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A Study of the Relationship Between Personality Preference and Vehicle Type

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A STUDY OF THE RELATIONSHIP BETWEEN PERSONALITY PREFERENCE AND VEHICLE TYPE

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An Abstract Presented to the Faculty of the Graduate School of Lindenwood College in Partial Fulfillment of the Requirements for the Degree of Master of Art

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Abstract

The researcher examined the association between personality type and primary vehicle driven. The Myers-Briggs Type Indicator (MBTI) short form was administered to 59 participants. On a questionnaire, respondents chose one of eight vehicle body types. The personality functions of extroversion/introversion, sensing/intuition, thinking/feeling, and judging/perceiving were compared within the groups of vehicle type through chi-square analysis - Goodman & Kruskal's tau. No measurable relationships were found at .05 significance.

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DEDICATION

Sara

You have mystified me from the start. You perplex me, challenge me, and thus continually enrich my universe.

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I wish to thank those who made the completion of this thesis possible:

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CHAPTER 1

Introduction

Personality inventories have proven useful to help clientele understand and change themselves. However, the utility of these tools can be cumbersome, unreliable, and even invalid. To check the reliability of assessment results requires that the counselor look for patterns outside of the assessment device. Counselors may even have to look in other fields to find information that qualifies their observations. One field that may prove beneficial, due to its background in using psychological principles, is the study of marketing.

Marketers have found personality assessment a helpful and profitable tool in their study of consumer behavior. Unfortunately, the reverse is not true. Psychological researchers seem wary of using marketing studies to their advantage. For example, the concepts of *Product symbolism*, *high involvement item identification*, and *Values scales* were coined by psychologists doing marketing studies, but these concepts are not usually considered useful by counseling professionals (Mowen, 1990). However, if counselors are able to extract results from marketing studies about who buyers are, they can then use this information to identify differences and similarities in their clientele.

The first thing that is apparent, when looking at consumer behavior studies, is that all people can be classified as consumers.

Marketers have had success classifying behavioral buying differences into easily understandable groups such as "achievers", who buy luxury cars, or "need driven", who buy used cars. However, these classifications have been of little use to counselors, since they are hardly more than common sense deductions (Dommermuth, 1989). Therefore, to be useful, classifications of buying behavior related to psychological constructs are needed.

Current psychological assessments frequently measure mental illness. Because of this, they are not be useful in finding behavioral differences among the general population (Hirsh & Kummrow, 1989). For example, a researcher might use the Beck depression inventory to study the difference between buying behaviors of the general population, and those with depression. However, this type of study probably would not observe differing buying behaviors of the general population. Therefore, an assessment tool distinguishing differences and similarities within the general population is needed. One instrument that may be suitable to find these distinctions is a personality inventory called the Myers-Briggs Type Indicator (MBTI).

The MBTI, based on Carl Jung's theory of psychological types, was developed by a mother-daughter team, Katherine Myers, and Isabel Briggs. The MBTI values differences among people by describing them as having preferences. There are four groups of two opposing preferences (or functions), and the choice of either of those preferences is put together with the preferences from the other groups to form one of sixteen four letter codes. These preferences are inborn,

and, with practice, are easily recognizable in everyday situations (Gregory, 1992; Hirsh & Kummerow, 1989).

In marketing studies, relationships between psychological differences and buying behavior are found when buying decisions are high in personal importance. A product that involves high personal importance is called a *high involvement item* (Mowen, 1990). High involvement items are related to psychological differences of the owner because the item has potential for communicating nonverbal messages. Nonverbal messages that are conveyed by an inanimate object are said to be symbolic. The high involvement product chosen for this study is the automobile.

The automobile has been more than a means of transportation for over a century. It has become a form of identity expression, or symbolic of the driver's internal nature. However, this is only true if the functional use of the automobile meets the drivers need for transportation, then the higher level need of identification is commonly sought.

Knowing a person's predisposition can be a catalyst in finding a speed and direction in therapy. If a psychologically useful instrument such as the MBTI can measure differences in vehicle type choice, then the type of vehicle can be a useful indicator of the driver's personality predisposition. This information could help to establish a connection between the client and counselor by knowing the client's drive, perception, decisiveness, and life-style (Gregory, 1992; Cohen, Montague, Nathanson, & Swerdlik, 1988). Further research should

concentrate on finding indicators of personality preferences toward the goal of improving assessment technique.

Purpose of Study

The purpose of this research project was to determine if there is a measurable relationship between personality preference and type of vehicle chosen. To answer this question, the null hypothesis formed is that personality preference, as measured by the MBTI, is not associated with choice of vehicle type.

CHAPTER 2

Literature Review

Assessment is an ongoing process that takes place between the client and the counselor. This process is beneficial to helping the client communicate effectively, and understand the respective similarities and differences of their own and other's behaviors (Corey, Corey & Callanan, 1988; Egan, 1990, Hirsh & Kummerow, 1989; Myers-Briggs, 1985). However, assessment can become highly subjective and inaccurate. This often happens when the counselor is in a position of power over the client. The client is then put into a position of accepting or rejecting a label put on him/her by "the expert," and naturally, tries to act favorably.

Even in the field of physics, where differences in atomic weight become significant, observation is still subjective. Evidence at this level is stated by the concept of *Heisenberg's uncertainty principle*. The uncertainty principle, a cornerstone of quantum mechanics, states that some properties of atoms and their particles can be determined simultaneously only to within a certain degree of accuracy. This happens because the process of measuring its position disturbs the particle's momentum, likewise, measuring the particles momentum disturbs its position (Grolier, 1993).

At the psychological level of science, this concept has been demonstrated by the Hawthorn studies - an investigation of the

monotonous working conditions of factory workers in 1927. Elton Mayo examined working conditions at Western Electric's Hawthorn plant in Cicero, IL. Researchers came to the conclusion that output increased not only when variables, such as lighting conditions, were improved, but also when they were made worse (Grolier, 1993). Being studied, rather than the independent variables, caused the workers to change. Observation in itself became the independent variable. This discovery, known as the *Hawthorn effect*, personifies Heisenbergs uncertainty principle by showing us that the simple act of observation changes the very object, process, or person being observed (Becvar & Becvar, 1993; Gregory, 1992; Keeney, 1983; Watzlawick, Weakland, & Fisch, 1974). In essence, this means that even in the most accurate and well designed studies, observation is still subjective.

