

PERSONALITY AND THE INFORMATION SEEKING EFFORTS OF POTENTIAL
INVESTORS

by

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(ABSTRACT)

Whether or not Americans feel they have sufficient information or knowledge to make mutual fund investing decisions, more and more investors are forced to make these choices if they wish to invest for future goals like retirement. The problem for policymakers is deciding how to provide information on mutual funds that is both useful and used by potential investors.

The purpose of this study was to test the relationship between an investor's personality and the effort exhibited by a potential investor in seeking information about a mutual fund investment, as well as the type of information the potential investor considers important.

For this research, "personality" was the independent variable that was hypothesized to influence the dependent variable, investor "information-seeking effort" before an investment decision is made. Personality is composed of the four dichotomous Myers-Briggs® functions, including 1) Extraversion versus Introversion, 2) Sensing versus Intuition, 3) Thinking versus Feeling, and 4) Judging versus Perceiving. A survey was created to identify the mutual fund information considered important by potential investors, and their stated likelihood of seeking out said information before making a purchase decision. The survey for information-seeking effort was pilot-tested on a small sample to test and improve the reliability of the survey before the actual survey was conducted.

The Myers-Briggs® preference indicator and the information-seeking effort survey were administered to 101 college and university students. Eighty-one students met the criteria of: 1) stated familiarity with mutual funds, and 2) no previous experience purchasing a mutual fund.

Upon analysis, results indicated statistically significant differences in the basic-level information-seeking effort of participants based on the potential investor's attitude

toward dealing with the outside world (judging vs. perceiving preference) with judges labeling basic-level information as more important (and indicating they would thus make an effort to seek it) than did perceivers. In addition, results indicated that judge's initial satisfaction with their mutual fund choice was significantly higher, statistically. Lastly, based on a comparison of the mean scores of qualitative information items vs. quantitative information items provided on the survey, quantitative information was labeled as significantly more important (statistically) than qualitative information.

Based on the findings, recommendations for educators, regulators, and policy-makers are provided, and include simplification of the terminology used in point-of-sale mutual fund information and increased financial literacy education for consumers.

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CHAPTER I

Introduction

It is an important skill to be able to collect and use information to make sound decisions, especially when those decisions can substantially impact the future (Janis & Mann, 1977). Currently, consumers who wish to invest their dollars in a mutual fund are faced with the need to select from over eight thousand mutual fund options (Jones, Lesseig, & Smythe, 2005). How do investors determine where to obtain information, which information is important, and how much information is required in order to make a decision about the mutual fund that best meets their future investment goals?

Whether or not Americans feel they have sufficient information or knowledge to make mutual fund investing decisions, more and more investors are forced to make these choices if they wish to invest for future goals like retirement. According to the American Academy of Business, the mutual fund industry currently invests over \$6 trillion for nearly 100 million investors (Russel, 2006). In their latest report, The Investment Company Institute states that nearly \$18 trillion is invested in mutual funds worldwide (Collins, West, Holden, & Steenstra, 2006).

Research by the Investment Company Institute indicates that the increased use of mutual funds is partially due to the popularity of defined-contribution retirement plans and individual retirement accounts in which the investors themselves are responsible for choosing their investments (over the alternative defined-benefit programs, in which an investor's employer (or employer company) makes the majority of investment decisions). Another reason for the increased popularity is the fact that the first wave of "Baby Boomers" (those born between 1946 and 1964, when birth rates rose sharply) is quickly approaching retirement (Collins et al., 2006). This group will need savings and investments to support themselves during their retirement years, and many have utilized mutual funds to meet this need.

When investors purchase mutual funds, the Securities and Exchange Commission (SEC), under the Securities Exchange Act of 1934 and the Investment Company Act of

1940, requires that the investors be provided with detailed point-of-sale disclosure information (SEC, 2006). This information is generally presented in the form of a booklet, known as a prospectus, which contains full disclosure of the fund's information. While the SEC requires the delivery of the prospectus with every mutual fund purchase, it is up to the individual investor to interpret and use the information provided to assist in making a sound decision. According to the SEC:

The prospectus is the fund's primary selling document and contains valuable information, such as the fund's investment objectives or goals, principal strategies for achieving those goals, principal risks of investing in the fund, fees and expenses, and past performance. The prospectus also identifies the fund's managers and advisers and describes its organization and how to purchase and redeem shares. While they may seem daunting at first, mutual fund prospectuses contain a treasure trove of valuable information. The SEC requires funds to include specific categories of information in their prospectuses and to present key data (such as fees and past performance) in a standard format so that investors can more easily compare different funds (SEC, 2003, p. 1).

