 25% single, and 15% divorced or separated. In the Urbandale group, 66% were married, 27% single, and 6% divorced. The literature reports about 50% of nontraditional students have children while the Urbandale group reported 47.5% with children at home. According to the literature 85 to 95% of nontraditional students are white and the

Urbandale group reported about 95% white. Most of the students live in the city or suburbs as is indicated in the literature. According to previous studies 70% of nontraditional students are employed full time and at Urbandale 71.2% reported full-time employment. Income levels for the Urbandale group were slightly higher than those reported in the literature. Some of that difference might be accounted for by cost-of-living pay increases during the years since the previous research data was collected. Some of the increase might also be accounted for by the number of graduate students at Urbandale since the graduate population had higher pay levels than the undergraduates.

Previous studies found 21% of nontraditional students already had a bachelor's degree and 26% had some graduate study. In Urbandale, 18.3% had a four-year degree and 28.8% had some graduate study. In the literature, 70% of the students had degree intentions as did about 75% of the Urbandale students. The literature reports 45% seeking bachelor's degrees and 37% master's. In Urbandale, 49.6% were seeking bachelor's degrees and 35.8% master's degrees. The majority of students in the literature, as in

Urbandale, were taking only one class and prefer evening classes to day or weekend classes.

Location is noted as the primary reason for choosing an institution in both the literature and by the Urbandale students with cost and curriculum second in both groups. Career reasons dominate as motivations for attending college for both groups with personal goals accounting for about 30% in Urbandale, which fits the literature. Students in both the literature and in Urbandale travel a minimum amount of time to class, generally under 20 minutes, and for the most part receive no financial aid. The literature reports 50 to 75% receiving no financial aid and about 20% receiving employer aid. In Urbandale, 65% received no aid and 20% received employer aid.

Of the students in previous studies, 25 to 40% had heard about classes through a personal contact with a relative, friend, or current or former student. In Urbandale, 22% heard about the classes from a relative or friend. The top six preferred areas of study for the Urbandale group were education, business, liberal studies, psychology, child development/family environment, and agriculture. This compares to the top six areas found in the literature which were sciences

and humanities, business, education, health fields, computer science, and psychology. Four of the top six areas are the same for both groups. If the graduate students are eliminated, the top six areas for undergraduates were liberal studies, business, psychology, education, health fields, and child development/family environment, encompassing five of the six top areas found in the literature.

The areas of most frustration reported by both groups are also very similar. The predominant areas found in the literature were class availability, lack of flexible class scheduling, child care, financial aid, and academic advising. In Urbandale the students reported difficulties in the following order: limited number of night classes, lack of flexible class scheduling, lack of academic advising, child care, and lack of financial aid

What has been done through this comparison of the data found in the literature and the data found in this study is to show that the Urbandale student profile closely matches the nontraditional student profile found in the literature. Since the two groups are descriptively alike, results from this study might be generalized to other similar groups.

Gender comparisons

This study showed some differences in demographic variables between males and females generally following the patterns reported in the literature. Some interesting differences to note include:

1. Females are more likely to be divorced while males are more likely to be married.

2. More males were in the 25- to 45-year age bracket while females were more likely than males to be over 45.

3. Males were more likely to be employed full time.

4. Males were more likely to live out of the city or suburb and were more likely to travel farther to class.

5. Males were more likely to fall in the $20,000 to $40,000 income bracket. Females were more likely to have either incomes below $20,000 or over $40,000.

6. Males are more likely to have some previous graduate study and to be classified as graduate students.

7. Females are more likely to have just begun working toward a degree.

8. Females are more likely to be enrolled in more than one class off-campus, but males are more likely to be enrolled in an on-campus class as well as an off-campus class.

9. Females are more likely to prefer daytime classes.

10. Females are more likely to choose education and psychology as preferred areas of study while men are more likely to choose business.

11. Cost is a higher priority for women in choosing an institution while type of program is a higher priority for males than females.

12. Males are more likely than females to indicate career motivations for returning to school. Both sexes reported equal percentages returning for personal goals. However, females were more likely than males to attribute a return to school to changes in life circumstances.

13. Females are more likely than males to hear about classes through personal contacts or the mass media. Males are more likely to hear about classes through brochures or catalogs.

14. Males are more likely to receive employer aid to pay for school and females are more likely to receive no aid.

15. Females are more likely to indicate child care and lack of academic advising as areas of frustration than males. Males are more likely to relate frustration with class scheduling difficulties.

Class comparisons

Differences between the graduate and undergraduate students were also found in this study. Some of the findings include:

1. Undergraduates are more likely to be female.

2. Graduate students are more likely to be married and to have children while undergraduates are more likely to be divorced. This finding may be attributed to the fact that more women than men are divorced and more women are undergraduates.

3. Minorities are more likely to be undergraduates.

4. Undergraduates are less likely to travel any distance to class.

5. Graduate students are more likely to be employed full time.

6. Undergraduates are more likely to earn under $10,000 than graduate students.

7. Undergraduates are much more likely to have degree intentions, to be formally enrolled in a degree program, and to be taking more than one class. They also appear to have been working toward their degree goal for a longer period of time than graduate students.

8. Graduate students are more likely to have no transfer credits.

9. Undergraduates are more likely to take not only more than one course off campus, but are also more likely to take both on and off-campus courses during the same semester.

10. Undergraduates are more likely than graduate students to express an interest in day classes.

11. Preferred areas of study for undergraduates were likely to be business, liberal studies, and psychology while preferred areas for graduate students were education, agriculture, business, and public administration.

12. The reputation of the institution and academic quality were more important to undergraduate students than to graduates.

13. Graduate students were more likely to indicate career reasons as motivating factors while undergraduates were more likely to indicate personal goals.

14. Graduate students were much more likely to hear about classes from their employer.

15. Undergraduates were more likely to receive some form of financial aid.

One other finding was that the unclassified group was comprised of students taking only one class, generally not admitted to a degree program, and not seeking a degree. Demographically, this group was more similar to the graduate student group than the undergraduate group.

MBTI Findings

General comparisons

The two scales that showed significance when comparing the Urbandale population to the base population were the thinking-feeling scale and the judging-perceptive scale. The Urbandale group had more feeling types than expected. This finding might be partly attributable to the fact that there are more females in the nontraditional population than males and

females tend to score on the feeling end of the scale more often than men. According to the literature, 60% of the female population is categorized as feeling while only 40% of the males are in that group.

The judging-perceptive scale showed significantly more perceptive types at the Urbandale site than expected although the judging types did outnumber the perceptive types. In looking at scale combinations, there were more NF types and SP types in the Urbandale group than would be expected based on the distribution pattern of the traditional group. Those categories with the greatest number of students of the 16 types were the ENFP with 29 students, the ISFJ with 21 students, the ESTJ with 20 students, and the ISTJ with 16 students.

Some of the findings shown in the comparisons between groups in Table 16 include:

1. The greater than expected number of perceptive students can be attributed to the female undergraduate population.
2. The greater than expected number of extroverted-perceptive types can be accounted for in the undergraduate female population.

3. The intuitive-feeling types are found predominantly in the graduate population.
4. The greater than expected number of sensing-perceptive types is likely a result of the female undergraduate group.
5. Female undergraduates are also likely to account for the greater than expected number of feeling-perceptive types.
6. The female undergraduate population has significantly more ESTP types than expected while the male undergraduate population has more ISTP types than expected.
7. There are fewer ISTJ students in the graduate population than expected.
8. There are more ENFP types than expected in both male and female populations and at both the graduate and undergraduate levels than expected.
9. ISFJ types and ENTJ types are found predominantly in the graduate group.
10. Male ESTJ types are more likely to be found in the graduate group.

Gender comparisons

The female students at Urbandale as a whole had more perceptive types than expected, although judging types still outnumber perceptive types. The significance of the perceptive preference is noted in all the significant findings when comparing the Urbandale group with the base group as there are more EP, SP, NP, and FP types than expected in the Urbandale female group when compared to a group of traditional college females. When comparing the Urbandale males to the Urbandale females the females are found to have significantly more feeling types which helps account for the significance of the SF, FP, and FJ groups among the females. In terms of numbers of females scoring in the 16 type categories, the two largest groups were the ENFPs and the ISFJs.

The males at the Urbandale site showed very little difference in type distribution patterns than the general population of college males. There were slightly fewer NT types among the Urbandale group. The male population at Urbandale was dominated by the ESTJ and ISTJ type categories. The male group was composed of significantly more preference for the thinking function as well as having more EJ, ST, and TJ types

than the female group. Some of the findings shown by the previous comparisons include:

1. The female students are more likely to be feeling types and the males are more likely to be thinking types.

2. There are more perceptive types among the females while males are predominantly judging types, although judging types outnumber perceptives in both groups.

3. The males at Urbandale overall are very similar in type description to the traditional male college population. The females at Urbandale are much less like the traditional female college population.

4. The females are dominated by ENFP and ISFJ types while the males are dominated by ESTJ and ISTJ types.

Class comparisons

In looking at the differences between graduates and undergraduates at Urbandale, it can be seen that undergraduates are more likely to be extroverts while graduate students are more likely to be introverts. The undergraduates are more likely to be NT and TP types and less likely to be IJ, NF, SJ, or IS types. By looking at Table 13 it can be seen that the overall

undergraduate type is ESTJ while the graduate students are characterized by INFJ type. Although both groups have a judging orientation, there is a much greater difference in the number of judging and perceptive types among graduate students than among undergraduates. There is a difference of only two student scores in the undergraduate group between judging and perceptive types.

When the graduate students are removed from the sample population and only the undergraduates are compared to the base group of college students, it can be seen that the difference on the thinking-feeling scale is no longer significant. The greatest number of feeling types apparently comes from the graduate female population. The judging-perceptive scale still shows significance with more perceptive types in the undergraduate population at Urbandale than expected. There are still more EP types than expected and fewer EJ types. There are significantly more SP types in the Urbandale undergraduate group with the significance level increasing to .001 for this category after the graduate students have been removed. The SP group is the least likely group, according to the literature, to attend an institution of higher education. There are

also more FP types in the undergraduate group than expected, however the significance has decreased for this category after the graduate population is removed.

From these comparisons it appears that:

1. Undergraduate and graduate students differ in type distributions.

2. The significance of the thinking-feeling scale can be accounted for primarily by the number of female graduate students with a preference for feeling.

3. Undergraduates are more likely to be extroverts and graduate students are more likely to be introverts.

4. There are significantly more SP types returning to school than expected and this is the least likely group to be found in higher education.

Implications

Based on the findings of this study the researcher concludes the following:

1. When designing environments for nontraditional populations institutions need to take into account not only that these students differ in significant ways from the traditional population, but also that there are significant differences within the group based on gender and classification.

a. Female students, particularly female graduate students with a predominant feeling orientation, need a caring attitude, more personal contact, more social activities, and need to feel that they matter to the institution.

b. Male thinking types may prefer more practical programming and may be more apt to value competency in instruction and institutional reputation than social programming and personal contacts.

c. The extroverted undergraduates are more likely to participate in social events and planned activities than the more introverted graduate students.

d. There are more SP students than anticipated who may have active, hands-on, practical programming needs and may need special support due to the fact that SP types may have difficulty with traditional instructional modes and the very structured system of higher education.