This does not imply that assessment inventories are useless. Rather, these tools can predict behaviors with relative accuracy. In the process of assessment, the counselor may begin by subjectively observing a behavior and, based on this observation, classify the client into a group. The counselor's observation may be validated by giving the client an assessment inventory. Although good at finding differences for research and pin-pointing pathology, current assessment inventories are often time-consuming, costly, and impersonal (Cohen, Montague, Nathanson, & Swerdlik, 1988). When measuring a client's behaviors occuring in their natural environment the procedures are often disruptive (Walsh & Betz, 1985). By disturbing the client's natural environment observation of those indigenous behaviors becomes inaccurate. Therefore, counselors must find the

least intrusive measurement techniques feasible to make the act of human observation a less disruptive process and a more exact science. To find these measurement techniques requires researchers to look outside the field of psychology to other disciplines common to everyday behaviors. One field addressing this criteria is consumer behavior.

Consumer Behavior

The field of consumer behavior uses many psychological principles. However, because it is usually associated with profit-seeking marketing studies, the information gained is rarely used by human relations professionals. This is unfortunate, as the two fields can not only compliment each other with knowledge, but also with prosperity.

As a study, consumer behavior began in the 1960's. However, as early as the 1900s, writers began using psychological principles to ask the question: "If people's minds operate in varying ways, could such variations influence what they buy and why they buy it?" (Dommermuth, 1989, p. 159). Much research has been developed by social psychologists, anthropologists, and market researchers on the concept of what people buy. However, the motivation behind this research is primarily to determine the most effective means to promote products to consumers (i.e., make money) (Bissell, 1994; Dommermuth,1989; Mowen , 1990).

Much of the research in consumer behavior has focused on the *acquisition phase*. The acquisition phase is the first of three phases of the consumer buying process, acquisition, consumption, and disposition (Mowen, 1990). One important factor associated with the acquisition stage is *product symbolism*. Symbols are things that stand for or express something more complicated, such as, a set of ideas, or an identity (Bissell, 1994; Breger, 1974; Dommermuth, 1989; Jung, 1971; Odajnyk, 1974). For example, many teenagers use sneakers to make symbolic statements to others about whom and what they are. The product becomes a statement of identity through its symbolic meaning. However, not every product can be a reliable measure of identity. What is symbolic today may be easily discarded tomorrow, such as a can of soda, or where a customer shops. These are called *low involvement* items. The only items that can be considered a reliable source of identity are *high involvement* items. These items require a high level of personal investment and processing of information. This is because the consumer must consider the implications of cost and durability, as well as brand and product associations (Aaker, 1994; Mowen, 1990; Silverman, 1994). Obviously, in the purchase of an automobile, these elements are prominent in the decision making process (Aaker, 1994).

Tests have been developed specifically for marketing and are aimed at finding the psychological makeup (psychographics) of consumers. They are usually sociological, or intra-psychic in nature. One, called the *Values and Lifestyles* (VALS) scheme, is derived from the motivational research of Maslow. VALS has been widely used,

but criticized for its construction. Critics of the psychographic approach have argued that psychographic categories overlap so much as to be virtually meaningless. Furthermore, the labels describing the consumer give little more information than one already knows, or can intuitively figure out (Dommermuth, 1989; Mowen, 1990). For example, the VALS scheme has found that people falling into its category of *achievers* tend to buy luxury cars, the *socially conscious* tend to buy gas-efficient cars, *belongers* tend to buy family size cars, and the *need driven* tend to buy used cars. The beef industry has used the VALS scheme to understand its consumers. They found that achievers eat the most beef, and the need driven, eat the least. While the VALS has been useful to confirm many assumptions, it seems to provide little more than common sense observation.

Another popular marketing test, the *List of Values* (LOV) scale, assesses the dominant values of a person. It estimates a person's *internal* nature (self fulfillment, excitement, sense of accomplishment, and self respect), *external* nature (sense of belonging, being well respected, and security), and the *interpersonal* nature (fun and enjoyment, and warm relationships with others). This test has shown good promise in finding internal and external focus differences in buying behavior (Mowen, 1990). While not strictly a psychographic inventory, it has been applied to the same types of problems. For example, the LOV can assess a person's need for *security* by asking if he/she worries a lot about crime, or unemployment. Those with an internal focus might express a need to shop and eat where they could

purchase "natural" foods. In contrast, those with an external focus tend to avoid natural foods, perhaps out of a need to conform with society.

A test that also measures these same factors of internal and external nature, but is more familiar (and useful) to the field of counseling, is the Myers Briggs Type Indicator (MBTI). Like the LOV, the MBTI is applicable to the general population. It values differences, and classifies people according to easily identifiable preferences.

The Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator (MBTI), developed by Isabel Myers and Katherine Briggs in 1942, has become a very popular assessment inventory in therapy, business, educational and many other settings. In all of these settings, the understanding of personality preferences has contributed to areas of goal setting, conflict resolution, team building and countless other activities (Kroeger & Thuesen, 1992). According to its publishers, Consulting Psychologists Press, it is the world's most popular measure of personality dispositions (Myers & McCaulley, 1985). The growing notoriety of type theory testifies to its usefulness in finding and understanding consistencies among individuals. In fact, one study asking people to evaluate a number of personality instruments, identified the MBTI personality inventory as most insightful and as having the most impact on behavior and decisions (Druckman & Bork, 1991).

The concept of psychological type began with Carl Jung, who surmised that human behavior is not random, but is classifiable and

predictable. Based on his clinical observations, he proposed that behavioral differences are caused by personality differences (Jung, 1971; Kaufmann, 1989; Kroeger and Thueson, 1988). Therefore, if behavioral differences are related to personality differences, then it is possible that personality differences are related to the behavior of product consumerism.