While prospectuses provide complete and relevant mutual fund information, some have argued that the quantity of information provided may be overwhelming to many investors (Burns, 2006; Donaldson, 2005; Johnson & Bauerly, 2002). The research applied specifically to mutual fund prospectuses has a solid theoretical base as much research has supported the idea of "information overload" (Edmunds & Morris, 2000; Eppler & Mengis, 2004; Miller, 1956). Clarkson wrote that "they [regulators] often believe that if some information is good, more must always be better" and that in some cases, much of the information disclosed is of little benefit to consumers (1988, p. 442). Additionally, some argue that the SEC's 1998 "Plain English" regulation, which requires all documents filed with the SEC to be written using terms that are easily understood by investors, has not met its objective, as "prospectuses... were found to be well below the level considered moderately readable. This despite the SEC making a large, public show of requiring more readable prospectuses" (Johnson & Bauerly, 2002, p. 52).

Because of this concern, the National Association of Securities Dealers Investor Education Center has recognized the need for research in this area, and recently awarded

several hundred thousand dollars to colleges and universities for “research products aimed at making financial product information more meaningful and accessible to the investing public” (NASD, 2006, p. 1). In addition, the President of the Investment Company Institute stated in a speech that the Internet provides a method of distributing a significant level of fund information for those who wish to use it, while those who do not can be provided with the essential information they need, in a form they are likely to use (Stevens, 2006).

In an attempt to begin to address the possible problems associated with the current level of disclosure via the mutual fund prospectus, the National Association of Securities Dealers (NASD) is recommending that the SEC adopt a new two-page disclosure document, known as “Profile Plus” as an improved method of investment disclosure. The “Profile Plus” is designed to provide investors with important and succinct fund information, while directing those who require additional information to visit a specific website that contains more detailed fund information (French, 2005).

However, there are critics of the “Profile Plus.” Critics question the lack of specifics and also question the format of the “Profile Plus” stating that it does not make sense to bury the cost information on the second page (French, 2005). Barbara Roper, the Director of Investor Protection of the Consumer Federation of America, has stated that the SEC needs to increase the amount of usable information provided to investors before a mutual fund purchase to better protect consumers from fraudulent practices, but also states that additional amendments need to be made “to improve the timing, format, and content” of disclosure (2004, p. 16). Roper makes a point that the current information disclosure is not written in a manner that the average investor can easily understand, and that while usable information needs to increase, the total amount provided to potential investors may still decrease when the information’s “legalese” style is improved.

Therefore, the SEC has a dilemma. Current research indicates that there are those who believe that the current mutual fund disclosure is too complicated, and others who state that attempts to simplify mutual fund disclosure is not feasible. What course of action makes the most sense for the SEC? Would a greater number of investors benefit from the current structure for point-of-sale disclosure, or a less

complicated version? How much information do most investors actually use before arriving at an investment decision? The problem for policymakers is deciding how to provide information that is both useful and used.

It is hypothesized in this study that the utilization of Carl Jung's 1923 research into psychological type preference will provide additional insight into these questions. Information-seeking is widely considered to be an important step in the process of decision-making (Janis & Mann, 1977; Nisbett & Ross, 1980; Russo & Schoemaker, 2002). Carl Jung determined in his 1923 study, *Psychological Types*, that most people have a preference for the use of only one of two distinct types of information-gathering functions (sensing vs. intuition). Jungian-inspired research has also shown that, depending on a person's psychological type, different brain functions may be used to cognitively process information for decision-making, even when the data presented are identical (Beyler & Schmeck, 1992; Power & Lundsten, 1997; Taggart, Kroeck, & Escoffier, 1991).

While this study did not attempt to suggest that the information provided in point-of-sale disclosure information is not important to investors, it does investigate the effort put forth by potential investors to collect information about mutual funds before developing a decision as to their preferred fund choice. The purpose of this study was to test the relationship that investor's personality, as measured by the Jungian-inspired Myers-Briggs Type Indicator® (MBTI®), has on the effort exhibited by the potential investor in seeking information about a mutual fund investment, as well as the type of information.

Significance of research

It was the intention of this study to provide empirical evidence that may be utilized by the SEC and the NASD to warrant continued efforts into the improvement and possible simplification of the current point-of-sale disclosure strategy for mutual funds. The information will be useful to policy-makers and regulators of the investment market. The technological changes associated with the information available on the Internet and other sources may warrant changes in current regulatory requirements, and the results of this study will provide regulators with greater insight into what is beneficial to consumers and producers (Durkin, 1988; Kushman, 1988).

If changes are made to the current state of disclosure information, then the mutual fund investing public will benefit from the efforts of this study. In addition, consumer educators, benefits administrators and others who educate the investing public will benefit from this information. This research may also be used by financial planning professionals to further the understanding of investor information needs when purchasing mutual funds, thus improving sales practices. Lastly, researchers in the field of psychological type will also benefit from this study with additional research on type preference and its correlation with information-seeking efforts. In summary, the results of this study could be beneficial to all the major segments of the economic system, consumers, business, government, and education.

Theoretical perspective

This study focused largely on decision-making. While the steps involved in decision-making vary slightly based on the source, the five basic steps involved in the decision-making process are: 1) recognize and define the problem or opportunity, 2) identify and analyze alternative courses of action, and estimate their effects on the problem or opportunity, 3) choose a preferred course of action, 4) implement the preferred course of action, 5) evaluate the results and follow up as necessary (Schermerhorn, Hunt, & Osborn, 2005). The primary focus of this study was on the second step of the decision-making process, and how much effort potential investors dedicate to this step, before moving to the third step of choosing their preferred course of action.