2. Recruiting techniques may need to vary depending on the population sought.

a. Females are more likely than males to hear about classes through personal contacts and the mass media and being dominated by feeling types may need a more personal recruiting touch.

b. Males receive information predominantly through printed brochures and catalogs and being dominated by thinking types, these materials could be directed to appeal more to this logical, objective, and analytical style.

c. On-site visits in place of employment stressing costs and benefits might be a good recruiting tool for graduate students as more graduates learn about classes through their employer and cost appears to be more important to graduates than undergraduates.

d. The type of program, the institutional reputation and quality of academic instruction are more important to undergraduate students who are more likely to be thinking types valuing competency and objectivity and a media campaign stressing the institutional reputation and excellence in academic quality might be a good recruiting tool.

3. Males and females, graduates and undergraduates differ in preferred learning styles. Faculty workshops could be instituted to inform faculty about these differences and to discuss instructional techniques and teaching styles related to type.

4. There are more judging types than perceptives overall which indicates that these students prefer to plan and want to know schedules, deadlines, and classes planned for the future well in advance. However, there are also more perceptive types than expected, particularly among the undergraduates. These students may need more flexibility in requirements, greater class selection, and perhaps more independent study options.

5. The undergraduates appear to be much more serious about getting a degree. Undergraduates are more likely to be taking more than one course, to be taking classes both on and off campus, to be enrolled in a degree program, and to say they intend to get a degree. These undergraduates are also more apt to be more extroverted types and have more of a thinking orientation. They are apt to be practical and, as indicated in their preferred areas of study, more likely to be interested in business. Perhaps degree

programs offered off campus and activities designed for this population need to take these type aspects into account. Degree programs that appeal to these types could be offered off campus.

6. Undergraduates are more interested in liberal studies and business than any other areas, while graduate students are more interested in education than any other area. These differences fit with the type distribution. The ISFJ and ENFP types are more likely to be drawn to education as a field and these types dominate the graduate population, particularly among the female graduate students. The ESTJ and ISTJ types are drawn to business areas and these two types dominate the undergraduate population, particularly the male undergraduate population. Part of this difference could be accounted for due to the course offerings in Urbandale. The graduate courses were dominated by special education, child development, and family environment classes. The ISFJ types in particular might be drawn to elementary education. The undergraduate courses are predominantly designed for liberal studies which does not account for the dominant interest in business as there is no business program in Urbandale.

7. Orientation sessions could be designed to take type differences into account. The more extroverted, sensing undergraduates might like small group activities, speakers, and question and answer sessions while the more introverted intuitive graduate students might prefer more written information.

8. Counselors and advisors could be trained to be aware of possible differences between male and female nontraditional students and between undergraduate and graduate nontraditional students, both demographically and typologically. These differences could have an impact on the needs and motivations of the student.

9. Programming for feeling types, predominantly females, could consist of self-discovery seminars, support groups, and social events such as brown bag suppers before class to take into account not only the need for connection but the practical realities of time constraints.

10. Programming to appeal to the thinking types, predominantly males, might consist of such topics as interviewing and resume writing seminars, and perhaps computer disc programs on various topics available for check-out.

11. Workshops could be instituted for both male and female students on the differences in male and female perspectives, focusing on appreciation of differences and understanding.

12. The impact of class cancellations on judging types should be taken into account. The majority of students, both graduate and undergraduate, are judging types. Class cancellations are likely to upset these students who prefer to have their lives planned in advance and do not appreciate last-minute changes. The extroverted-sensing types dominating the undergraduate population also tend to be practical types and may not appreciate the impracticality of finding another class at the last minute. Class cancellations may also interrupt graduation plans for these practical students, over 90% of whom have degree intentions.

Recommendations

Having reviewed the findings of this study, the researcher suggests the following areas for further study and research:

1. Replication of this study to determine if results are consistent

2. Studies to determine whether type and motivations for returning to school are independent
3. Studies to determine whether characteristics of type are responsible for the distribution pattern or whether class offerings and external variables are responsible for the distribution pattern
4. Correlating type data with other instruments to study the nontraditional population in more depth
5. Developing activities, marketing strategies, and orientation programs based on type and studying whether this has an impact on retention
6. Developing a study using a control group to determine whether education is viewed as a more positive experience by students exposed to environmental supports based on type
7. Test-retest studies to determine if type is stable for nontraditional students
8. Study of stop-outs and drop-outs to determine if type has an effect on attendance patterns

9. Study of recruiting methods based on type compared to traditional methods to determine which attracts more nontraditional students
10. Study to see whether there is a correlation between demographic variables and psychological type
11. Studies of other nontraditional student populations to determine whether type distribution patterns are generalizable. Typologically, are nontraditional student groups similar?

Replication

If this study was to be replicated, the following recommendations are suggested.

1. Work closely with faculty. Response rates for classes where the instructor gave supportive comments about the research were nearly 100%. Classes where the instructor was not supportive and allowed time at the very end of class, indicating students might as well go home, had much lower response rates.

2. Emphasize attendance at group interpretation sessions to avoid time commitments for students requesting individual interpretations of MBTI results. Perhaps get instructors to allow class interpretations.

3. Try to increase response rates for males. Perhaps incentives would be needed.

4. Restructure some questions to allow easier data analysis.

5. Create Likert scales for the following questions: (a) reasons for attending college, (b) reasons for choosing institution, (c) difficulties.

BIBLIOGRAPHY

Adam, K., & Lindoo, S. (1989). Continuing education programs for women: Current status and future directions. Continuing Higher Education Review, 53(1), 11-25.

Adelstein, D., Sedlacek, W. E., & Martinez, A. (1983, Summer). Dimensions underlying the characteristics and needs of returning women students. Journal of the National Association of Women Deans, Administrators, and Counselors, 32-36.

Adult Student Services Committee. (1990, January 11). Meeting minutes. Adult Information, Dean of Students Office, Iowa State University, Ames, Iowa.

Almquist, J., Arp, R., & Seeger, B. (1988, March). Adult student survey of needs conducted at the Iowa State University Urbandale site. Unpublished Survey Report. Adult Information Office, Central Area Extension Office, Urbandale, Iowa.

Anchors, S. (1985). Type and academic advising. MBTI News, 7(2), 1.

Aslanian, C. B. (1987). Mainstreaming of adults on American campuses. Community Services Catalyst, 16(3), 11-15.

Aslanian, C. B. (1989, December 13). Memo to Carol Custer, Assistant to the Provost, Iowa State University, Ames, Iowa.

Aslanian, C. B. (1990, May 1). Back from the future. Conference report presented at the 75th anniversary conference of the National University Continuing Education Association, New Orleans, Louisiana.

Aslanian, C. B., & Brickell, H. M. (1988). How Americans in transition study for college credit. New York: College Entrance Examination Board.

Bachur, B. (1986, February-March). Barbara's story. Community, Junior and Technical College Journal, 2, 29-31.

Barrett, L., & Connot, R. (1986). Knowing student personality can help school, classroom, activity participation. National Association of Secondary School Principles Bulletin, 70(487), 39-45.

Bauch, D. B. (1989). Being responsive to adult learners. Scott Foresman/AAACE Adult Education Booklet.

Bauer, W. K. (1981). Strategies for recruiting and retaining the nontraditional student. College Student Journal, 15, 234-238.

Becker, P., Bledsoe, L., & Mok, T. (1977). The strategic woman. Dallas, TX: London Enterprises.

Belenky, M. R., Clinchy, B. M., Goldberger, N. R., & Tarule, J. M. (1986). Women's ways of knowing. New York: Basic Books.

Bers, T. H., & Smith, K. (1987). College choice and the nontraditional student. Community College Review, 15(1), 39-45.

Bigelow, E. M. (1981). Women returning to school: Issues of adult development. Dissertation Abstracts International, 42, 3025A.

Blaukopf, P. A. (1981). Life change events: Their impact on returning women college students (Doctoral dissertation, 1981). Dissertation Abstracts International, 42, 2434A.

Bodensteiner, J. E. (1988). The nontraditional college student: Implications for student services. Iowa Student Personnel Association Journal, 3(1), 18-23.

Bodensteiner, J. E. (1989). A profile of the nontraditional college student and recommendations

for continuing educators. The Journal of the National University Continuing Education Association, 53(2&3), 87-97.

Brandenburg, J. B. (1974). The needs of women returning to school. Personnel and Guidance Journal, 53(1), 11-18.

Brown, J. V. E., & Robinson, R. D. (1988). The adult male undergraduate: Who stops and who leaves? College Student Journal, 15(3), 95-100.

Bruhn, J. G., Bunce, H., & Greaser, R. C. (1978). Correlations of the Myers-Briggs Type Indicator with other personality and achievement variables. Psychological Reports, 43, 771-776.

Burke, J. (1987). Second chance: An innovative program for adult learners. Journal of College Student Personnel, 28(5), 470-472.

Burnham, L. B. (1982, November). Adults: Not grown up children. Community and Junior College Journal, 46, 22-26, 46.

Carbone, J. (1982). Americans in transition: Implications for community colleges of a new study about adult learners. Community and Junior College Research Quarterly, 6, 61-69.

Carey, J. C., Fleming, S. D., & Roberts, D. Y. (1989). The Myers-Briggs Type Indicator as a measure of aspects of cognitive style. Measurement and Evaluation in Counseling and Development, 22(2), 94-99.

Carlson, J. G. (1985). Recent assessments of the Myers-Briggs Type Indicator. Journal of Personality Assessment, 49(4), 356-365.

Carlyn, M. (1977). An assessment of the MBTI. Journal of Personality Assessment, 41(2), 5.

Carter, E. H. (Ed.) (1985). Community College Journal for Research and Planning. Vol. 4. (ERIC Document Reproduction Service No. ED 269 090)

Champagne, D. E., & Petitpas, A. (1989). Planning developmental interventions for adult students. NASPA Journal, 26, 265-276.

Chaplain, J. M. (1989). Type and moral development: Kohlberg and Gilligan. Journal of Psychological Type, 18, 11-13.

Christian, C., & Wilson, J. (1985, November). Reentry women and feminist therapy: A career counseling model. Journal of College Student Personnel, 11, 496-499.

Cohen, S. (1981). Using the MBTI with teachers, supervisors, administrators and students: A program review. Research in Psychological Type, 3, 42-47.

College Board (1988, Summer). 1990s market for college: Adult learners. The College Board News, 28, 1-7.

Cookson, P. S. (Ed.) (1989, Spring). New directions for continuing education, 41. San Francisco: Jossey-Bass.

Copas, E. M., & Dwinell, P. L. (1983). Women's opportunities network: An entity for initiating programs and services for nontraditional women students. Journal of the National Association of Women Deans, Administrators and Counselors, 46(3), 23-26.

Cross, K. P. (1981). Adults as learners: Increasing participation and facilitating planning. San Francisco: Jossey-Bass.

Cross, K. P. (1983). The impact of changing populations on community colleges. Community College Review, 10(4), 30-34.

Delbridge-Parker, L., & Robinson, D. C. (1989). Type and academically gifted adolescents. Journal of Psychological Type, 17, 66-72.

Delworth, U., & Hanson, G. R. (1989). Student services: A handbook for the profession (2nd ed.). San Francisco: Jossey-Bass.

Delworth, U., & Seeman, D. (1984). The ethics of care: Implications of Gilligan for the student services profession. Journal of College Student Personnel, 25(6), 489-492.

Dillon,M., & Weisman, S. (1987, July). Relationship between personality types on the Strong-Campbell and Myers-Briggs instruments. Measurement and Evaluation in Counseling and Development, 20, 68-79.

Eckstrom, R. B. (1981). Assessing reentry women's life experience learning. Paper presented at the annual convention of the American Personnel and Guidance Association. (ERIC Document Reproduction Service No. ED 206 970)

Etaugh, C., & Spiller, B. (1989). Attitudes towards women: Comparison of traditional aged and older college students. Journal of College Student Development, 30(1), 41-45.