Jung's theory of type assumes that each person is born with a genetic predisposition toward four out of eight functions: *extroversion* or *introversion*, *sensing* or *intuiting*, *thinking* or *feeling*, and *judging* or *perceiving* (Gregory, 1992; Jung, 1971; Kroeger & Thueson, 1988; Myers & Myers, 1983; Myers & McCaulley, 1985). Extroverts are prone to communicate more easily than introverts. They talk to think and are energized by people. In contrast, introverts think to talk and more readily tire from extensive contacts with people. Sensors are inclined to take in information through their five senses. In contrast, intuitors often take in information through their sixth sense: intuition. A sensor's time orientation is more to the present and to what is; an intuitor's to the future and what could be. Thinkers tend to make their decisions based on logic while feelers more often decide based on how people will be affected by their choice. Thinkers are also prone to be more analytical, while feelers more emotional. Finally, judgers like to come quickly to closure on a decision or task, while perceivers prefer to wait for more information and are more inclined to procrastinate (Grant et al., 1983; Myers & McCaulley, 1985)

These opposite functions take many personality characteristics out of the realm of psychological jargon and describe them as orderly,

rational, and predictable. With practice, one can easily recognize the sixteen types that emerge when combining the four pairs of opposite preferences. Difference in preference are observable in daily settings, such as at parties, school, work, among friends, or spouses (Coe, 1992; Kroeger & Thuesen, 1988). People appreciate and use this information. It helps them understand personality characteristics and explain and predict people's similarities and differences. It is basically a scientifically designed form of name calling. Kroeger and Thuesen (1988) call this process of observation *type watching*. Type watching uses labels that are not based on psychological sicknesses, abnormalities, or disproportionate drives. Instead, the labels are descriptive of preferences that take place in all people. To understand type preference, Kroger and Thuesen use this analogy, "to understand preference is similar to asking whether you are right or left handed. If you are right-handed, it doesn't mean you never use your left-hand, it just means you prefer the right" (p. 11).

For the MBTI to be useful, one must develop type-watching skills. With practice, recognizing and appreciating the personality preferences of others without the questionnaire can be useful to bosses, lovers, parents, and others. There are times when the MBTI cannot be given, and for a variety of reasons: the test is not available; family members may not want to take the test; or one's children are too young to take the test. The tests concepts are easy to understand; any number of everyday behaviors, such as buying behavior, can hint at the personality preferences of another (Hirsh & Kummerow, 1989; Myers & Myers,1983).

Assuming that high involvement purchasing decisions are a good indicator of identity, and MBTI differences are easily recognizable, then all that is left is to find a high involvement item that can easily be associated with personality type. Given its prominence in American society, the automobile, clearly a high involvement item, may be related to personality type differences.

Automobiles

The automobile was recognized as a form of personal expression soon after its invention in the late 19th century (Shulman, 1994). However, in its beginning, it was almost exclusively a toy of the "Grande bourgeoisie". Although suitable for functional means, autos were rudimentary in mechanics and unsuitable for comfort. Furthermore, the minimum price of automobiles was more than the average annual income of most Americans. Nevertheless, at this stage of its infancy, the automobile fit the fundamental American ideals of individualism, freedom, and adventure (Gartman, 1994; Sachs, 1992; Shulman, 1994; Pettifer & Turner, 1984).

In 1908, Ford brought the automobile to all Americans through mass production of the Model-T. He demanded design technicians find the cheapest, quickest way to produce a strong, durable car, with an adaptable production process. This priority took an aesthetic toll on autos. In 1914, an attempt to speed up production resulted in Ford's decision to discontinue all color finishes on the Model T, announcing that "any customer can have a car painted any color he wants, as long as it is black" (Gartman, 1994). Thus craftsmanship was disregarded

for functional value. Regardless, automobiles still filled an American's need for lifestyle enrichment through consumption, and desire to escape from the oppressive daily working conditions brought by industrialization. The luxury of mobility became available to all, and thus became a cultural standard of class equalization (Gartman, 1994; Shulman, 1994).

Industrialization left little room for workers to express themselves through the inherent benefits found in their vocation (Gartman, 1994). However, in the mid 1920s, with the Model-T's satisfactory success in the area of durability, Ford was able to address individuality by turning to the new profession of industrial design. Consumers sought out style as a means to heighten their standard of living, and were easily attracted to the newer and sleeker design of the Model-A (Gartman, 1994; Sachs, 1992).

By the 1930's automotive stylist realized that people bought cars based, not on rational calculations, but on irrational, emotional whims. This was recognized so fundamentally that skilled artists were brought onto automotive design teams. New designs, although costly to produce (due to retooling) were introduced annually. This became a successful ploy to get customers to buy an new automobile every year. In the thirties, average ownership lasted five years; by 1955, ownership was successfully reduced to two years (Gartman, 1994).

In the 1950s, surveys were conducted to find out what emotional qualities were inherent in automotive consumption. As a result, automobile function briefly became secondary to style. The result was the production of the Edsel. At the time of its conception, it was

believed to be Detroit's icon of automotive style. Ironically, after three short years, it was pronounced a dismal failure. The Edsel design team had sacrificed trunk space, handling, and reliability to survey statistics that were questionable to begin with (Gartman, 1994; Sachs, 1992; Pettifer & Turner, 1984).

In the sixties, automobile marketing researchers used invalid tests and unreliable survey methods to assess the utility of *personality traits* in predicting buying behavior. The researchers found that trait theory inventories had little success at predicting this behavior (Dommermuth, 1989; Mowen, 1990). In the results, there was little relationship found between variables, and the studies were sharply criticized. Individual personality traits were measured, when at the time most families owned just one automobile. Vehicle purchase was actually more of a family decision, and, thus, actually involved the personality traits of each family member (Gartman, 1994).

Today car ownership is largely individual, with seventy percent of the driving population driving their own car, not the family's. Additionally, the basic need of functionality can be met by almost any vehicle, thus the higher need of identity becomes a priority. As a result, studies seeking a relationship between car type and personality have been more successful (Gartman, 1994; Shulman, 1994).