There are numerous decision-making theories and models; however, for the purposes of this research, the primary focus was that of a phenomenon that Herbert Simon has described as “satisficing” or a person’s setting of an aspiration level that does not maximize the level of information sought, but uses bounded rationality to set a level of information collection which is “good enough” (Simon, 1957). Satisficing is a concept that directly applies to purchase decisions (for mutual funds, or any other good or service where options are available), and has been studied in family resource management literature. Deacon and Firebaugh (1988) and Gross, Crandall, and Knoll (1973) both found that consumers will often satisfice when making purchase decisions.

For the purposes of this study, the tested variable for the investor's decision was based on type theory. In this sense, type theory refers to Carl Jung's original 1923 theory as interpreted by Isabel Myers and Katharine Briggs in the Myers-Briggs Type Indicator® personality inventory (see Table 1.1). Jung originally observed two different types of people, which he classified as extraverts and introverts. Jung believed that extraverts obtained their energy from the outside world, while introverts obtained their energy from within. After he first wrote about these two types, Jung continued to observe people over a ten-year period, and further classified differences in perceiving functions (sensation versus intuition) and in judging functions (thinking versus feeling). Jung provided a detailed description of these functions in *Psychological Types* (Jung, 1923) which Myers and Briggs built on in their own research. According to Myers, the dynamic character specified by type theory involves the interaction of a person's four basic preferences (Myers, McCaulley, Quenk, & Hammer, 2003) rather than Jung's original three preferences. According to Myers:

The MBTI instrument identifies four separate dichotomies: Extraversion versus Introversion, Sensing versus Intuition, Thinking versus Feeling, and Judging versus Perceiving. An individual is assumed to have a preference for one of each pair of opposites over the other. The four preferences direct the characteristic use of perception and judgment by an individual. The particular preferences that interact in a person affect not only what is attended to in any given situation but also how conclusions are drawn about what has been perceived (2003, p. 6).

Table 1.1 – Descriptions of the four dichotomies of the MBTI®

**Extraversion-Introversion Dichotomy
(attitudes or orientations of energy)**

Extraversion (E)	Introversion (I)
Directing energy mainly toward the outer world of people and objects	Directing energy mainly toward the inner world of experiences and ideas

**Sensing-Intuition Dichotomy
(functions or processes of perception)**

Sensing (S)	Intuition (N)
Focusing mainly on what can be perceived by the five senses	Focusing mainly on perceiving patterns and interrelationships

**Thinking-Feeling Dichotomy
(functions or processes of judging)**

Thinking (T)	Feeling (F)
Basing conclusions on logical analysis with a focus on objectivity and detachment	Basing conclusions on personal or social values with a focus on understanding and harmony

**Judging-Perceiving Dichotomy
(attitudes or orientations toward dealing with the outside world)**

Judging (J)	Perceiving (P)
Preferring the decisiveness and closure that result from dealing with the outer world using one of the Judging processes (Thinking or Feeling)	Preferring the flexibility and spontaneity that results from dealing with the outer world using one of the Perceiving processes (Sensing or Intuition)

(Myers, McCaulley, Quenk, & Hammer, 2003, p. 6)

At its most basic level, the MBTI® preferences are how individuals approach the following questions (Myers et al., 2003):

1. Where do you prefer to focus your attention? - Extraversion vs. Introversion
2. How do you take in information? - Sensing vs. Intuition
3. How do you make decisions? - Thinking vs. Feeling
4. How do you orient toward the outer world? - Judging vs. Perceiving

A key aspect of type theory is the balance of judgment and perception between their extraverted and introverted worlds. In this instance, balance refers to the theory that whatever function is exhibited externally is balanced by an internal process. An individual with an extraverted preference will have a dominant preference in the extraverted attitude while an individual with an introverted preference will have a dominant preference in the introverted attitude. In both cases, the dominant is balanced with an auxiliary that will be in the opposite attitude of the dominant part of the type (Myers et al., 2003; Pearman & Albritton, 1997). See Table 1.2.

Once the four dichotomous preferences have been identified, the judging vs. perceiving preference works in conjunction with the extraverted vs. introverted preference to determine the dominant type. Consider the following two examples:

1. ENTP* – The “P” preference indicates the perception process, the “N” preference, will be extraverted. The “E” preference indicates that the extraverted process will be dominant. Therefore, the dominant type of the ENTP is “extraverted intuition”.
2. ISFJ* – The “J” preference indicates the judging process, “F” preference, will be extraverted. The “I” preference indicates that the extraverted process will be auxiliary. Therefore, the dominant type of the ISFJ is “introverted sensing”.