Evangelauf, J. (1990). Few colleges offer good educational programs for nontraditional students, report charges. The Chronicle of Higher Education, 36(18), A35.

Fenske, R. H., & Hughes, M. S. (1989). Current challenges: Maintaining quality amid increasing student diversity. In U. Delworth & G. R. Hanson (Eds.), Student services: A handbook for the profession (2nd ed.). San Francisco: Jossey-Bass.

Ferrari, M. R. (1988). A time for change and renewal. Iowa Student Personnel Association Journal, 3(1), 4-7.

Fourqurean, J., Meisgeier, C., & Swank, P. (1988). The Murphy-Meisgeier Type Indicator for Children: Exploring the link between psychological type and academic achievement. Journal of Psychological Type, 16, 42-46.

Gelatt, H. B., Schlossberg, N. K.,Herr, E. L., Lynch, A. Q., Chickering, A. W., Walz, G. R., & Benjamin, L. (1984). New perspectives on counseling adult learners. Ann Arbor, MI: ERIC Counseling and Personnel Services Clearinghouse.

Giczkowski, W. (1990). Colleges must learn to cope with market oriented adult students. Chronicle of Higher Education, 36(29), B2.

Gilligan, C. (1982). In a different voice. Cambridge: Harvard University Press.

Glass, J. C., & Rose, A. R. (1987). Reentry women: A growing and unique college population. NASPA Journal, 25(2), 110-119.

Gleazer, E. J., Jr. (1973). Project focus: A forecast study of community colleges. New York: McGraw-Hill.

Governanti, M. P., & Clowes, D. (1982). Adults' motivations for attending a community college. Community and Junior College Quarterly, 6, 271-285.

Grady, S. C. (1979, January). Assessing the educationally related needs of adults: A practical low-cost approach. Community Education Monograph #3. Washington, D.C.: National Center for Community Education.

Greenberg, E. M. (1989). Pathways profile: A summary of statistical data September 1, 1986-August 31, 1989. Unpublished report. Council for the Advancement of Experiential Learning, Denver, CO.

Griffith, W. J. (1989, Spring). Recruiting and retaining adult students: A marketing perspective. New Directions for Continuing Education Higher Education Series, 41. San Francisco: Jossey-Bass.

Grottkau, B. J., & Davis, J. L. (1987). Supportive services for returning women students: Will higher education meet the challenge. Journal of the National Association of Women Deans, Administrators and Counselors, 59(4), 8-14.

Guild, P., & Garger, S. (1985). Marching to different drummers. Palo Alto, CA: Counseling Psychologists Press.

Haefele, D. C. (1974). A study of potential correlation with problem-solving behavior in simulation. Paper presented at the annual meeting of the American Education Research Association. (ERIC Document Reproduction Service No. ED 090 224)

Harwell, M. R. (1988). Choosing between parametric and nonparametric tests. Journal of Counseling and Development, 67(1), 35-38.

Holt, M. (1982). Designing programs for returning women students. New Directions for Experiential Learning, 16, 31-43.

Hoyt, K. B. (1988). The changing workforce: A review of projections - 1986 to 2000. The Career Development Quarterly, 37(1), 31-39.

Hughes, R. (1983). The nontraditional student in higher education: A synthesis of the literature. NASPA Journal, 20(3), 51-65.

Iovacchini, E. V., Hall, L. M., & Hengstler, D. D. (1985, Fall). Going back to college: Some differences between adult students and traditional students. College and University, 61(1), 43-54.

Iowa State University. (1986, Fall). Iowa State University Annual Statistical Report. Ames, IA: Office of Admissions and Records.

Iowa State University. (1987, Fall). Iowa State University Annual Statistical Report. Ames, IA: Office of Admissions and Records.

Iowa State University. (1988, Fall). Iowa State University Annual Statistical Report. Ames, IA: Office of Admissions and Records.

Iowa State University. (1990, April 20). Iowa State University News, 36, 349-350.

Jacobi, M. (1987, February). Stress among reentry women students: A contextual approach. ASHE

annual meeting paper. (ERIC Document Reproduction Service No. ED 281 460)

Jacoby, B. (1989, January). Colleges must do more to enhance the education of commuting students. The Chronicle of Higher Education, 36, A44.

Johnson, D. H., Wallace, K. W., & Sedlacek, W. E. (1979). A Comparison of the Needs of Returning and Traditional Students by Sex. Journal of NAWDAC, 42(3), 14-18.

Jung, C. G. (1964). Man and his symbols. London: Aldus Books.

Kiersey, D., & Bates, M. (1978). Please understand me: Character and temperament types. Del Mar, CA: Promethean Books.

Knefelkamp, L., Widick, B., & Parker, J. (1978). Applying new developmental findings. San Francisco: Jossey-Bass.

Knox, A. B. (1980). Understanding the adult learner. Providing student services for the adult learner. San Francisco: Jossey-Bass.

Knox, A. B. (1987). Reducing barriers to participation in continuing education. Lifelong Learning, 10(5), 7-9.

Kohlberg, L. (1975, October). Moral education for a society in moral transition. Educational Leadership, 33(1), 46-54.

Koos, L. (1970). The community college student. Gainesville: University of Florida.

Lantor, L. (1990, January 14). Older Iowans hit the books again. The Des Moines Sunday Register, 4B.

Lawrence, G. (1982). People types and tiger stripes: A practical guide to learning styles. Gainesville, FL: Center for Application of Psychological Type.

Lawrence, G. (1984). A synthesis of learning style research involving the MBTI. Journal of Psychological Type, 8, 2-15.

Lawrence, G. (1986). Teaching for thinking: A Jungian extension of Dewey's ideas. Journal of Psychological Type, 12, 38-45.

Lawrence, J. V., & McCaulley, M. (1982). Myers-Briggs Type Indicator: Interview with Mary McCaulley. Journal of Developmental and Remedial Education, 6(1), 14-19.

Levin, E. L. (1986). A support group for midlife students reentering college. Journal of College Student Personnel, 27, 371-372.

Levinson, D. J. (1986). A conception of adult development. American Psychologist, 41(1), 3-13.

Lynch, A. Q., Doyle, R. J., & Chickering, A. W. (1985) Model programs for adult learners in higher education. Phi Delta Kappan, 32, 713-716.

Magolda, M. B. (1989). Gender differences in cognitive development: An analysis of cognitive complexity and learning styles. Journal of College Student Development, 30, 213-220.

Mamchur, C. (1984a, February). Don't let the moon break your heart. Educational Leadership, 77-82.

Mamchur, C. (1984b). Insights: Understanding yourself and others. Ontario, Canada: The Ontario Institute for Studies in Education.

Marlow, C. (1989). Identifying problems and needs of nontraditional students at your institution. NASPA Journal, 26, 272-277.

Mathiason, R. E., & Neely, R. E. (1988). Developing a support network for reentry adults. Journal of College Student Development, 29, 557-559.

McCaulley, M. (1974, April). The Myers-Briggs Type Indicator and the Teaching-Learning Process. (ERIC Document Reproduction Service No. ED 093 965)

McCaulley, M. H. (1981). Jungs theory of psychological types and the Myers-Briggs Type Indicator. Advances in Psychological Assessment, 5. San Francisco: Jossey-Bass.

McGaha, R. K. (1983). Survey of Urbandale student population. Unpublished survey. Adult Information Office, Central Area Extension Office, Urbandale, Iowa.

McGaha, R. K. (1986, Spring). Survey for establishing a student profile. Unpublished survey results. Adult Information Office, Central Area Extension Office, Urbandale, Iowa.

McWilliams, K. (1982, June). Barrier reduction program for women: Final report. Lancastor, TX: Cedar Valley College. (ERIC Document Reproduction Service No. ED 227 911)

Mezirow, J., & Marsick, V. (1978). Education for perspective transformation: Women's reentry programs in community colleges. Columbia University, NY: Center for adult Education. (ERIC Document Reproduction Service No. ED 166 367)

Mishler, C., Fredrick, D., Hogan, T., & Woody, S. (1982). Adult student's pace toward graduation. College & University, 58, 314-322.

Moe, J. F. G. (1989). The dream deferred: Minority adult education participation in higher education in the United States. The Journal of the National University Continuing Education Association, 53(1), 35-49.

Murphy, D. T., & Achtziger, M. A. (1982). Recruiting the older adult female student. College and University, 57, 314-322.

Myers, I. B. (1980). Gifts Differing. Palo Alto, CA: Consulting Psychologists Press.

Myers, I. B. (1987). Introduction to type. Palo Alto, CA: Consulting Psychologists Press.

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

Nowak, J., & Shriberg, A. (1981). Providing services for the adult learner in the university. In Advising and counseling adult learners: New directions for continuing education (pp. 43-50). San Francisco: Jossey-Bass.

O'Brien, R. T. (1985, May). Using Jung more and etching him in stone less. Training, 5, 53-66.

Office of Continuing Education. (1986, Spring). A survey of ISU off-campus undergraduate students.

Unpublished survey. Off-campus credit programs, Iowa State University, Ames, IA.

Osterkamp, D., & Hullett, P. (1983, November). Reentry women and part-time students: An overview with relevant statistics. Viewpoints. Bakersfield, CA: Bakersfield College. (ERIC Document Reproduction Service No. ED 246 970)

Otis, G. D. (1989). Care and justice considerations in real life moral problems. Journal of Psychological Type, 18, 3-10.

Papier, S. N. (1980). Counseling for the reentry woman. Bayside, NY: Queensborough Community College. (ERIC Document Reproduction Service No. ED 266 366)

Patterson, C., & Blank, T. (1985, March). Doubt, struggle and growth: A profile of a mature woman in the student role. Paper presented at the annual meeting of the Eastern Psychological Association. (ERIC Document Reproduction Service No. ED 259 147)

Payette, O. L. (1980). The adult learner and student programming. In Providing student services for the adult learner. San Francisco: Jossey-Bass.

Phipps, T. C. (1988). Causes of adult learning. Continuing Higher Education Review, 52(3), 133-139.

Pinkney, J. W. (1983, November). The Myers-Briggs Type Indicator as an alternative in career counseling. The Personnel and Guidance Journal, 3, 173-177.

Pirnot, K. A. (1987). Reentry women: A longitudinal study of persistence in nontraditional students. Journal of the National Association of Women Deans, Administrators and Counselors, 50(3), 20-25.

Potter, D. (1988). Characteristics and concerns of older women returning to college. Iowa Student Personnel Association Journal, 3(1), 8-12.

Prose, F. (1990, January 7). Confident at 11, confused at 16. The New York Times Magazine, pp. 23-25, 38-40, 45-46.

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

Rabinowitz, P. W. (1982). Is there life after 25? Adult development in the community college. Dissertation Abstracts International, 43, 3462A.

Rideout, C. A., & Richardson, S. A. (1989). A teambuilding model: Appreciating differences using the Myers-Briggs Type Indicator with developmental theory. Journal of Counseling and Development, 67, 529-533.

Roberts, D. Y. (1975, April). Personalizing the learning processes. Paper presented at the annual meeting of the American Association of Community and Junior Colleges. (ERIC Document Reproduction Service No. ED 115 332)

Rodgers, R. F. (1989). Student development. In U. Delworth & G. Hanson (Eds.), Student services: A handbook for the profession (2nd ed.). San Francisco: Jossey-Bass.

Roehl, J. E. (1981). Stressful life events of reentry women students. Dissertation Abstracts International, 42, 505A.

Rogers, B. H., Gilleland, K. R., & Dixon, G. (1988). Educational motivations of part-time adults as related to socio-demographic variables. College and University, 63(2), 198-209.