In one study (Aaker, 1994), the automobile industry used the relationship between personality and vehicle type to describe vehicles through "... the metaphor of a brand as a person, with personality and with interpersonal relationships (with customers)" (p. 122). Aaker gives examples of vehicle personification:

> Volvo personified might be perceived as a dependable and reliable man with a European accent, but somewhat stodgy and lacking a sense humor. The customer relationship might be characterized by feelings of being secure and comfortable. In sharp contrast, "Mercedes" as a person might be elegant, upscale, successful, formal, and perhaps a bit stuffy and aloof. It's customer relationship might then be based on the customer aspiring to become associated with the status of belonging to the "Mercedes" group (p. 123).

Similarly, Brunelli (1994) looked at Dodge's successful attempt to give their newest entrant, Neon, a personality. Marketers introduced the car to consumers with a "Hi!" logo, and then let them "get to know" the car via a practical advertising campaign. By using this simple approach, they were able to turn the Neon into an unassuming, trustworthy "friend" (p. S.3).

Another example, studying the association of personality to vehicle type, was performed by a group of anthropologists hired by Porsche Cars North America to find out who its buyers were. The largest portion (twenty-seven percent) believed the Porsche communicated drive, ambition, power and control - obvious personality characteristics. This psychographic study, although appearing

unscientific, raised sales by forty-eight percent ending a seven year slump (Taylor, 1995). Increased auto sales imply that personification, as a sales strategy, definitely works. If personification can be used to sell cars, perhaps counselors can identify this personification and associate it to the client's personality preferences.

Knowing a client's car type and subsequently his/her personality preferences can easily lead to improved communication and understanding of one's similarities and differences. Therefore, it is the intent of this study to determine if there is an association between vehicle type and personality preferences.

CHAPTER 3

Method

Subjects

Fifty-nine participants took part in the study. Twenty five were first year graduate students at a college thirty miles outside of a large mid-west metropolitan city. Another thirty-four participants were recruited from a mental health agency fifty miles from the same city. All subjects voluntarily participated in the study. The age range was 19 through 57 ($X = 34.75$; $SD = 10.28$) with 17 males and 42 females.

Materials

The MBTI has been used with a wide range of populations. The MBTI Form G Self-Scorable (Revised) (1993) inventory was used in this study. The inventory requires less reading but reportedly has comparable reliability and validity (Briggs Myers & McCaulley, 1985). The MBTI Form G Self-Scorable (Revised) includes all items from the regular Form G, except 32 research questions. It combines question items, answer sheet, and basic interpretive information into one form. Basic interpretive information is provided for the participant in a report form. This report form, however, contains only brief descriptions of the sixteen types. Therefore, a copy of Introduction to Type (Briggs Myers, 1987) was made available to the participants. Also, a

description of Jung's theory of type was described so that the participants had a basic understanding of typology.

To assess car type, a questionnaire (see appendix A) was taken from the America On-line Service (1995). Questionnaire items placed vehicle type into eight categories: (1) *four door* (2) *two door* (3) *convertible* (4) *wagon* (5) *passenger van* (6) *sport-utility* (7) *cargo van* and (8) *pick-up*. These categories, standard in the automotive industry, were chosen to minimize the possible effects of socio-economic bias.

Demographics of *age* and *sex* were also taken on the questionnaire. The questionnaire included information regarding the purpose of the study, and assured the participant that the information would be kept confidential. The researcher left a telephone number to give participants an opportunity to discuss the meaning of type by contacting and making an appointment with the researcher.

The publication A guide for selection statistical techniques for analyzing social science data" (2nd ed.) (Andrews, Klem, Davidson, O'Malley, & Rodgers, 1981) was used for selecting the Goodman & Kruskall tau statistical test to analyze the data. The SPSS/PC+ Student ware plus (v.1.0) (Norusis, M. N., & SPSS Inc., 1991) was used to compute the data.

Procedure

An alpha level of .05 was chosen. The MBTI was administered to 25 students at a college during a class's fifteen minute intermission, and on another occasion during the orientation of the fall session. Thirty-four employees of a mental health agency also participated.

They all were recruited at convenience in August of 1995 with the permission of the agency. The researcher instructed participants to read the directions before filling out the MBTI and then, after completing, scoring, and returning the MBTI, the respondents were informed with a short presentation about the usefulness of knowing their type. The researcher then left a phone number where he could be reached if any participants wanted further exploration of their MBTI type codes. Also, the publication *Introduction to Type* (Briggs Myers,1987) was offered to interested students.

The scoring was rechecked by the researcher for accuracy. Each raw score corresponded with a letter which represent one of eight personality functions. Four out of these eight functions are combined in their respective categories resulting in one of a possible sixteen four letter codes (i.e., ESTJ or INFP). These four letter codes were then grouped by the frequency of occurrence and compared to each vehicle types frequency of occurrence. Comparison was made through chi-square analysis using the Goodman & Kruskals tau with the SPSS/PC+ - studentware plus (v. 1) (Norusis & SPSS inc., 1991) statistical program. The following command was entered: "CROSSTABS PER BY VEH /CELLS = COUNT ROW COLUMN TOTAL /STATISTICS CHISQ LAMBDA.". Since the cross-tabulation of personality type by vehicle type resulted in 100% of the cell frequencies less than 5, the researcher further broke down the personality types into four groups consisting of the dichotomous choices of (1) extroverted or introverted, (2) sensing or intuitive (3) thinking or feeling, and (4) judging or perceiving. Goodman & Kruskal's chi-square was then run against

these variables using the SPSS software command of "CROSSTABS VEH BY EI SN TF JP /CELLS = COUNT ROW COLUMN TOTAL /STATISTICS CHISQ LAMBDA." where *veh* = vehicle type, and *ei sn tf jp* = MBTI function variables of extroversion, introversion, sensing, intuition, thinking, feeling, judging, and perceiving. Raw scores of the variables were also available, but appropriate statistical techniques for analysis of this data against the variable of vehicle type was unavailable (Andrews, Klem, & Davidson et al., 1981).