Table 1.2 – Traditional hierarchy of type dynamics

Extraverted Types*								
Type	ESTJ	ENTJ	ESFJ	ENFJ	ESTP	ENTP	ESFP	ENFP
Lead	TE	TE	FE	FE	SE	NE	SE	NE
Auxiliary	SI	NI	SI	NI	Ti	Ti	Fi	Fi
Tertiary	NI	SI	NI	SI	Fi	Fi	Ti	Ti
Least Used	Fi	Fi	Ti	Ti	NI	SI	NI	SI

Introverted Types*								
Type	ISTJ	INTJ	ISFJ	INFJ	ISTP	INTP	ISFP	INFP
Lead	SI	NI	SI	NI	Ti	Ti	Fi	Fi
Auxiliary	TE	TE	FE	FE	SE	NE	SE	NE
Tertiary	FE	FE	TE	TE	NE	SE	NE	SE
Least Used	NE	SE	NE	SE	FE	FE	TE	TE

(Pearman & Albritton, 1997, p. 28)

* E = Extraverted S = Sensing T = Thinking J = Judging
 I = Introverted N = Intuitive F = Feeling P = Perceiving

Variables

For this research, “personality” was the independent variable that was hypothesized to influence the dependent variable of investor “information-seeking effort” before an investment decision was made.

Personality was composed of the four dichotomous MBTI® functions, and information-seeking effort was the stated importance placed on information, and the degree of effort that the potential investor stated he/she would make to seek out said information. Information levels sought were further classified as basic, intermediate, advanced, and total and were quantified as an ordinal (1-5) Likert scale of information sought within each level. In this study, the “level of information” referred to the importance placed on different mutual fund characteristics, and the stated effort that a participant would make to seek said information.

Research questions

Nine research questions were developed for this study. The first four questions inquired about the relationship between information-seeking effort and personality type. Questions five, six, and seven inquired into the type of information sought by personality type, and overall. Question eight inquired into the satisfaction of the potential investor’s initial decision based on the amount of information acquired before the investment purchase, and question nine inquired into the satisfaction of the potential investors by personality type.

The research questions for this study were as follows:

1. Does personality (as determined by the MBTI®) influence the total information-seeking effort of a potential mutual fund investor in the investment decision-making process?
2. Does personality (as determined by the MBTI®) influence the basic-level information-seeking effort of a potential mutual fund investor in the investment decision-making process?
3. Does personality (as determined by the MBTI®) influence the intermediate or mid-level information-seeking effort of a potential mutual fund investor in the investment decision-making process?

4. Does personality (as determined by the MBTI®) influence the advanced-level information-seeking effort of a potential mutual fund investor in the investment decision-making process? 4(b) Do any personality types consistently seek an above average level of information, and if so, which types make this level of information-seeking effort.
5. Is there a relationship between personality type and a preference for qualitative information?
6. Is there a relationship between personality type and a preference for quantitative information?
7. Is there a general preference for quantitative or qualitative information when potential investors seek information on a mutual fund?
8. Is there a relationship between the level of information sought by an investor before the decision is made and the stated satisfaction with said decision?
9. Is there a relationship between personality type and the stated satisfaction with the investment decision?

Hypotheses

Based on the personality profile preferences described above and the research questions developed, the null and alternative hypotheses for this study were as follows:

Hypothesis One: Information-seeking effort for total information

1. H0 – In respect to the total information-seeking effort when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$.
There are no differences among the personality preferences.
2. H1 - In respect to the total information-seeking effort when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$.
There are differences among the personality preferences.

Hypothesis Two: Information-seeking effort for basic-level information

1. H0 – In respect to the information-seeking effort for basic information when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.

2. H1 - In respect to the information-seeking effort for basic information when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Three: Information-seeking effort for intermediate-level information

1. H0 – In respect to the information-seeking effort for intermediate-level information when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to the information-seeking effort for intermediate-level information when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Four: Information-seeking effort for advanced-level information

1. H0 – In respect to the information-seeking effort for advanced-level information when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to the information-seeking effort for advanced-level information when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Five: Information-seeking effort for qualitative information

1. H0 – In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 1, 4, 8, 11, 12, 14), $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 1, 4, 8, 11, 12, 14), $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Six: Information-seeking effort for quantitative information

1. H0 – In respect to information-seeking effort when it comes to the level of importance placed on the quantitative questions (questions 2, 3, 5, 6, 7, 9, 10, 13, 15), $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 2, 3, 5, 6, 7, 9, 10, 13, 15), $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Seven: Preference for qualitative or quantitative information

1. H0 – In respect to information-seeking effort when it comes to a preference for either qualitative or quantitative data among all personality types, $\mu_{Qual} = \mu_{Quan}$. There is no preference for either qualitative or quantitative information.
2. H1 - In respect to information-seeking effort when it comes to a preference for either qualitative or quantitative data among all personality types, $\mu_{Qual} \neq \mu_{Quan}$. There is a preference for either qualitative or quantitative information.

Hypothesis Eight: Relationship between information-seeking effort and satisfaction

1. H0 – In respect to the degree of satisfaction expressed, there is no relationship between satisfaction and the degree of information sought. $\rho = 0$.
2. H1 – In respect to the satisfaction expressed, there is a relationship between satisfaction and the degree of information sought. $\rho \neq 0$.