Rosenak, C. M., & Shontz, F. C. (1988). Jungian Q-sorts: Demonstrating construct validity for psychological type and the MBTI. Journal of Psychological Type, 15, 33-45.

Ross, J. V. (1988, March). Transitions, triggers and the return to college: No simple decision. Journal of College Student Development, 29, 112-118.

Ross, J. V. (1989, Spring). Recruiting and retaining adult students in higher education. In New Directions for Continuing Education Services, 41. San Francisco: Jossey-Bass.

Roy, S. W. (1986). Programming for returning women students. Journal of College Student Personnel, 27(1), 75-76.

Rutsohn, P. (1978). Understanding personality type: Does it matter? Improving College and University Teaching, 26, 249-254.

Schlossberg, N. K., Lynch, A. Q., & Chickering, A. W. (1989). Improving higher education environments for adults. San Francisco: Jossey-Bass.

Schmid, G., & Russel, L. (1980). Plenty of clues to future trends. Community and Junior College Journal, 6, 28-31.

Shaker, P. (1982). Application of Jung's analytical psychology of education. Journal of Curriculum Studies, 14, 241-250.

Shriberg, A. (1980). Providing student services for the adult learner: New directions for student services No. 11. San Francisco: Jossey-Bass.

Smart, J. C., & Pascarella, E. T. (1987). Influences on the intention to reenter higher education. Journal of Higher Education, 58, 306-321.

Smith, E. C., & Robinson, D. C. (1988). Adapting community college counseling services to meet the needs of nontraditional women students: A pilot study. Iowa Student Personnel Association Journal, 3(1), 13-17.

Sorensen, C. K. (1989, Fall). Results of a survey conducted in September 1989 of students taking Iowa State University courses off-campus at the Area Extension Office in Urbandale. Unpublished survey report. Adult Information Office, Iowa State University Central Area Extension, Urbandale, Iowa.

Starks, G. (1987, April). Retention of adult women students in the community college: Research

findings for exceptional case studies. (ERIC Document Reproduction Service No. ED 281 592)

St. Pierre, S. (1989). Understanding the nontraditional female student. NASPA Journal, 26, 227-234.

Suchinsky, R. T. (1982). The older female college student: An educational challenge. NASPA Journal, 19, 29-41.

Swift, J. S., Jr. (1987). Retention of adult college students. NACADA Journal, 7(2), 7-18.

Swift, J. S., Jr., Colvin, C., & Mills, D. (1987, July). Displaced homemakers: Adults returning to college with different characteristics and needs. Journal of College Student Personnel, 27, 343-349.

Tillman, L. E. (1976). Personality types and reading gain for upward bound students. Journal of Reading, 12, 302-306.

Vaughn, G. B., & Associates. (1983). Issues for community college leaders in a new era. San Francisco: Jossey-Bass.

Wagner, D. W., Wagner, W. G., & Vinzant, R. (1989). Recruiting the adult learner. Journal of College Student Development, 30(1), 83-85.

Wheaton, B., & Robinson, D. C. (1983). Responding to the needs of reentry women: A comprehensive campus mode. NASPA Journal, 21(2), 44-51.

Whyte, C. (1989). Student affairs in the future. Journal of College Student Development, 39(1), 81-87.

Winkelpleck, J. (1987, August). Adult students at Iowa State University: A research report summary document. (Report No. 87-01.) Student Counseling Service, Iowa State University, Ames.

Wintersteen, B. A. (1982). Evaluation of the social and academic problems of the returning woman student (35+). Independent study research paper. North Shore Community College. (ERIC Document Reproduction Service No. ED 226 767)

Yokomoto, C. F., & Ware, J. R. (1982). Improving problem performance using MBTI. Proceedings of the ASEC Annual Conference, 163-167.

Zachary, L. J., Hannum, J., & Chapman, R. (1990, January). The Bottom Line: Tracing Adult Growth and Development. Unpublished CAEL report. Adult Information Office, Iowa State University Central Area Extension, Urbandale, Iowa.

Zwerling, S. L. (1986, January). Lifelong learning: A new form of tracking. New Directions for Community Colleges, 14, 53-60.

ACKNOWLEDGEMENTS

Permission to conduct this study was received from the University Committee on the Use of Human Subjects in Research at Iowa State University in January 1990. Dr. George Karas was the committee chairperson.

This study was also approved by the following:

Dr. Daniel C. Robinson, Major Professor

Dr. Larry Ebbers, Chairperson, Department of Professional Studies in Education

Kathleen Stinehart, Off-campus Credit Programs Manager

Kay Holmberg, Director of Adult Student Services

James Almquist, Central Area Extension Director

The researcher wishes to thank all of those mentioned above for their support and cooperation.

Special thanks also to my husband and children without whose patience and help this project would have been impossible. And a special thank you to Dr. Ruth McGaha for her encouragement, friendship, and support.

APPENDIX A. TABLES

Table 1. Type dimensions and distributions

Dimension	Attitude/Function	% in population	Opposing attitude/function	% in population
Direction of interest	Extraversion (E) Oriented to outer world of people, objects, and actions	70%	Introversion (I) Oriented to inner world of concepts, thoughts, and ideas	30%
Perception function	Sensing (S) Focus on perceptions received through sense organs, noticing concrete details and practical aspects	70%	Intuition (N) Focus on impressions and maximizing hunches from the unconscious, preferring to deal with the abstract	30%
Decision making function	Thinking (T) Rely on logical structures, skilled at objective organization and making impersonal judgments	60% males 40% females	Feeling (F) Adept at understanding feelings and analyzing subjective impressions and utilizes internal value systems	60% females 40% males
Lifestyle orientation	Judging (J) Prefer to live in a planned, orderly, systematic way attempting to control life	55%	Perceptive (P) Prefer to live in an open, curious-minded, spontaneous way trying to understand and adapt to live	45%

Table 2. Type descriptions

ISTJ	ISFJ
Serious, quiet, practical, ordinary, matter of fact, logical, realistic, and dependable. Sees to it that everything is well organized.	Quiet, friendly, responsible, and conscientious, thorough, painstaking, accurate, interests usually not technical, loyal, considerate, concerned with how other people feel.
ISTP	ISFP
Cool onlookers, quiet, reserved, observing and analyzing life with detached curiosity. Usually interested in impersonal principles, cause and effect, how and why mechanical things work.	Retiring, quietly friendly, sensitive, kind, modest about their abilities, shun disdisagreements, often loyal followers, often relaxed about getting things done.
ESTP	ESFP
Matter of fact, do not worry or hurry, tend to like mechanical things and sports, generally conservative values, best with real things that can be worked, handled, taken apart.	Outgoing, easygoing, accepting, friendly, like sports and making things, know whats going on and join in, find remembering facts easier than mastering theories, practical ability with people as well as things.
ESTJ	ESFJ
Practical, realistic, matter of fact, natural head for business or mechanics, not interested in subjects they see no use for but can apply themsleves when necessary.	Warm-hearted, talkative, popular, conscientious, cooperative, active committee members, need harmony, work best with encouragement and praise, little interest in abstract thinking or technical subjects. Main interest in things that effect people's lives.

Table 2 (continued)

INFJ	INTJ
Succeed by perseverence, originality, and desire to do whatever is needed and wanted. Quietly forceful, consciencious, concerned for others. Respected for firm principles.	Usually have original minds and great drive for their own ideas and purposes. Skeptical, critical, independent, determined, often stubborn.
INFP	INTP
Full of enthusiasms and loyalties, but seldom talks of these. Care about learning, ideas, language, and independent projects, tend to undertake too much.	Quiet, reserved, impersonal, enjoys theoretical or scientific subjects, interested mainly in ideas with little liking for parties or small talk. Tend to have sharply defined interests.
ENFP	ENTP
Warmly enthusiastic, high spirited, ingenious, imaginative, able to do most anything that interests them, ready to help anyone with a problem, rely on their ability to improvise instead of preparing in advance.	Quick, ingenious, good at things, alert and outspoken, resourceful in solving new problems but may neglect routine assignments, apt to turn from one interest to another.
ENFJ	ENTJ
Responsive and responsible. Feel concern for what others think or want, try to handle things with regard to people's feelings, sociable, popular, sympathetic, responsive to praise.	Hearty, frank, decisive, leaders in activities, good at public speaking, usually well informed, enjoy adding to their fund of knowledge.

Table 3. Variables in literature describing nontraditional students

Variable	Frequencies	Variable	Frequencies
Sex		Status	
Males	30-40%	Undergraduate	30-70%
Females	60-70%	Graduate	30-40%
Age		Degree seeking	60-70% yes
24-25	70-75%		
		Previous education	
Marital status		4-year degree	21%
Married	50-60%	Some graduate study	26%
Single	25%		
Divorced/ separated	15%	In degree program	60-75% yes
		Which degree sought	
Children		Bachelor's	45%
Females	71% yes	Master's	37%
Males	41% yes		
Total	50% yes	How long working on degree	
Ethnic background		2-3 semesters	majority
White	85-95%		
		Transfer credits	
Area of residence		Yes	35-75% yes
City	50%	No	25-65%
Suburbs	35%		
Rural	15%	Number of classes enrolled in	
Employment status		1	25-75%
Full time	70%	2	25-50%
Part time	12%		
Unemployed/ retired	5%	Class time preference	
Homemaker	6%	Day	47%
Student full time	6%	Evening	50%
		Weekends	3%
Income		Reason for choosing institution	
20-29,000	27%	Convenience	25-50%
30-49,000	31%	Cost	
over 50,000	14%	Curriculum	

Table 3 (continued)

Variable	Frequencies	Variable	Frequencies
Distance from class		Motivation for return to school	
Within 15 miles	75%	Career related	50-75%
		Family or personal transition	25-50%
How heard about institution		(men more career related than women)	
Friends and students	35-40%		
News media	25%	Financial aid	
		None	50-75%
		Employer paid	20-40%
Preferred area of study	in rank order	Difficulties	
Sciences & humanities		Class availability	
Business		Lack of flexible class schedules	
Education		Financial aid	
Health Field		Child care	
Computer science		Transportation	
Psychology		Academic advising	
Engineering		Self-perceptions	

Table 4. Survey response rates for 256 Urbandale students

Total returned 230		MBTI response rate 75%		Demographic response rate 89.8%	
Group	Respondents	#MBTI	#Demographics	%Full participation	%partial
Females	151	133	151	88.0%	12.0%
Males	79	56	23	70.9%	29.1%
Undergraduates	91	86	91	94.5%	5.5%
Graduates	100	100	100	100.0%	0.0
Unclassified	39	6	39	15.4%	84.6%

Table 5. Descriptive variables for Urbandale student population

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
Sex						
Females	65.7%			68.1%	62.6%	65.9%
Males	34.3%			31.9%	37.4%	34.1%
Age						
Under 20	0.4	0.7	0.0	0.0	0.0	2.4
20-24	13.0	13.2	12.7	19.1	8.8	9.8
25-29	29.1	27.8	31.6	26.6	35.2	22.0
30-34	10.9	9.3	13.9	11.7	9.9	12.2
35-39	20.0	20.5	19.0	22.3	17.6	22.0
40-44	19.6	19.9	19.0	16.0	18.7	26.8
45-49	5.2	7.3	1.3	3.2	8.7	0.0
50-54	1.3	0.7	2.5	0.0	1.1	4.9
55-59	0.0	0.0	0.0	0.0	0.0	0.0
60-64	0.4	0.7	0.0	1.1	0.0	0.0
Marital status						
Married	65.9	63.6	70.5	52.1	72.5	78.0
Single	27.9	27.2	29.5	37.2	24.2	17.1
Divorced	6.1	9.3	0.0	10.7	3.3	4.9
Children at home						
0	52.5	53.1	51.4	56.2	48.4	41.0
1	14.2	15.2	12.2	11.7	13.2	20.5
2	19.2	19.3	18.9	17.0	19.8	15.4