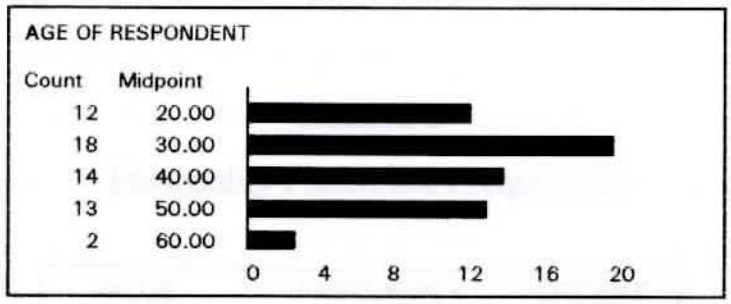
CHAPTER 4

Results

A total of 59 adults (17 male, 42 female) ranging in age from 19 to 57 participated in the study. The mean was 34.75 years; *SD* = 10.28. Figure 1 shows the distribution of participants according to age, in 10-year increments.

FIGURE 1

Age Histogram



Most of the participants (47.5%) drove four-door vehicles, while another 25.4% drove two-door vehicles. All other vehicle choices, with the exception of pickup ($n = 7$) had a frequency below five. Table 1 shows frequencies of vehicle type driven by the respondents.

TABLE 1

Vehicle Type Frequencies

VEHICLE TYPE	Frequency	Percent
4-Door	28	47.5
2-Door	15	25.4
Convertable	0	0.0
Wagon	2	3.4
Pass. Van	4	6.8
Sport Utility	3	5.1
Cargo Van	0	0.0
Pick-up truck	7	11.9
Total	59	100.0

Table 2 shows frequency of opposing personality preferences for each grouping used in the chi-square analysis against vehicle types.

TABLE 2

Personality Preference Frequencies

VALUE	FREQUENCY	PERCENT
1 extraversion	32	54.2
2 introversion	27	45.8
1 sensing	31	52.5
2 intuiting	28	47.5
1 thinking	24	40.7
2 feeling	35	59.3
1 judging	33	55.9
2 percieving	26	44.1

Table 3 shows the raw mean scores of each vehicle type by MBTI function. Standard deviations of each score are in parentheses.

TABLE 3

Raw Score Means

	Vehicle Type					
Preference	**Four-door**	**Two-door**	**Wagon**	**Pass. Van**	**Sport Util.**	**Pick-up**
E	11.9 (7.6)	15.4 (6.2)	15.0 (1.4)	12.3 (2.2)	7.0 (6.9)	11.7 (6.9)
I	14.1 (8.0)	10.9 (6.8)	12.0 (2.8)	15.8 (2.2)	21.3 (6.7)	14.6 (7.5)
S	13.1 (8.0)	13.5 (7.9)	12.0 (11.3)	15.0 (8.2)	10.7 (10.0)	8.9 (7.8)
N	11.3 (6.3)	10.5 (5.7)	15.5 (7.8)	12.8 (2.9)	14.7 (8.7)	15.3 (6.2)
T	9.3 (6.8)	8.8 (5.3)	8.0 (7.7)	13.8 (4.2)	3.3 (2.3)	13.4 (10.6)
F	11.4 (4.7)	11.7 (4.8)	10.5 (10.6)	9.3 (4.9)	17.0 (4.0)	9.7 (7.2)
J	14.3 (8.0)	17.3 (7.7)	14.5 (2.1)	15.0 (5.7)	15.3 (5.5)	14.0 (12.2)
P	12.3 (8.2)	10.8 (7.7)	12.5 (.7)	13.3 (3.9)	12.7 (5.9)	14.1 (8.2)

The extroversion raw mean score was highest for two-door, and lowest for sport-utility. The introversion raw mean score was highest for sport-utility, and lowest for two-door. The sensing raw mean score was highest for two-doors, and lowest for pick-up. Intuition raw mean score was highest for wagon, and lowest for two-door. Thinking raw mean score was highest for passenger van, and lowest for sport-utility. Feeling raw mean score was highest for sport-utility, and lowest for passenger van. Judging mean score was highest for two-door, and lowest for pick-up. Mean scores for perception were highest for pick-up, and lowest for two-door.

The categories of convertible and cargo van were dropped from the analysis for having no responses. Cross-tabulation on the remaining

six car types against the MBTI categories revealed that 66.7% of cross-tabulation cells had fewer than the expected frequency of five (see appendix C). The Chi-square analysis Goodman & Kruskal's Tau compared opposing functions of extroversion/introversion, sensing/intuition, thinking/feeling, and judging/perception between vehicle types revealed no significance at the .05 alpha level. Table four shows Goodman & Kruskal Tau values, the estimate of standard error, and approximate significance for each variable.

Table 4

Goodman & Kruskal Tau Values

Goodman & Kruskal Tau:	Value	Estimate of Standard Error	Approximate Significance
EI			
with Vehicle	.01922	.02072	.34985
with EI	.07374	.06330	.51031
SN			
with Vehicle	.00943	.01252	.74071
with SN	.05276	.05432	.69075
TF			
with Vehicle	.01731	.01926	.41338
with TF	.07904	.05157	.46865
JP			
with Vehicle	.02247	.02368	.25906
with JP	.09378	.05008	.36465

With none of the Tau values falling into the areas of significance, the null hypothesis, that personality preference, as measured by the MBTI, is not associated with choice of vehicle type, cannot be rejected.

CHAPTER 5

Discussion

For the past thirty five years, the field of consumer behavior has actively used psychological constructs to turn a profit. If psychology professionals take an interest in marketing studies as much as marketers take interest in psychological studies, then they can use the information to improve service to their clientele.

Although the literature from marketing research shows that personality is related to buying behavior, the results of this study do not support any significant association between personality preferences and vehicle type selection. However, the results of the study were suspect due to low sample frequencies for each type. Further study using more descriptive statistics (such as raw score means of each preference) may result in finding differences in consumer behaviors associated to personality preferences.

Literature specifically addressing the topic of personality in relation to vehicle type was extremely limited and not research oriented. However, literature describing studies related to this topic was found in the area of consumer behavior. Differences in buying behavior have been studied using marketing instruments measuring personality constructs. However, these marketing instruments tend to have low validity for counseling, and with this in mind, the researcher tried to find the association with the Myers-Briggs Type Indicator, an assessment tool well established in multiple fields of study.