Hypothesis Nine: Relationship between personality type and satisfaction

1. H0 – In respect to satisfaction expressed with the purchase decision of a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to satisfaction expressed with the purchase decision of a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Definitions

Advanced-level information – Sophisticated characteristics and features of a mutual fund. May be perceived as somewhat more complex than intermediate-level information, and significantly more complex than basic information. Includes descriptions of statistical risk attributes, historical share price, and a breakdown of the fund's fees.

Basic-level information – Fundamental characteristics and features of a mutual fund, including a basic overview of the fund's goals, fees, and past performance.

Dominant functions - The most utilized preference, the preference in which individuals are most aware and on which they rely most heavily. Based on the combination of an individual's MBTI® preferences, the dominant function will either be Extraverted Sensing, Extraverted Intuition, Extraverted Thinking, Extraverted Feeling, Introverted Sensing, Introverted Intuition, Introverted Thinking, or Introverted Feeling (Myers et al., 2003).

Extraversion (E) – Paired with Introversion on the E vs. I dichotomy. Personal preference regarding the attitude or orientation of energy. Preference for directing energy mainly toward the outer world of people and objects (Myers et al., 2003).

Feeling (F) – Paired with Thinking on the T vs. F dichotomy. Personal preference for the function or process of judging. Preference for basing conclusions on personal or social values with a focus on understanding and harmony (Myers et al., 2003).

Information-seeking effort – The effort made by an individual in the decision-making process to identify and analyze courses of action, and estimate their effects on a problem or opportunity.

Intermediate-level information – Mutual fund characteristics and features that may be perceived as somewhat more complex than basic information, but less complex than advanced information. Includes information on the fund's distributions, turnover, and investment advisor.

Introversion (I) – Paired with Extraversion on the E vs. I dichotomy. Personal preference regarding the attitude or orientation of energy. Preference for directing energy mainly toward the inner world of experiences and ideas (Myers et al., 2003).

Intuition (N) – Paired with Sensing on the S vs. N dichotomy. Personal preference for the function or process of perception. Preference for focusing on perceiving patterns and interrelationships (Myers et al., 2003).

Judging (J) – Paired with Perceiving on the J vs. P dichotomy. Personal preference for dealing with the outside world. Preference for decisiveness and closure that result from dealing with the outer world using one of the Judging processes (Thinking or Feeling) (Myers et al., 2003).

Mutual fund – An open-ended fund operated by an investment company which raises money from shareholders and invests in a group of assets, in accordance with a stated set of objectives.

Myers-Briggs Type Indicator® (MBTI®) – Instrument designed to identify eight dichotomous constructs that describe equally legitimate but opposite ways in which a person uses his/her mind (Myers et al., 2003).

Perceiving (P) - Paired with Judging on the J vs. P dichotomy. Personal preference for dealing with the outside world. Preference for flexibility and spontaneity that results from dealing with the outer world using one of the Perceiving processes (Sensing or Intuition) (Myers et al., 2003).

Preferences – The MBTI® instrument identifies four separate dichotomies: “Extraversion verses Introversion, Sensing versus Intuition, Thinking versus Feeling, and Judging versus Perceiving. An individual is assumed to have a preference for one of each pair of opposites over the other” (Myers et al., 2003, p. 6).

Prospectus – Written documentation of a mutual fund’s features, including its objectives, risks, and strategies, and fees for the investment.

Qualitative information – Data available for observation that does not involve measurements or numbers. Contrasted with quantitative information.

Quantitative information – Data available for observation that involves measurements or numbers. Contrasted with qualitative information.

Satisfaction – A feeling of contentment obtained from having made a choice that is perceived as right or correct.

Sensing (S) – Paired with Intuition on the S vs. N dichotomy. Personal preference for the function or process of perception. Preference for focusing mainly on what can be perceived by the five senses (Myers et al., 2003).

Thinking (T) – Paired with Feeling on the T vs. F dichotomy. Personal preference for the function or process of judging. Preference for basing conclusions on logical analysis with a focus on objectivity and detachment (Myers et al., 2003).

Type Theory – Carl Jung’s theory (as interpreted by Isabel Myers and Katharine Briggs) that describes individual differences by identifying personal preferences on the basis of four dichotomous constructs (Myers et al., 2003).

Summary

More and more consumers are using mutual funds as their investment tools. However, there is debate as to how best to inform investors about their mutual fund options. The current method is to provide every mutual fund purchaser with a prospectus that describes the mutual fund’s features and characteristics in great detail. Is this the best method for informing consumers? Do investors value having access to this information, and do they use it when purchasing a mutual fund? This study investigated what information (type and quantity) consumers made an effort to seek out and use before making a mutual fund purchase decision, utilizing the Myer’s Briggs Type Indicator® as the independent variable.