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
3	9.6	7.6	13.5	12.8	7.7	15.4
4	4.1	4.8	2.7	1.1	5.5	7.7
5	0.5	0.0	1.4	1.1	0.0	0.0
Ethnic group						
White	95.2	96.0	93.7	91.5	97.8	97.6
Black	2.6	2.0	3.8	4.3	1.1	2.4
Hispanic	0.9	0.7	1.3	3.2	0.0	0.0
Asian	0.9	0.7	1.3	1.1	1.1	0.0
Other	0.4	0.7	0.0	0.0	0.0	0.0
Residence						
City	46.7	47.0	46.2	54.3	39.6	48.8
Suburb	26.2	29.1	20.5	23.4	27.5	26.8
Small town	15.7	13.2	20.5	13.8	17.6	14.6
Rural	11.4	10.6	12.8	8.5	15.3	9.8
Employment status						
Full time	71.2	64.2	84.6	67.0	75.8	73.2
Part time	15.7	18.5	10.3	20.2	11.0	12.2
Homemaker	6.6	9.9	0.0	4.3	7.7	9.8
Full-time student	3.1	3.3	2.6	4.3	3.3	0.0
Unemployed	3.5	4.0	2.6	4.3	2.2	4.9

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
Family income						
Under $10,000	7.1	8.2	5.2	11.7	3.3	5.1
$10,000-$19,000	8.9	11.6	3.9	11.7	8.8	2.6
$20,000-$29,000	19.2	15.0	27.3	19.1	18.7	17.9
$30,000-$39,000	19.6	17.0	24.7	18.1	20.9	20.5
$40,000-$49,000	17.0	18.4	14.3	21.3	23.0	15.4
Over $50,000	28.1	29.9	24.7	24.5	25.3	38.5
Educational level						
High school/GED	1.7	2.6	0.0	3.2	0.0	2.4
1 year college	2.2	2.0	2.6	5.3	0.0	0.0
2 years college	11.4	11.9	10.3	20.2	0.0	7.3
3 years college	31.0	31.1	30.8	63.4	0.0	14.6
4 years college	18.3	19.2	16.7	6.4	32.5	36.6
Some grad study	28.8	27.2	32.1	1.1	59.8	24.4
Masters degree	6.6	6.0	7.5	0.0	7.7	14.6
Intent to get ISU degree						
Yes	75.1	74.5	75.9	91.5	71.4	46.3
No	13.1	13.3	12.7	3.2	16.5	26.8
Maybe	11.8	12.0	11.4	5.3	12.1	26.8
Classification						
Freshman	1.8	2.7	0.0	1.1	0.0	0.0
Sophomore	4.0	5.4	1.3	2.1	0.0	0.0

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
Junior	17.3	17.6	16.7	41.5	0.0	0.0
Senior	18.6	17.6	20.5	44.7	0.0	0.0
Graduate	40.3	38.6	43.6	0.0	100.0	0.0
Unclassified	18.0	18.2	17.9	0.0	0.0	100.0
Degree sought						
B.A./B.S.	49.6	51.7	45.5	95.7	12.1	25.0
M.A./M.S.	35.8	34.2	39.0	2.1	63.6	52.5
Ph.D.	1.3	0.7	2.6	0.0	1.1	5.0
None	7.5	6.0	10.4	2.1	1.1	15.0
Certification	5.8	7.4	2.6	0.0	12.1	2.5
In degree program						
Yes	50.5	51.4	48.7	71.3	48.4	7.8
No	49.5	48.6	51.3	28.7	51.6	92.7
How long studying for this degree						
less than 1 year	32.0	34.7	26.9	14.9	32.6	72.5
1 year	7.9	8.7	6.4	4.3	12.1	5.0
2 years	17.1	18.7	14.1	22.3	17.6	5.0
3 years	13.2	12.7	14.1	17.0	13.5	2.5
4 years	8.8	8.0	10.3	13.8	6.6	2.5
5 years	9.2	8.7	10.3	11.7	8.8	5.0
over 5 years	11.8	8.7	17.9	17.0	8.8	7.5

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
Transfer credits						
2-year college	17.9	19.4	14.5	33.0	0.0	5.9
4-year college	17.9	18.7	16.1	24.5	0.0	5.9
2 & 4-yr coll.	13.4	11.5	17.7	19.1	0.0	20.6
BA/BS elsewhere	21.4	23.7	16.1	4.3	47.3	32.4
Some grad credit	5.5	6.5	3.2	0.0	9.9	2.9
None	23.9	29.1	32.3	19.1	42.3	32.4
Number of Urbandale classes enrolled in						
1	79.4	78.0	82.1	57.4	91.2	100.0
2	16.7	16.0	17.9	33.0	6.6	0.0
3	2.6	4.0	0.0	5.3	2.2	0.0
4	1.3	2.0	0.0	3.2	0.0	0.0
Previously taken Urbandale courses						
Yes	53.3	56.7	50.6	61.7	51.6	35.0
No	46.7	43.3	49.4	38.3	48.4	65.0
Taking other on-campus classes in Ames						
Yes	20.5	17.0	27.3	30.9	15.4	7.3
No	79.5	83.0	72.7	69.1	84.6	92.7

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
Taking classes at other institution						
Yes	6.6	6.3	7.0	5.3	5.5	9.8
No	93.4	93.7	93.0	94.7	94.5	90.2
Class time preference						
Early A.M.	3.6	4.1	2.6	7.4	1.1	0.0
Daytime	8.0	10.1	3.9	13.9	2.2	2.4
Evening	87.1	85.1	90.9	78.7	93.4	95.1
Weekend	1.3	0.7	2.6	0.0	3.3	2.4
Term preference						
Semesters	80.8	84.4	74.0	81.9	77.0	79.5
Quarters	19.2	15.6	26.0	18.1	23.0	20.5
Current area of study						
Liberal studies	29.5	29.7	29.1	55.3	0.0	10.0
Education	23.8	30.4	11.7	3.2	44.0	25.0
Business	11.5	8.1	17.7	19.1	7.7	2.5
Agriculture	7.9	1.4	21.6	1.1	12.1	17.5
Political sci.	6.6	6.8	6.3	2.1	8.8	12.5
Family envr./ child dev.	8.8	11.5	3.8	6.4	9.9	15.0
Other	11.4	12.2	10.2	8.5	17.5	17.5

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
Preferred area						
Education	21.0	24.8	14.1	4.3	37.4	22.5
Business	18.1	12.1	29.5	29.8	9.9	10.0
Liberal studies	16.7	16.8	16.7	30.9	5.5	7.5
Psychology	11.0	14.1	5.1	14.9	5.5	15.0
Public admin.	6.2	8.1	5.1	1.1	9.9	10.0
Health fields	3.1	4.7	0.0	3.2	2.2	5.0
Child Dev./ family envr.	8.3	10.8	3.8	3.2	9.9	15.0
Counseling	2.6	4.0	0.0	2.1	4.4	0.0
Computer sci.	0.4	0.7	0.0	1.1	0.0	0.0
Agriculture	7.5	2.0	3.8	1.1	11.0	15.0
Other	4.8	3.7	5.1	8.3	4.4	0.0
Reason for choosing Urbandale						
Location	64.2	64.9	62.8	63.0	67.0	65.9
Cost	8.7	10.6	5.1	7.4	9.9	9.8
Type of prog.	8.7	6.0	14.1	8.5	7.7	9.8
ISU reputation	7.0	6.6	7.7	9.6	3.3	9.8
Academic qual.	4.4	5.3	2.6	8.5	3.3	0.0
Other	7.0	6.6	7.7	2.1	8.8	4.9

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
Travel time to class						
under 10 min.	22.1	21.5	23.4	23.4	20.9	19.5
10-19	33.2	38.3	23.4	38.3	26.4	36.6
20-29	18.6	16.8	22.1	20.2	15.4	22.0
30-44	13.3	11.4	16.9	6.4	18.7	7.3
45-59	8.0	8.7	9.1	4.3	15.3	4.9
over 1 hour	4.0	3.4	5.2	0.0	3.3	9.8
Motivation for attending						
Career change	3.1	4.0	1.3	3.2	3.3	2.4
Job advancement required	45.9	40.4	56.4	38.3	49.5	56.1
Continuing ed.	9.6	10.6	7.7	7.3	13.2	4.9
Increase inc.	7.0	8.6	3.8	8.5	5.5	4.9
Personal goal/ enrichment	29.3	29.2	29.5	38.3	26.3	24.5
Fewer family constraints	0.9	1.3	0.0	2.1	0.0	0.0
Financially able now	1.3	2.0	0.0	2.1	0.0	0.0
To feel better	1.3	1.3	1.3	0.0	1.1	2.4
Other	1.0	2.6	0.0	0.0	1.1	4.9

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
How heard about Urbandale						
Relative/ friend	21.8	26.5	12.8	20.2	18.7	26.8
Employer	5.8	4.1	7.5	0.0	17.5	14.6
Newspaper	11.6	13.6	7.7	11.7	9.9	14.6
Radio	5.3	6.8	2.6	5.3	5.5	4.9
Flyer posted	8.4	9.5	6.4	6.4	12.1	2.4
Catalog or brochure	35.5	27.9	50.0	38.3	24.2	26.8
Other/don't remember	11.6	11.6	13.0	18.2	12.1	9.8
Financial aid						
None	65.0	70.7	53.9	57.4	73.6	56.1
Employer	20.4	17.3	26.3	20.1	15.4	34.1
Loan	5.8	6.0	5.3	10.6	2.2	2.4
Grant	4.0	2.7	6.6	6.4	2.2	2.4
Scholarship	1.3	0.7	2.6	1.1	1.1	2.4
Other	3.5	2.7	5.3	4.3	5.5	2.4

Table 5 (continued)

Variable	% Response rates					
	Total sample N 230	Females N 151	Males N 79	Undergraduates N 91	Graduates N 100	Unclassified N 39
Difficulties becoming ISU student						
Limited night classes	46.7	45.5	49.1	43.0	40.4	65.5
Lack of flexible scheduling	19.2	16.4	24.6	19.0	12.1	6.9
Lack of academic advising	10.2	12.7	5.3	7.4	9.9	3.4
Child care	7.8	10.9	1.8	4.3	7.7	6.9
Lack of financial aid	5.4	3.6	8.8	5.3	3.3	3.4
Lack of admission information	4.2	4.5	3.5	6.4	5.5	3.4
Other	6.6	6.4	6.9	14.5	21.1	10.3

Table 6. Total Urbandale population type distribution (Form adapted from University of Florida, Typology Laboratory)

TYPE TABLE

MYERS-BRIGGS TYPE INDICATOR

SENSING TYPES				INTUITIVES					
ISTJ		ISFJ		INFJ		INTJ			
N	%								
16	8.3	21	10.9	10	5.2	12	6.3	INTROVERTS	E - 97
ISTP		ISFP		INFP		INTP			I - 95
7	3.6	8	4.2	12	6.3	9	4.7		S - 96
ESTP		ESFP		ENFP		ENTP		EXTRAVERTS	N - 96
7	3.6	7	3.6	29	15.1	6	3.1		T - 85
ESTJ		ESFJ		ENFJ		ENTJ			F - 107
20	10.4	10	5.2	10	5.2	8	4.2		J - 107
									P - 85
									N = 192
									IS - 52
									IN - 43
									ES - 44
									EN - 53