The use of automobiles as a symbolic expression of personality has consistently been alluded to in automotive literature. This trend may continue, as aesthetic and technological options become cheaper and more dynamic. Increasing options will allow consumers to fit automobiles to their personality (Sachs, 1992). Therefore, in future studies researchers may be more successful at finding a relationship between personality and automobile.

Limitations

The present study's results are suspect due to its limitations. Therefore, there is a possibility that differences were not found even if they had existed. There may be four possible reasons for this: experimental design, reliability and validity of the questionnaire, validity of the testing instrument, a lack of randomization in the study sample, and confounding external variables.

Concerning design flaws, future studies may find an association between personality type within vehicle type through the use of more descriptive measurement and analysis techniques. A design that can utilize the interval data of raw scores from each personality function (i.e. extrovert, introvert) may provide the basis for more powerful statistical techniques.

The questionnaire's reliability and validity may be flawed by its "forced choice" design. Essentially, respondents had to chose one out of eight body style categories. This became a problem when respondent vehicle failed to fit in any of the categories. For example, some of the respondents claimed that their vehicles were sport-sedans

but were forced to check the option of four-door. With more descriptive questionnaire choices the distribution may have been more evenly distributed. Future study may focus on giving the participant more descriptive options, to choose from (i.e., sports car vs. sedan, and/or color, year etc.).

Economic situations may also have impacted the study's results. Some respondents remarked that their car had been inherited, or had been a gift. Obviously the decision making process concerning these respondents was not a high involvement one, and their vehicle may not be valid as an indicator of personality type. The respondent's "desired" vehicle choice might be a more reliable indicator (e.g., "If you had a million dollars to spend on any vehicle...").

The use of the MBTI may also have limited the results of the study. Although its reliability for testing personality differences is proven through many years of use, it still may not measure an association to vehicle type. It has been suggested in marketing texts (Dommermuth, 1989; Mowen, 1990) that inventories based on sociological factors are more successful at finding differences in buying behaviors. However, these instruments were not specifically noted.

A disappointing limitation of the study was the skewness of responses in vehicle type. The categories of four- and two-door made up 73.9% of the responses. It is possible that these vehicle types meet the typical needs of the general population more than the other vehicle types. Future study might explore the reasons why others break away from the sample norm or four- and two-door vehicles.

Finally, an obvious study limitation is the convenience of sample. Due to financial constraints, the inclusion of a larger, more uniform sample was not feasible. Related to this is the confounding variable of uncontrolled environmental conditions surrounding vehicle buying decision process and thus any standardization in that process.

Conclusion

The implications of this study are related to the reliability of subjective assessment techniques. Many assessment inventories use behavioral clues to identify underlying psychological preferences of the client. Knowledge of these behavioral clues, related to their underlying constructs, can lead to reasonably accurate assessment without the use of an inventory. Observation of these behaviors in the subject's natural environment without his/her knowledge, may be more useful than information offered in session, because it is less susceptible to observer and subject bias. Buying behavior, observable through very measureable differences in merchandise, happens outside of the typical assessment process, and therefore is less subject to these bias'.

With many different assessment tools, and even more behavioral clues exhibited in consumer behavior, it is evident that the field of psychological assessment related to consumer behavior can be explored at length. Further research, developing assessment techniques, may find behavioral clues in the types of stores people shop at, the residence they have chosen, or any other high involvement behaviors. The meaning of these behaviors has symbolic importance,

which ultimately can only be deciphered accurately by the client - the real "expert". This being the case, maybe assessment should rely on meaning that the client gives to his/her own behaviors.

Appendix A: Cover letter and questionnaire

Dear Survey Participant:

Thank you for taking the time to fill out the Myers-Briggs Type Indicator (MBTI) with this questionnaire. The information from this survey will be used to determine the relationship between your personality type and type of vehicle you drive. It will take approximately ten to fifteen minutes to complete. Participation is completely voluntary. Upon completing the survey, you will know your Myers-Briggs type. Explanation of each type will take place after the survey is completed, or if you wish, you can make an appointment with the researcher to discuss your results in confidence. All results will remain confidential.

Please fill in the blanks with the correct answer

SEX: M___ F___ **AGE**: ___

TYPE OF VEHICLE YOU DRIVE (Primarily):