CHAPTER II

Review of Literature

This study focused on the information-seeking characteristics of investors based on individual personality. A review of the literature describes information-seeking (generally as a component of decision-making), personality (as described by the functions of the MBTI®), and the need of consumers to have access to clear and comprehensible investment information.

This review begins by describing literature on the MBTI®. This preference indicator has been utilized in numerous studies in an attempt to predict behavior, and has proven to be reliable and valid in similar research areas (Myers et al., 2003), though no study has ever been performed on the information-seeking efforts of mutual fund investors. The MBTI® is the most widely used assessment of individual differences available, with more than two million assessments administered annually.

The second component of the literature review is a description of the research on individual efforts to seek out information before making a decision. The decision-making effort of individuals is a process. The process begins with feelings of discomfort or a desire to change. In this case, those feelings will be associated with investment options that may dramatically impact future funds. Because of this discomfort, information will be sought (Paolucci, Hall, & Axinn, 1977). However, the underlying question of this study is just how much information will be sought before actual discrimination (the decision) takes place? Several studies have investigated consumer information-seeking efforts before making purchase decisions (Russo & Schoemaker, 2002), though no study has applied this research to mutual fund investments. There have been several studies on the information-seeking efforts of consumers as a whole, which are identified in this literature review.

Personality and the MBTI®

Numerous lists of personality traits have been developed and numerous tests have also been created to measure these traits. However, the Myers-Briggs Type Indicator®

(MBTI®) is different due to several important distinguishing features (Myers et al., 2003).

The MBTI® is dichotomous (divided into two equal branches) and focuses on basic attitudes and mental functions. It is a versatile assessment tool with an increased scope of practical applications compared with similar tools (Myers et al., 2003).

There have been numerous studies that utilize the MBTI® in an effort to predict behavior (Carskadon, 1999). Due to the myriad of available research on the indicator, in the MBTI® Manual, Myers et al. (2003) categorize the research of the MBTI® into five categories: Counseling and psychotherapy, education, career counseling, organizational settings, and multicultural settings.

The research conducted on the educational aspects of the MBTI® has the most direct relationship to this study, especially research concerning cognitive processes. Some studies go so far as to show that the brain's electrical activity demonstrates different levels of stimulation based on MBTI® preferences (Wilson & Languis, 1989). For instance, experimentation demonstrates that given some stimuli, extraverts experience lower brain arousal levels than the same conditions for introverts (Wilson & Languis, 1990).

Extraversion vs. Introversion

There has been other research that investigates the different characteristics of the extraversion/introversion dichotomy. Consistent with the findings associated with brain activity, and Jung's original theory, are the demonstrated preferences of extraverts to learn by collaboration while introverts prefer reflective observation (Elliott & Sapp, 1988; Fourquarean, Meisgeier, & Swank, 1990). Gordon, Coscarelli, & Sears (1986) found that extraverts prefer to learn through active experimentation, experience, or tactile methods, while introverts prefer to learn by either the visual or auditory methodologies (Fourquarean et al., 1990).

Sensing vs. Intuition

According to Myers (2003), the sensing vs. intuition dichotomy determines the preference for collecting information. Research has demonstrated that sensing types prefer to obtain information sequentially (Drummond & Stoddard, 1992) while intuitive types prefer holistic approaches to learning, looking for the whole as opposed to the sum

of parts (Beyler & Schmeck, 1992). Utilizing a simple example, sensors have a preference for noticing individual trees, while intuitives prefer to notice a forest. As with the extravert/introvert dichotomy, brain hemispheric differences have been analyzed with intuitive types favoring the left hemisphere while sensing types favor the right hemisphere (Beyler & Schmeck, 1992; Power & Lundsten, 1997; Taggart et al., 1991).

While the functionality of the hemispheres of the human brain continues to be studied, a review of the literature on the right hemisphere versus the left hemisphere does reveal differences in each hemisphere's function of information processing (Grabowska & Nowicka, 1996). Typically, it is believed that the right hemisphere processes speech, analysis, and time, while the left hemisphere processes patterns, context, and creativity.

Finally, in a study of academics and learning, it was found that intuitive types feel more comfortable in learning environments than sensing types (Apostal & Trontvent, 1989).

Thinking vs. Feeling

Based on research findings, it appears that the learning characteristics associated with thinking and feeling types parallel those of sensing and intuition types. For instance, Gordon et al. (1986) found that thinking types prefer a systematic approach to learning similar to the sequential learning preference of sensing types. Feeling types, on the other hand, prefer holistic (big picture) approaches to learning (Beyler & Schmeck, 1992). In addition, according to Shiflett (1989), those with thinking type preferences utilize the brain's left hemisphere to a greater degree than feeling types, who's preference correlates with a greater utilization of the right hemisphere.