Table 7. Urbandale students off-campus site type distribution analysis (N = 192)

SENSING types with THINKING	SENSING types with FEELING	INTUITIVE types with FEELING	INTUITIVE types with THINKING
ISTJ*	ISFJ	INFJ	INTJ
N = 16	N = 21	N = 10	N = 12
% = 8.33	% = 10.94	% = 5.21	% = 6.25
I = 0.61	I = 1.30	I = 1.02	I = 0.82
ISTP	ISFP	INFP	INTP
N = 7	N = 8	N = 12	N = 9
% = 3.65	% = 4.17	% = 6.25	% = 4.69
I = 1.59	I = 1.67	I = 1.04	I = 1.03
ESTP*	ESFP	ENFP***	ENTP
N = 7	N = 7	N = 29	N = 6
% = 3.65	% = 3.65	% = 15.10	% = 3.12
I = 2.13	I = 1.59	I = 1.93	I = 0.65
ESTJ	ESFJ	ENFJ	ENTJ*
N = 20	N = 10	N = 10	N = 8
% = 10.42	% = 5.21	% = 5.21	% = 4.17
I = 0.88	I = 0.82	I = 0.85	I = 0.46

			N	%	I
J	E		97	50.52	1.01
U	I		95	49.48	0.99
D I	S		96	50.00	1.02
G N	N		96	50.00	0.98
I T	T		85	44.27	0.80**
N R	F		107	55.73	1.25**
G O	J		107	55.73	0.82***
V	P		85	44.27	1.38***
P E	IJ		59	30.73	0.88
E R	IP		36	18.75	1.22
R T	EP		49	22.52	1.53**
C S	EJ		48	25.00	0.75*
E	ST		50	26.04	0.89
P	SF		46	23.96	1.22
T	NF		61	31.77	1.27*
I E	NT		35	18.23	0.70*
V X	SJ		67	34.90	0.87
E T	SP		29	15.10	1.72**
S R	NP		56	29.17	1.26
A	NJ		40	20.83	0.75*
J V	TJ		56	29.17	0.69***
U E	TP		29	15.10	1.13
D R	FP		56	29.17	1.57***
G T	FJ		51	26.56	1.02
I S	IN		43	22.40	0.96
N	EN		53	27.60	0.99
G	IS		52	27.08	1.01
	ES		44	22.92	1.04

Note concerning symbols following the selection ratios:

* = $p < .05$.
** = $p < .01$.
*** = $p < .001$.
_ = Fisher's exact probability used instead of chi-square.
% = Percentage of total choosing this group who fall into this type.
I = Self-selection index.

Base population used in calculating selection ratios: College graduates.
Base total N = 9,182. Sample and base are independent.

Table 8. Type distributions by sex, Urbandale students (Form adapted from University of Florida, Typology Laboratory)

TYPE TABLE

MYERS-BRIGGS TYPE INDICATOR

	SENSING TYPES				INTUITIVES			
	ISTJ		ISFJ		INFJ		INTJ	
	N	%			I 66	E 30		
F	8	6.0	20	14.9	8	6.0	8	6.0
M	8	14.0	1	1.7	2	3.4	4	6.9
	ISTP		ISFP		INFP		INTP	
F	1	0.7	6	4.5	10	7.5	7	5.2
M	6	10.3	2	3.4	2	3.4	2	3.4
	ESTP		ESFP		ENFP		ENTP	
F	6	4.5	7	5.2	23	17.2	3	2.2
M	1	1.7	0	0.0	6	10.3	3	5.2
	ESTJ		ESFJ		ENFJ		ENTJ	
F	6	4.5	9	6.7	6	4.5	6	4.5
M	14	24.4	1	1.7	4	6.8	2	3.4

INTROVERTS	F		M
I	66	E	30
N T	68	I	28
R O V	63	S	33
V E R T	71	N	25
S	45	T	40
	89	F	18
E X T	69	J	36
R A V	65	P	22
E R T S	N = 192		

	F	M
IS =	35	17
IN =	33	10
ES =	28	16
EN =	38	15

Table 9. Urbandale female student off-campus site type distribution analysis (N = 134)

SENSING types with THINKING	SENSING types with FEELING	INTUITIVE types with FEELING	INTUITIVE types with THINKING
ISTJ	ISFJ	INFJ	INTJ
N = 8	N = 20	N = 8	N = 8
% = 5.97	% = 14.93	% = 5.97	% = 5.97
I = 0.58	I = 1.23	I = 0.87	I = 1.03
ISTP	ISFP	INFP	INTP
N = 1	N = 6	N = 10	N = 7
% = 0.75	% = 4.48	% = 7.46	% = 5.22
I = 0.54	I = 1.47	I = 1.01	I = 1.47
ESTP***	ESFP	ENFP**	ENTP
N = 6	N = 7	N = 23	N = 3
% = 4.48	% = 5.22	% = 17.16	% = 2.24
I = 5.30	I = 1.74	I = 1.79	I = 0.55
ESTJ	ESFJ	ENFJ	ENTJ
N = 6	N = 9	N = 6	N = 6
% = 4.48	% = 6.72	% = 4.48	% = 4.48
I = 0.53	I = 0.75	I = 0.56	I = 0.66

			N	%	I
J	E		66	49.25	0.99
U	I		68	50.75	1.01
D I	S		63	47.01	0.98
G N	N		71	52.99	1.02
I T	T		45	33.58	0.82
N R	F		89	66.42	1.13
G O	J		71	52.99	0.79***
V	P		63	47.01	1.43***
P E	IJ		44	32.84	0.94
E R	IP		24	17.91	1.16
R T	EP		39	29.10	1.66***
C S	EJ		27	20.15	0.63**
E	ST		21	15.67	0.75
P	SF		42	31.34	1.16
T	NF		47	35.07	1.10
I E	NT		24	17.91	0.89
V X	SJ		43	32.09	0.81
E T	SP		20	14.93	1.80**
S R	NP		43	32.09	1.30*
A	NJ		28	20.90	0.76
J V	TJ		28	20.90	0.67*
U E	TP		17	12.69	1.29
D R	FP		46	34.33	1.49**
G T	FJ		43	32.09	0.89
I S	IN		33	24.63	1.04
N	EN		38	28.36	1.00
G	IS		35	26.12	0.97
	ES		28	20.90	0.98

Note concerning symbols following the selection ratios:

* = $p < .05$.
** = $p < .01$.
*** = $p < .001$.
_ = Fisher's exact probability used instead of chi-square.
% = Percentage of total choosing this group who fall into this type.
I = Self-selection index.

Base population used in calculating selection ratios: College graduates.
Base total N = 4,736. Sample and base are independent.

Table 10. Urbandale male students off-campus site, type distribution analysis (N = 58)

SENSING types with THINKING	SENSING types with FEELING	INTUITIVE types with FEELING	INTUITIVE types with THINKING
ISTJ	ISFJ	INFJ	INTJ
N = 8	N = 1	N = 2	N = 4
% = 13.79	% = 1.72	% = 3.45	% = 6.90
I = 0.81	I = 0.38	I = 1.06	I = 0.72
ISTP	ISFP	INFP	INTP
N = 6	N = 2	N = 2	N = 2
% = 10.34	% = 3.45	% = 3.45	% = 3.45
I = 3.19	I = 1.80	I = 0.76	I = 0.62
ESTP***	ESFP	ENFP**	ENTP
N = 1	N = 0	N = 6	N = 3
% = 1.72	% = 0.00	% = 10.34	% = 5.17
I = 0.66	I = 0.00	I = 1.74	I = 0.92
ESTJ	ESFJ	ENFJ	ENTJ
N = 14	N = 1	N = 4	N = 2
% = 24.14	% = 1.72	% = 6.90	% = 3.45
I = 1.57	I = 0.49	I = 1.66	I = 0.30

			N	%	I
J		E	31	53.45	1.06
U		I	27	46.55	0.94
D	I	S	33	56.90	1.14
G	N	N	25	43.10	0.86
I	T	T	40	68.97	0.98
N	R	F	18	31.03	1.05
G	O	J	36	62.07	0.90
	V	P	22	37.93	1.22
P	E	IJ	15	25.86	0.75
E	R	IP	12	20.69	1.35
R	T	EP	10	17.24	1.09
C	S	EJ	21	36.21	1.05
E		ST	29	50.00	1.30
P		SF	4	6.90	0.60
T		NF	14	24.14	1.35
I	E	NT	11	18.97	0.59*
V	X	SJ	24	41.38	1.02
E	T	SP	9	15.52	1.66
S	R	NP	13	22.41	1.03
	A	NJ	12	20.69	0.73
J	V	TJ	28	48.28	0.90
U	E	TP	12	20.69	1.21
D	R	FP	10	17.24	1.23
G	T	FJ	8	13.79	0.89
I	S	IN	10	17.24	0.75
N		EN	15	25.86	0.95
G		IS	17	29.31	1.10
		ES	16	27.59	1.19

Note concerning symbols following the selection ratios:

* = $p < .05$.
** = $p < .01$.
*** = $p < .001$.
_ = Fisher's exact probability used instead of chi-square.
% = Percentage of total choosing this group who fall into this type.
I = Self-selection index.

Base population used in calculating selection ratios: College graduates.
Base total N = 4,446. Sample and base are independent.

Table 11. Female Urbandale students compared to male Urbandale students, type distribution analysis (N = 134)

SENSING types with THINKING	SENSING types with FEELING	INTUITIVE types with FEELING	INTUITIVE types with THINKING
ISTJ	ISFJ**	INFJ	INTJ
N = 8	N = 20	N = 8	N = 8
% = 5.97	% = 14.93	% = 5.97	% = 5.97
I = 0.43	I = 8.66	I = 1.73	I = 0.87
ISTP**	ISFP	INFP	INTP
N = 1	N = 6	N = 10	N = 7
% = 0.75	% = 4.48	% = 7.46	% = 5.22
I = 0.07	I = 1.30	I = 2.16	I = 1.51
ESTP	ESFP	ENFP	ENTP
N = 6	N = 7	N = 23	N = 3
% = 4.48	% = 5.22	% = 17.16	% = 2.24
I = 2.60	I = 0.00	I = 1.66	I = 0.43
ESTJ***	ESFJ	ENFJ	ENTJ
N = 6	N = 9	N = 6	N = 6
% = 4.48	% = 6.72	% = 4.48	% = 4.48
I = 0.19	I = 3.90	I = 0.65	I = 1.30

			N	%	I
J	E		66	49.25	0.92
U	I		68	50.75	1.09
D I	S		63	47.01	0.83
G N	N		71	52.99	1.23
I T	T		45	33.58	0.49***
N R	F		89	66.42	2.14***
G O	J		71	52.99	0.85
V	P		63	47.01	1.24
P E	IJ		44	32.84	1.27
E R	IP		24	17.91	0.87
R T	EP		39	29.10	1.69
C S	EJ		27	20.15	0.56*
E	ST		21	15.67	0.31***
P	SF		42	31.34	4.54***
T	NF		47	35.07	1.45
I E	NT		24	17.91	0.94
V X	SJ		43	32.09	0.78
E T	SP		20	14.93	0.96
S R	NP		43	32.09	1.43
A	NJ		28	20.90	1.01
J V	TJ		28	20.90	0.43***
U E	TP		17	12.69	0.61
D R	FP		46	34.33	1.99*
G T	FJ		43	32.09	2.33**
I S	IN		33	24.63	1.43
N	EN		38	28.36	1.10
G	IS		35	26.12	0.89
	ES		28	20.90	0.76

Note concerning symbols following the selection ratios:

* = $p < .05$.
** = $p < .01$.
*** = $p < .001$.
_ = Fisher's exact probability used instead of chi-square.
% = Percentage of total choosing this group who fall into this type.
I = Self-selection index.