___Sedan (4-door)

___Coupe (2-door)

___Convertible

___Wagon

___Van (passenger)

___Sport-utility or special-purpose

___Van (cargo)

___Pickup truck

___Other

Appendix B: Raw data

```
DATA LIST FREE /SEX AGE VEH EI SN TF JP E I S N T F J P
PER (A4).
BEGIN DATA.
1 38 8 2 2 1 1 3 24 9 17 15 9 30 8 "ISTJ"
2 24 2 2 1 1 1 6 21 22 2 13 8 19 6 "ISTJ"
1 43 5 2 2 1 1 9 19 6 17 20 2 15 12 "INTJ"
2 47 1 2 2 2 2 7 18 2 22 3 16 3 27 "INFP"
2 49 1 1 2 2 2 22 5 7 15 0 16 5 23 "ENFP"
1 44 1 2 1 1 1 8 20 18 6 13 11 24 3 "ISTJ"
2 40 6 2 2 2 2 3 23 3 22 6 13 15 15 "INFP"
2 30 2 1 2 2 1 21 5 11 11 9 11 21 10 "ENFJ"
2 37 8 1 2 2 2 14 11 4 16 2 20 1 22 "ENFP"
2 28 8 1 2 2 1 17 10 11 11 3 15 20 7 "ENFJ"
2 23 2 1 2 2 1 14 1 1 15 11 11 15 13 "ENFJ"
2 22 1 1 2 1 2 19 8 11 14 13 5 11 15 "ENTP"
2 24 2 2 1 2 2 8 17 15 10 7 11 1 27 "ISFP"
2 30 2 1 1 2 2 21 5 14 9 9 11 11 17 "ESFP"
2 57 1 2 1 2 1 4 23 16 8 1 16 18 8 "ISFJ"
1 26 8 2 1 1 1 2 25 21 8 33 0 15 13 "ISTJ"
1 27 1 1 2 1 2 2 23 1 21 14 9 7 21 "INTP"
2 26 1 1 1 1 2 7 20 16 10 18 6 9 19 "ISTP"
2 33 1 1 1 1 2 19 5 26 4 11 8 13 15 "ESTP"
2 56 1 1 1 1 1 20 4 18 8 14 4 15 14 "ESTJ"
1 38 6 1 1 2 2 15 14 22 5 2 17 10 17 "ESFP"
2 23 1 2 1 2 1 13 15 19 5 8 11 24 3 "ISFJ"
2 22 1 1 1 2 1 22 6 15 12 1 20 18 8 "ESFJ"
2 22 2 1 2 2 2 21 7 8 12 1 14 13 15 "ENFP"
2 23 1 2 2 2 1 5 23 5 19 4 10 21 7 "INFJ"
1 35 1 1 1 1 1 24 3 24 4 21 7 26 2 "ESTJ"
2 26 2 1 1 1 1 21 5 14 9 14 8 19 8 "ESTJ"
2 25 1 2 1 1 2 3 25 18 7 14 11 27 0 "ISTJ"
2 28 2 2 2 1 1 6 22 9 17 14 9 19 11 "INFJ"
1 47 8 4 2 2 2 19 7 1 23 15 15 2 24 "ENFP"
2 37 1 2 2 2 2 4 24 6 20 1 18 5 21 "INFP"
2 26 2 1 2 2 1 16 11 8 12 4 19 26 3 "ENFJ"
2 42 1 1 1 2 1 9 4 10 2 0 18 6 3 "ESFJ"
2 49 1 1 1 2 1 20 7 22 4 0 18 17 8 "ESFJ"
2 24 4 2 1 1 1 14 14 20 10 16 3 16 12 "ISTJ"
```

```
2 32 4 1 2 2 2 16 10 4 21 0 18 13 13 "ENFP"
2 27 2 1 1 1 1 22 6 30 2 11 8 21 8 "ESTJ"
2 45 1 2 1 2 1 3 23 29 3 5 14 28 1 "ISFJ"
2 47 5 1 1 1 1 14 14 10 12 11 11 7 19 "INFP"
1 25 1 1 1 2 1 16 11 18 7 4 16 17 9 "ESFJ"
2 47 1 2 2 2 2 9 15 11 12 11 12 12 13 "INFP"
2 47 1 1 2 1 2 23 3 4 16 16 6 6 22 "ENTP"
1 48 1 2 1 1 1 9 16 19 6 21 8 26 1 "ISTJ"
1 45 1 2 2 2 2 10 17 3 22 6 11 9 16 "INFP"
2 30 2 2 1 2 1 10 19 16 15 6 18 26 0 "ISFJ"
1 36 1 2 1 1 1 4 23 21 4 10 7 22 5 "ISTJ"
1 40 8 1 1 1 1 17 8 16 9 18 4 27 4 "ESTJ"
2 24 1 1 2 2 2 23 3 7 14 5 16 5 23 "ENFP"
1 19 2 1 2 2 2 20 8 1 23 5 18 3 24 "ENFP"
1 24 6 2 2 2 1 3 27 7 17 2 21 21 6 "INFJ"
2 46 2 1 1 2 1 21 6 15 9 4 13 2 10 "ESFJ"
2 46 1 2 2 1 2 8 17 3 21 18 5 7 22 "INTP"
1 49 1 2 2 2 2 3 24 3 21 10 11 13 15 "INFP"
2 40 5 2 1 2 1 13 15 22 11 12 12 19 11 "ISFJ"
2 40 5 2 1 2 1 13 15 22 11 12 12 19 11 "ISFJ"
2 25 2 1 1 2 1 16 12 15 8 3 16 19 10 "ESFJ"
2 25 1 1 1 1 2 18 9 14 10 19 8 6 19 "ESTP"
2 28 2 1 2 2 2 8 18 24 3 21 1 27 0 "ISTJ"
1 44 8 2 2 1 2 10 17 0 23 8 5 3 21 "INTP"
1 56 1 1 2 1 2 20 4 8 18 21 4 10 13 "ENTP"
END DATA.
VARIABLE LABELS SEX "SEX OF THE RESPONDENT
(1)MALE; (2)FEMALE"
/AGE "AGE OF THE RESPONDENT"
/VEH "VEHICLE TYPE (1) FOUR DOOR (2) TWO-DOOR (3)
CONVERTIBLE (4) WAGON (5) PASSENGER VAN (6) SPORT
UTILITY (7) CARGO VAN (8) PICK-UP TRUCK"
/EI "(1) EXTROVERT OR (2) INTROVERT"
/SN "(1) SENSING OR (2) INTUITIVE"
/TF "(1) THINKING OR (2) FEELING"
/JP "(1) JUDGING OR (2) PERCEIVING"
/E "RESPONDENTS RAW EXTROVERSION SCORE"
/I "RESPONDENTS RAW INTROVERSION SCORE"
```

```
/S "RESPONDENTS RAW SENSING SCORE"
/N "RESPONDENTS RAW INTUITING SCORE"
/T "RESPONDENTS RAW THINKING SCORE"
/F "RESPONDENTS RAW FEELING SCORE"
/J "RESPONDENTS RAW JUDGING SCORE"
/P "RESPONDENTS RAW PERCEIVING SCORE"
/PER "RESPONDENTS FOUR LETTER PERSONALITY TYPE".
LIST.
```

Appendix C: Crosstabulation Tables

	EI		
Count Row Pct Col Pct Tot Pct	1.00	2.00	Row Total
1.00	14 50.0 43.8 23.7	14 50.0 51.9 23.7	28 47.5
2.00	11 73.3 34.4 18.6	4 26.7 14.8 6.8	15 25.4
4.00	1 50.0 3.1 1.7	1 50.0 3.7 1.7	2 3.4
5.00	1 25.0 3.1 1.7	3 75.0 11.1 5.1	4 6.8
6.00	1 33.3 3.1 1.7	2 66.7 7.4 3.4	3 5.1
8.00	4 57.1 12.5 6.8	3 42.9 11.1 5.1	7 11.9
Column Total	32 54.2	27 45.8	59 100