Judging vs. Perceiving

When it comes to education, Elliott & Sapp (1988) state that those with the judging preference are more studious people who enjoy educational participation and even enjoy the classroom environment. They like settings with clear structure and sequence (Drummond & Stoddard, 1992; Fourqurean et al., 1990) and focus on fact retention and methodical study (Beyler & Schmeck, 1992) utilizing more of the brain's left hemisphere (Taggart et al., 1991). Those with the perceiving preference are the tactile (hands-on) learners (Fourqurean et al., 1990) with somewhat random approaches to learning (Drummond & Stoddard, 1992) and a preference for right-side brain activity

(Taggart et al., 1991). Perceiving types generally have lower self efficacy when it comes to academia than judging types (Apostal & Trontvent, 1989).

Dominant Functions

Myers (2003) states in the MBTI® Manual that “to work with individuals as a teacher, counselor, principal, or in other professional roles necessarily requires dealing with a whole person.” Therefore, per Myers theoretical basis, to further understand the impact of type on behavior, it is necessary to study the type dynamics of dominant functions in addition to each function’s individual preferences. The study of dominant functions has added an entire dimension to the study of type, as well as what Roger Pearman refers to as “a messy complexity” (Pearman & Albritton, 1997).

Jung’s original theory did not only identify and describe a person’s type (for extraversion versus introversion, sensing versus intuition, etc.), but it also focused on the dominant and auxiliary functions of each attitude (Jung, 1923).

Pearman and Albritton (1997, p. 26) state that “Jung and Myers hypothesized that among a person’s preferences is a dominant, or leading, mental process (Sensing, Intuition, Thinking, or Feeling) that is used in the preferred attitude (Extraversion or Introversion). They further theorized that there is an auxiliary or supporting mental process (again either Sensing, Intuition, Thinking, or Feeling) that is used in the non-preferred attitude.

Myers (2003) describes these functions as follows:

1. For each type, one function will lead, or be dominant. This is the first function.
2. Members of each type will mainly use their first function in their favorite attitude. That is, Extraverts use the first function mainly in the outer world of Extraversion; Introverts use the first function mainly in the introverted world of concepts, ideas, and inner experience.
3. In addition to the first, or dominant, function, a second or auxiliary function provides balance.
4. The auxiliary function provides balance between Extraversion and Introversion. For Extraverts, the first, or dominant, function will be extraverted, and the second, or auxiliary, function will typically be used in the

inner world. For Introverts, the first, or dominant, function will be introverted, and the second, or auxiliary, function will typically be used in the outer world. With the auxiliary, or second, function, therefore, a person develops comfort and facility in living in both the outer world and the inner world (2003, p. 29).

Pearman and Albritton (1997) have summarized the research on the traditional hierarchy of type dynamics and developed a list of descriptors for each dominant type. In describing the research they performed on the dominant types, Pearman and Albritton write:

Each study was examined to make sure that the people in the study were typical – reading habits or management practices, perhaps, but not depression or eating disorders. We sought to identify research that used adequately large samples, sufficiently controlled conditions, and included assessment behavior via both a self-report format and observation reports from others. Once all the studies were selected, we began looking for overlaps in the results. When the same descriptor for a type showed up in three different studies, it met our criteria for inclusion here (1997, p. 32).

Pearman and Albritton’s descriptors are as follows:

Table 2.1 – Pearman and Albritton’s descriptions of dominant types

Type Descriptions

Introverted Sensing

Dominant for ISFJ, ISTJ; Auxiliary for ESFJ, ESTJ

Thoughtful realist

Unhurried

Tests ideas with facts

Careful, calm, and steady

Consistent and reliable

Fastidious

Loyal

Unassuming

Extraverted Sensing

Dominant for ESTP, ESFP; Auxiliary for ESTP, ESFP

Action-oriented realist
Practical
Reliable
Forceful
Thorough
Excitable
Good-natured
Knows who, what, when, where
Good at easing tensions

Introverted Intuition

Dominant for INFJ, INTJ; Auxiliary for ENFJ, ENTJ

Values knowledge for its own sake
Introspective
Scholarly
Likes ideas and theory
Evaluates motives
Sees to the heart of important problems
Appreciative
Formal
Values intellectual matters

Extraverted Intuition

Dominant for ENTP, ENFP; Auxiliary for INTP, INFP

Action-oriented innovator
Adaptable
Verbally fluent
Resourceful
Active, enthusiastic
Friendly, jolly
Uninhibited
Likes rapid tempo

Introverted Thinking

Dominant for INTP, ISTP; Auxiliary for ENTP, ESTP

Reflective reasoner
Quiet, detachedly curious
Analyzes vs. runs his or her world
Organizes ideas
Values intellectual matters
Seen as independent and autonomous
Often critical and skeptical
Original and imaginative
Often unconventional

Extraverted Thinking

Dominant for ESTJ, ENTJ; Auxiliary for INTJ, ISTJ

Action-oriented thinker
Critical, resourceful
Proactive and systematic
Has a basis formula about the world
Energetic, prefers a rapid pace
Reasonable and analytical
Expressive, fluent
Mentally versatile
High aspirations

Introverted Feeling

Dominant for ISFP, INFP; Auxiliary for ENFP, ESFP

Reflective harmonizer
Quiet, deferent
Cares about values and people
Artistic (aesthetic)
Introspective
Unusual or unconventional thinking
Arouses liking and acceptance in people
Sensitive

Extraverted Feeling

Dominant for ESFJ, ENFJ; Auxiliary for INFJ, ISFJ

Action-oriented cooperator

Sympathetic

Sociable and friendly

Empathetic

Affiliative, warm

Wants inclusion

Outgoing, gregarious

Idealistic

Facially expressive

Energetic

(Pearman & Albritton, 1997, pp. 34-37)

Therefore, while (according to Jung's original theory) only the sensing vs. intuitive preference deals directly with information-seeking effort, this study utilizes the dichotomous relationship of all the functions to determine dominant preferences (as described by Pearman and Albritton) in the determination of hypotheses.