Base population used in calculating selection ratios: College graduates.
Base total N = 58. Sample and base are independent.

Table 12. Male Urbandale students compared to female Urbandale students, type distribution analysis (N = 58)

SENSING types with THINKING	SENSING types with FEELING	INTUITIVE types with FEELING	INTUITIVE types with THINKING
ISTJ	ISFJ**	INFJ	INTJ
N = 8	N = 1	N = 2	N = 4
% = 13.79	% = 1.72	% = 3.45	% = 6.90
I = 2.31	I = 0.12	I = 0.58	I = 1.16
ISTP**	ISFP	INFP	INTP
N = 6	N = 2	N = 2	N = 2
% = 10.34	% = 3.45	% = 3.45	% = 3.45
I = 13.86	I = 0.77	I = 0.46	I = 0.66
ESTP	ESFP	ENFP**	ENTP
N = 1	N = 0	N = 6	N = 3
% = 1.72	% = 0.00	% = 10.34	% = 5.17
I = 0.39	I = 0.00	I = 0.60	I = 2.31
ESTJ***	ESFJ	ENFJ	ENTJ
N = 14	N = 1	N = 4	N = 2
% = 24.14	% = 1.72	% = 6.90	% = 3.45
I = 5.39	I = 0.26	I = 1.54	I = 0.77

			N	%	I
J	E		31	53.45	1.09
U	I		27	46.55	0.92
D I	S		33	56.90	1.21
G N	N		25	43.10	0.81
I T	T		40	68.97	2.05***
N R	F		18	31.03	0.47***
G O	J		36	62.07	1.17
V	P		22	37.93	0.81
P E	IJ		15	25.86	1.79
E R	IP		12	20.69	1.16
R T	EP		10	17.24	0.59
C S	EJ		21	36.21	1.80*
E	ST		29	50.00	3.19***
P	SF		4	6.90	0.22***
T	NF		14	24.14	0.69
I E	NT		11	18.97	1.06
V X	SJ		24	41.38	1.29
E T	SP		9	15.52	1.04
S R	NP		13	22.41	0.70
A	NJ		12	20.69	0.99
J V	TJ		28	48.28	2.31***
U E	TP		12	20.69	1.63
D R	FP		10	17.24	0.50*
G T	FJ		8	13.79	0.43**
I S	IN		10	17.24	0.70
N	EN		15	25.86	0.91
G	IS		17	29.31	1.12
	ES		16	27.59	1.32

Note concerning symbols following the selection ratios:

* = $p < .05$.
** = $p < .01$.
*** = $p < .001$.
_ = Fisher's exact probability used instead of chi-square.
% = Percentage of total choosing this group who fall into this type.
I = Self-selection index.

Base population used in calculating selection ratios: College graduates.
Base total N = 134. Sample and base are independent.

Table 13. Urbandale undergraduate and graduate students, type distributions (Undergraduates = 86, Graduates = 100) (Form adapted from University of Florida, Typology Laboratory)

TYPE TABLE

MYERS-BRIGGS TYPE INDICATOR

	SENSING TYPES								INTUITIVES							
	ISTJ		ISFJ		INFJ		INTJ									
	N	%														
U	9	10.4	5	5.8	4	4.7	6	7.0								
G	7	7.0	16	16.0	6	6.0	6	6.0								
	ISTP		ISFP		INFP		INTP									
U	3	3.5	4	4.7	5	5.8	5	5.8								
G	4	4.0	4	4.0	7	7.0	4	4.0								
	ESTP		ESFP		ENFP		ENTP									
U	6	7.0	4	4.7	13	15.1	2	2.3								
G	1	1.0	2	2.0	15	15.0	4	4.0								
	ESTJ		ESFJ		ENFJ		ENTJ									
U	10	11.6	3	3.5	1	1.1	6	7.0								
G	9	9.0	7	7.0	6	6.0	2	2.0								

	U		G
I	45	E	46
N			
T	41	I	54
R			
O			
V	44	S	49
V			
E	42	N	51
R			
T			
S	47	T	37
	39	F	63
E			
X	44	J	59
T			
R	42	P	41
A			
V			
E	N = 186		
R			
T			
S			

	U	G
IS =	21	31
IN =	20	23
ES =	23	19
EN =	22	27

Table 14. Urbandale undergraduates and graduates, type distribution analysis (N = 86)

SENSING types with THINKING	SENSING types with FEELING	INTUITIVE types with FEELING	INTUITIVE types with THINKING
ISTJ***	ISFJ	INFJ	INTJ
N = 9	N = 5	N = 4	N = 6
% = 10.47	% = 5.81	% = 4.65	% = 6.98
I = 1.50	I = 0.36	I = 0.78	I = 1.16
ISTP**	ISFP	INFP	INTP***
N = 3	N = 4	N = 5	N = 5
% = 3.49	% = 4.65	% = 5.81	% = 5.81
I = 0.87	I = 1.16	I = 0.83	I = 1.45
ESTP	ESFP	ENFP	ENTP
N = 6	N = 4	N = 13	N = 2
% = 6.98	% = 4.65	% = 15.12	% = 2.33
I = 6.98	I = 2.33	I = 1.01	I = 0.58
ESTJ*	ESFJ**	ENFJ***	ENTJ
N = 10	N = 3	N = 1	N = 6
% = 11.63	% = 3.49	% = 1.16	% = 6.98
I = 1.29	I = 0.50	I = 0.19	I = 3.49

			N	%	I
J	E		45	52.33	1.14**
U	I		41	47.67	0.88**
D I	S		44	51.16	1.02
G N	N		42	48.84	0.98
I T	T		47	54.65	1.48
N R	F		39	45.35	0.72
G O	J		44	51.16	0.87
V	P		42	48.84	1.19
P E	IJ		24	27.91	0.80***
E R	IP		17	19.77	1.04
R T	EP		25	29.07	1.32
C S	EJ		20	23.26	0.97
E	ST		28	32.56	1.55
P	SF		16	18.60	0.64
T	NF		23	26.74	0.79***
I E	NT		19	22.09	1.38***
V X	SJ		27	31.40	0.81***
E T	SP		17	19.77	1.80
S R	NP		25	29.07	0.97
A	NJ		17	19.77	0.99
J V	TJ		31	36.05	1.50
U E	TP		16	18.60	1.43***
D R	FP		26	30.23	1.08
G T	FJ		13	15.12	0.43
I S	IN		20	23.26	1.01
N	EN		22	25.58	0.95
G	IS		21	24.42	0.79***
	ES		23	26.74	1.41

Note concerning symbols following the selection ratios:

* = $p < .05$.
** = $p < .01$.
*** = $p < .001$.
_ = Fisher's exact probability used instead of chi-square.
% = Percentage of total choosing this group who fall into this type.
I = Self-selection index.

Base population used in calculating selection ratios: College graduates.
Base total N = 100. Sample and base are independent.

Table 15. Urbandale nontraditional undergraduates, type distribution analysis (N = 86)

SENSING types with THINKING	SENSING types with FEELING	INTUITIVE types with FEELING	INTUITIVE types with THINKING
ISTJ	ISFJ**	INFJ	INTJ
N = 9	N = 5	N = 4	N = 6
% = 10.47	% = 5.81	% = 4.65	% = 6.98
I = 0.77	I = 0.69	I = 0.91	I = 0.92
ISTP**	ISFP	INFP	INTP
N = 3	N = 4	N = 5	N = 5
% = 3.49	% = 4.65	% = 5.81	% = 5.81
I = 1.53	I = 1.86	I = 0.96	I = 1.28
ESTP***	ESFP	ENFP*	ENTP
N = 6	N = 4	N = 13	N = 2
% = 6.98	% = 4.65	% = 15.12	% = 2.33
I = 4.08	I = 2.02	I = 1.94	I = 0.48
ESTJ***	ESFJ	ENFJ	ENTJ
N = 10	N = 3	N = 1	N = 6
% = 11.63	% = 3.49	% = 1.16	% = 6.98
I = 0.99	I = 0.55	I = 0.19	I = 0.77

			N	%	I
J	E		45	52.33	1.05
U	I		41	47.67	0.95
D I	S		44	51.16	1.05
G N	N		42	48.84	0.96
I T	T		47	54.65	1.99
N R	F		39	45.35	1.02
G O	J		44	51.16	0.75***
V	P		42	48.84	1.53***
P E	IJ		24	27.91	0.80
E R	IP		17	19.77	1.29
R T	EP		25	29.07	1.75**
C S	EJ		20	23.26	0.70*
E	ST		28	32.56	1.11
P	SF		16	18.60	0.95
T	NF		23	26.74	1.07
I E	NT		19	22.09	0.85
V X	SJ		27	31.40	0.78
E T	SP		17	19.77	2.25***
S R	NP		25	29.07	1.25
A	NJ		17	19.77	0.71
J V	TJ		31	36.05	0.86
U E	TP		16	18.60	1.39
D R	FP		26	30.23	1.62**
G T	FJ		13	15.12	0.58*
I S	IN		20	23.26	1.00
N	EN		22	25.58	0.92
G	IS		21	24.42	0.91
	ES		23	26.74	1.21

Note concerning symbols following the selection ratios:

* = $p < .05$.
** = $p < .01$.
*** = $p < .001$.
_ = Fisher's exact probability used instead of chi square.
% = Percentage of total choosing this group who fall into this type.
I = Self-selection index.

Base population used in calculating selection ratios: College graduates.
Base total N = 9,182. Sample and base are independent.

Table 16. Cross comparisons of significant type patterns

Groups	Total Urbandale Group Compared to Traditional Group	Urbandale Males Compared to Traditional Males	Urbandale Females Compared to Traditional Females
Single scale comparisons	More Percep.***		More Percep.***
	More Feeling**		
	Fewer Thinking**		
	Few Judging***		Fewer Judging***
Twenty-one scale	More EP**		More EP***
	Fewer EJ**		Fewer EJ**
	More NF*		
	Fewer NT*	Fewer NT*	
	More SP**		More SP**
	Fewer NJ*		
	Fewer TJ*		Fewer TJ*
	More FP***		More FP**
Four scale comparisons	Fewer ISTJ*		
	More ESTP*	Fewer ESTP***	More ESTP***
	More ENFP***	More ENFP**	More ENFP**
	Fewer ENTJ*		

* = p < .05.
** = p < .01.
*** = p < .001.

Urbandale Females Compared to Urbandale Males	Males Compared to Females	Undergrads Compared to Grads	Urbandale Undergrads Compared to Traditional
			More Percep.***
More Feeling***	Fewer Feeling***		
		More Extrov.***	
		Fewer Intro.**	
Fewer Thinking***	More Thinking***		
			Fewer Judg.***
			More EP**
Fewer EJ*	More EJ*		Fewer EJ*
		Fewer IJ***	
		Fewer IS***	
Fewer ST***	More ST***		
More SF***	Fewer SF***		
		Fewer NF***	
		More NT***	
			More SP***
		Fewer SJ***	
Fewer TJ***	More TJ***		
		More TP***	
More FP*	Fewer FP*		More FP**
More FJ**	Fewer FJ***		Fewer FJ*
		More ISTJ***	
		More INTP***	
			More ESTP***
	Fewer ENFP**		More ENFP*
More ISFJ**	Fewer ISFJ**		Fewer ISFJ**
Fewer ISTP**	More ISTP**	Fewer ISTP**	More ISTP**
Fewer ESTJ***	More ESTJ***	More ESTJ*	Fewer ESTJ***
		Less ESFJ**	
		Less ENFJ***	

APPENDIX B. LETTER TO INSTRUCTORS

IOWA STATE
UNIVERSITY

College of Education
Professional Studies
N243 Lagomarcino Hall
Ames, Iowa 50011

Telephone 515-294-4143

Dear Instructor:

Thank you for allowing your class to participate in this research project. The survey instrument should take about 45-50 minutes to complete. Each student will be provided with a questionnaire and a Myers-Briggs Type Indicator instrument. Participation is optional.