	SN		
Count Row Pct Col Pct Tot Pct	1.00	2.00	Row Total
1.00	16 57.1 51.6 27.1	12 42.9 42.9 20.3	28 47.5
2.00	8 53.3 25.8 13.6	7 46.7 25.0 11.9	15 25.4
4.00	1 50.0 3.2 1.7	1 50.0 3.6 1.7	2 3.4
5.00	3 75.0 9.7 5.1	1 25.0 3.6 1.7	4 6.8
6.00	1 33.3 3.2 1.7	2 66.7 7.1 3.4	3 5.1
8.00	2 28.6 6.5 3.4	5 71.4 17.9 8.5	7 11.9
Column Total	31 52.5	28 47.5	59 100.0

Count / Row Pct / Col Pct / Tot Pct	TF 1.00	2.00	Row Total
1.00	13 46.4 54.2 22.0	15 53.6 42.9 25.4	28 47.5
2.00	4 26.7 16.7 6.8	11 73.3 31.4 18.6	15 25.4
4.00	1 50.0 4.2 1.7	1 50.0 2.9 1.7	2 3.4
5.00	2 50.0 8.3 3.4	2 50.0 5.7 3.4	4 6.8
6.00		3 100.0 8.6 5.1	3 5.1
8.00	4 57.1 16.7 6.8	3 42.9 8.6 5.1	7 11.9
Column Total	24 40.7	35 59.3	59 100.0

	JP		
Count Row Pct Col Pct Tot Pct	1.00	2.00	Row Total
1.00	13 46.4 39.4 22.0	15 53.6 57.7 25.4	28 47.5
2.00	10 66.7 30.3 16.9	5 33.3 19.2 8.5	15 25.4
4.00	1 50.0 3.0 1.7	1 50.0 3.8 1.7	2 3.4
5.00	4 100.0 12.1 6.8		4 6.8
6.00	1 33.3 3.0 1.7	2 66.7 7.7 3.4	3 5.1
8.00	4 57.1 12.1 6.8	3 42.9 11.5 5.1	7 11.9
Column Total	33 55.9	26 44.1	59 100.0

References

Aaker, D. A. (1994, Winter). Building a brand: The Saturn story. California Management Review, 36, 114-133.

Andrews, F. M., Klem, L., Davidson, T. N., O'Malley, P. M., & Rodgers, W. L. (1981). A guide for selecting statistical techniques for analyzing social science data (2nd ed.). Ann Arbor, MI: The University of Michigan.

Anonymous, (1995, June 13) Vehicle body style [America On-line, (v. 2.0)] Available: AOL.com /clubs & interests file: shopping /vehicle body style.

Becvar, D. S., & Becvar, R. J. (1993). Family therapy: A systemic integration. (2nd ed.). Needham Hights, MA: Allyn & Bacon.

Breger, L. (1974). From instinct to identity: The development of personality. Englewood Cliffs, NJ: Prentice-Hall.

Brunelli, R. (1994, June 27). Neon lights the motor city. Mediaweek, 4, s2-s4.

Cohen, R. J., Montague, P., Nathanson, L. S., & Swerdlik, M. E. (1988). Psychological testing: An introduction to tests and measurement. Mountain View, CA: Mayfield.

Corey, G., Schneider Corey, M., & Callanan, P. (1988). Issues and ethics in the helping professions (3rd ed.). Pacific Grove, CA: Brooks & Cole.

Dommermuth, W. P. (1989). Promotion: Analysis, creativity, and strategy (2nd ed.). Boston: P. W. S. - Kent.

Druckman, D., & Bjork, R. A. (Eds.). (1991). In the mind's eye: Enhancing human performance. Washington, DC: National Academy.

Egan, G. (1990). The skilled helper: A systematic approach to effective helping (4th ed.). Pacific Grove, CA: Brooks & Cole.

Gartman, D. (1994). Auto Opium: A social history of American automobile design. New York: Routledge.

Gregory, R. J., (1992). Psychological testing: History, principles, and applications. Boston: Allyn and Bacon.

The New Grolier Multimedia Encyclopedia Release 6 [CD-ROM]. (1993). On-line Computer Systems Inc.

Hirsh, S., & Kummerow, J. (1989). Life types. Palo Alto, CA: Consulting Psychologists.

Jung, C. G. (1971). Psychological types. Princeton, NJ: Princeton University.

Kaufmann, Y. (1989). Analytical psychotherapy. In Corsini, R. J. & Wedding, D. (Eds.), Current psychotherapies. (pp. 110 - 152). Itasca, IL: F. E. Peacock.

Keeney, B. P. (1983). Aesthetics of change. New York: Guilford.

Kroeger, O., & Thuesen, J. M. (1988). Type talk: The 16 personality types that determine how we live, love, and work. New York: Delta.

Kroeger, O., & Thuesen, J. M. (1992). Type talk at work: How the 16 personality types determine your success on the job. New York: Delacorte.

Mowen, J. C., (1990). Consumer behavior (2nd ed.). New York: Macmillan.

Myers, I. B., & Myers, P. B. (1980). Gifts differing. Palo Alto, CA: Consulting Psychologists.

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

Norusis, M. N., & SPSS Inc. (1991). SPSS/PC+: Studentware plus. (version 1.0). Chicago: SPSS Inc.

Odajnyk, V. W. (1976). Jung and politics: The political and social ideas of C. G. Jung. New York: University.

Pettifer, J., & Turner, N. (1984). Automania: Man and the motor car. London: Collins.

Sachs, W. (1992). For love of the automobile: Looking back into the history of our desires. Los Angeles: University of California.

Shulman, Y. C. (1992, September 14). Drawing a bead on car buyers for the nineties. Brandweek, 33, 17-19.

Silverman, B. (1994, December). Finding the right image. Sales & Marketing Management, 14, 90-91.

Taylor, A. III., (1995, January 16). Porsche slices up its buyers. Fortune, 131, 24.

Walsh, W. B., & Betz, N. E. (1985). Tests & assessment. Englewood Cliffs, NJ: Prentice-Hall.

Watzlawick, P., Weakland, J. H., & Fisch, R. (1974). Change: Principles of problem formation and problem resolution. New York: W. W. Norton & Company.