Each survey is coded by class to enable me to provide each instructor with a class profile concerning student learning styles in your classroom. I will also provide a short description of type theory and learning styles implications.

Iowa State University Associate Professor Dr. Dan Robinson will be scheduling two sessions in Urbandale open to both students and faculty to discuss type theory and implications for teaching and learning in educational settings. I will also be happy to discuss any questions you may have regarding the results of this study.

Final results of the study will be given to the Iowa State University Adult Student Services Committee, the Dean of Students Office, the Off-Campus Credit Programs Director, and the Central Area Extension Director. Results will also be used as part of a presentation at the Midwest Regional Conference on Adult Students in March and as part of my graduate thesis.

If you have any concerns or questions, I will be at the Urbandale site during the survey administration times. You may also contact me before or after the survey administration by calling the Adult Information Office in Urbandale at 270-8114 or by calling my home number, 296-8239 in Ames.

Sincerely,

Chris Sorensen
Higher Education Graduate Student
Adult Student Advisor, Urbandale

Approve

Signatures have been redacted for privacy

ir

APPENDIX C. LETTER TO STUDENTS

01-05

College of Education
Professional Studies
N243 Lagomarcino Hall
Ames, Iowa 50011

IOWA STATE
UNIVERSITY

Telephone 515-294-4143

Dear Student:

I am asking you to take part in a research study concerning adult students. There are two parts to this survey: a questionnaire asking for demographic information and a Myers-Briggs Type Indicator, an instrument which measures variations in normal attitudes and behaviors. The MBTI implements Jung's theory of type which says apparantly random variation in human behavior is due to certain basic differences in the way people prefer to use perception and judgement. The MBTI uses self-report to determine basic preferences. The MBTI is used in counseling for help in self- understanding , in education for teaching and learning style understanding, and in management to improve communication, teamwork and leadership.

Participation in this study is voluntary and you may choose not to answer any question you find objectionable. In order to protect your anonymity, please do not write your name on any part of this survey. You may keep the attached numbered card and use it to obtain your individual results for the Myers-Briggs instrument at one of two sessions to be presented in Urbandale by Iowa State Associate Professor Dr. Dan Robinson in March. Dr. Robinson will review what MBTI results mean for you and will discuss implications of type for individual learning style. If you cannot attend either session and would still like your individual results, you will need to contact me for other arrangements. No records of visits or calls concerning MBTI results will be kept in order to maintain confidentiality. You must have the attached card to obtain results as I will not be able to identify individual results by name.

Results of this study will be presented to the Adult Student Services Committee, the Dean of Students Office, the Director of Off-Campus Credit Programs, and the Central Area Extension Director. Resullts will be used as part of a presentation at the Midwest Regional Conference on Adult Students in March and as part of my graduate thesis. Individual class professors will be provided with class profiles concerning student learning styles. Students may request a copy of the survey report , express concerns or ask questions by contacting me at the Adult Information Office in Urbandale, 270-8114, or at my Ames home number, 296-8239.

Thank you for your cooperation in advance.

Sincerely,

Chris Sorensen

Please check if the following apply:

_____I have completed this survey in another class. Completed survey # _____

____ I choose not to participate(if you have checked this in another class, please list that survey # _____)

APPENDIX D. DEMOGRAPHIC QUESTIONNAIRE

Urbandale Survey Spring 1990
Demographic Questionnaire

Sex: (1)female_____ (2)male_____
Age: (1) under 20_____ (2) 20-24_____ (3) 25-29_____
(4) 30-34_____ (5) 35-39_____ (6) 40-44_____
(7) 45-49_____ (8) 50-54_____ (9) 55-59_____
(10) 60-64_____ (11) 65-69_____ (12) 70+_____
Marital Status: (1) Married_____ (2) Single_____
(3) Divorced_____ (4)Separated_____ (5)Widowed___
Number of Children in Home:_____
Ethnic Group: (1)White_____ (2)Black_____ (3)Hispanic_____
(4)Asian_____ (5)American Indian/Alaskan_____
(6) Other_____
Area of Residence: (1) City_____ (2)Suburb_____
(3)Small town_____ (4)Rural_____
Employment: (1)Employed full time_____
(2)Employed part time_____
(3)Full time homemaker_____
(4)Full time student_____
(5)Unemployed_____ (6)Retired_____
Family Income: (1)Under $10,000_____ (2)$10,000-19,000___
(3)$20,000-29,000_____ (4)$30,000-39,000_____
(5)$40,000-49,000_____ (6)Over $50,000_____
Educational Level: (1)High school diploma/GED_____
(2)One year of college_____
(3)Two years of college_____
(3)Three years of college_____
(4)Four year degree_____
(5)Some graduate study_____
(6)Masters degree_____
(7)Doctorate degree_____
Seeking an ISU degree: (1)Yes_____ (2)No_____ (3)Maybe___
Degree sought: (1)Bachelors_____ (2)Masters_____ (3)Phd___
(4)Certification_____ (5)None_____
How long have you been taking classes: (1)less than 1 year__
(2)One year_____ (3)Two years_____ (4)Three years___
(5)Four years_____ (6)Five years___ (7)Over 5 years
Current ISU classification: (1)Freshman_____ (2)Sophomore___
(3)Junior_____ (4)Senior_____ (5)Graduate student__
(6)Special_____ (7)Not officially admitted _____
Current area of study: (1)Liberal Studies_____ (2)Business___
(3)Education_____ (4)Political Science_____
(5)Family environment_____ (6)History_____
(7)Child Development_____ (8)Agriculture_____
(9)Horticulture_____ (10)Other_____
Reason for attending college now:Choose one answer
(1)Changing career
(2)Professional advancement_____
(3)Personal enrichment_____
(4)Fewer family constraints_____
(5)Continuing education requirements_____
(6)Personal goal of obtaining a degree_____
(7)Financially able now _____
(8)Wanted to increase income_____
(9)To feel better about self_____
(10)Other__

Predominant reason for choosing ISU Urbandale:
(1)Nearby location_____ (2)Cost_____
(3)ISU reputation_____ (4)Type of program_____
(5)Academic quality_____ (6)Other_____
Transfer credits: (1)Undergraduate credits from a 2-year college_____ (2)Undergraduate credits from a 4-year college____ (3)Undergraduate credits from both 2 and 4 year colleges____ (4) Bachelors degree from another institution____ (5)Some graduate credits from another institution____
(6)No transfer credits_____
Type of courses taken previously: (1)regular on-campus____
(2)Off-campus_____ (3)Correspondence_____
(4)telenet_____ (5)Television_____
Number of Urbandale courses enrolled in this semester_____
Currently taking courses at ISU Ames (1)Yes___ (2)No___
Currently taking courses at other college (1)Yes___ (2)No___
Enrolled at ISU Urbandale previously (1)Yes___ (2)No___
Officially admitted in ISU degree program (1)Yes___(2)No___
Preference for class location (1)Ames____ (2)Des Moines____
Travel time to Urbandale class (1)Less than ten minutes_____
(2) 10-19 minutes_____ (3) 20-29 minutes_____
(4) 30-44 minutes_____ (5) 45-59 minutes_____
(6) more than one hour_____
Financial aid: (1)federal/state loan____ (2)grant_____
(3)scholarship_____ (4)employer support____
(5)No aid_____ (6)Other_____
Class time preference: (1)early morning_____ (2)daytime____
(3)evening_____ (4)weekend)_____
Attendance preference: (1)year round____ (2)fall/spring ___
(3)summer only____
Term preference: (1)Semesters_____ (2)Quarters_____
Area of preferred study: (1)Liberal studies___ (2)Education_
(3)Health fields___ (4)Computer science_____
(5)Business____ (6)Public administration____
(7)Psychology____ (8)Counseling___
(9)Child development___ (10)Family environment___
(11)Agriculture___ (12)Communications___
(13)Other_____
Current GPA_____
How did you hear about ISU Urbandale (1)Relative/friend____
(2)Newspaper_____ (3)Radio_____ (4)Flyer_____
(5)Off-campus brochure____ (6)Letter_____
(7)ISU catalog____ (8)Employer____ (9)Other_____
Difficulties in becoming an ISU student:
(1)Lack of financial aid information_____
(2)Lack of academic advising _____
(3)Fear of academic failure _____
(4)Child care difficulties_____
(5)Lack of flexible class scheduling_____
(6)Limited number of night classes_____
(7)Transportation difficulties_____
(8)Lack of information about admissions_____
(9)Other_____
What student services would you like to see available in Urbandale_____
Specific class needs for Fall/Summer 1990 or Spring 1991

Additional comments welcome

APPENDIX E. USE OF HUMAN SUBJECTS FORM

INFORMATION ON THE USE OF HUMAN SUBJECTS IN RESEARCH
IOWA STATE UNIVERSITY
(Please follow the accompanying instructions for completing this form.)

(1.) Title of project (please type): Uniquely Urbandale: Study of an Iowa State University Off-Campus Adult Student Population

(2.) I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are properly protected. Additions to or changes in procedures affecting the subjects after the project has been approved will be submitted to the committee for review.

Chris Sorensen — 1-5-90 — Sig... — /
Typed Name of Principal Investigator — Date — Sig... — tigator

1249 Hawthorn Court, Ames — 296-8239
Campus Address — Campus Telephone

(3.) Sig... of ...bers (if ...) — Date — Relationship to Principal Investigator

4 — 1-5-90 — Major Prof. — Prof. Studies

(4.) ATTACH an additional page(s) (A) describing your proposed research and (B) the subjects to be used, (C) indicating any risks or discomforts to the subjects, and (D) covering any topics checked below. CHECK all boxes applicable.

- ☐ Medical clearance necessary before subjects can participate
- ☐ Samples (blood, tissue, etc.) from subjects
- ☐ Administration of substances (foods, drugs, etc.) to subjects
- ☐ Physical exercise or conditioning for subjects
- ☐ Deception of subjects
- ☐ Subjects under 14 years of age and(or) ☐ Subjects 14-17 years of age
- ☐ Subjects in institutions
- ☐ Research must be approved by another institution or agency

RECEIVED JAN 8 1990 ISU GRADUATE COLLEGE

(5.) ATTACH an example of the material to be used to obtain informed consent and CHECK which type will be used.

- ☐ Signed informed consent will be obtained.
- ☒ Modified informed consent will be obtained.

(6.) Anticipated date on which subjects will be first contacted: Month Jan. Day 22 Year 1990

Anticipated date for last contact with subjects: Mar 22 1990

(7.) If Applicable: Anticipated date on which audio or visual tapes will be erased and(or) identifiers will be removed from completed survey instruments: May 31 1990 (Month Day Year)

(8.) — or Chairperson — Date 1-5-91 — Department or Administrative Unit Professional Studies

(9.) Decision of the University Committee on the Use of Human Subjects in Research:

☒ Project Approved ☐ Project not appr... ...ion required

George G. Karas — 1/11/90 — Sig... — Chairperson
Name of Committee Chairperson — Date