While Pearman and Albritton determined their dominant function features from a study of literature, there are additional studies that add validity to their findings. These studies are described below in the findings of research performed on the dominant functions.

Dominant Introverted Sensing (ISTJ and ISFJ)

Based on research, Myers (2003) states that the ISTJ and ISFJ types share a preference for quietly gathering facts, and storing the facts for later use. Of the sixteen total types, the ISTJ ranks in the top four when it comes to the highest overall undergraduate grades (Schurr & Ruble, 1986). Similar to the finding on ISTJs, Roberds-Baxter and Baxter (1994) found ISFJs to be the least likely of all types to have significant trouble in school.

Dominant Introverted Intuition (INFJ and INTJ)

Academic achievement appears to be the typical accomplishment for INFJs and INTJs. According to one study, introverted intuitive types had the highest overall grades in college (Woodruff & Clark, 1993). In a larger study, INFJs demonstrated the strongest

persistence in college (lowest drop out rates) and among the top four types in overall grades (Schurr & Ruble, 1986).

Dominant Extraverted Sensing (ESTP and ESFP)

According to Myers (2003), a preference for dominant extraverted sensing is the least likely to be patient with the demands of traditional academic life. They prefer to experience the world directly, actively, and without restriction. Woodruff and Clarke (1993) found them to have the lowest overall college grades, however a study by Anchors, Robbins, and Gershman (1989) found that these types had the highest college retention rates.

Dominant Extraverted Intuition (ENFP and ENTP)

ENFP and ENTP types tend to dislike routine. Their preference for extraverted intuition makes them the most noticeably enthusiastic regarding new possibilities (Myers et al., 2003). This preference for exploration may impact their educational endeavors in two interesting ways. Utilizing a ten-year follow-up, one study found ENTPs among the most likely to fail to graduate from a 4-year institution (Macdaid, Kainz, & McCaulley, 1984) but at the same time NTs were the most likely to have attended graduate school. Fitting with these results, another study sums up ENFPs and ENTPs as academically talented, but likely to have trouble in school (Roberds-Baxter & Baxter, 1994).

Dominant Introverted Thinking (ISTP and INTP)

Myers (2003) states that these types “are best known for their quiet analysis of a situation without being distracted by other people. They will work in isolation for long stretches, apparently without the need for breaks or to meet the social requirements of friends or family.” Moody (1988) found INTPs among the most likely college students to take a foreign language course.

Dominant Introverted Feeling (ISFP and INFP)

Myers describes the ISFP and INFP types as “among the gentlest of the types” and “quietly, deeply, and personally invested in whatever they do” (2003, p. 256). Research has shown that INFPs are able to learn foreign languages better than any other type (Ehrman & Oxford, 1990) though they have also been found to be the least persistent in college, often failing to graduate (Provost, 1985).

Dominant Extraverted Thinking (ESTJ and ENTJ)

Myers (2003) writes that dominant extraverted thinking types “like to control all that they can.” Both types were among the top four types in Schurr and Ruble’s (1986) study of highest overall undergraduate grades.

Dominant Extraverted Feeling (ESFJ and ENFJ)

ESFJ and ENFJ are labeled as the most friendly and supportive types by Myers (2003). In a study by Grindler and Stratton (1990), ESFJs were the most frequent type to major in education.

Personality type and decision-making

Several studies have dealt primarily with personality and decision-making. For instance, a study on the number of first-year college students who remained undecided in their majors showed that extraverted, intuitive, and perceiving types were overrepresented in a sample (Kelly & Lee, 2005), possibly indicating a difference in decision-making and information-seeking techniques.

In a study closely related to this research, it was found that personality type, as determined by the MBTI, was a predictor of risk tolerance as measured by expected utility theory (Filbeck, Hatfield, & Horvath, 2005). However, their findings did not necessarily match their hypothesis. While they expected that the functions of Extraversion, Intuition, Thinking, and Perception would most likely correlate with a higher risk tolerance, only the Thinking function proved to be more risk tolerant. In fact, a Judging preference proved to be more risk tolerant in their study than did a Perception preference and a Sensing preference demonstrated a higher tolerance for risk attributes than did an Intuitive preference. No correlation was found for the Extraversion versus Introversion dichotomy.

With this myriad of information on MBTI® type, and its relationship to generalized personality characteristics, there is certainly reason to believe that type may also influence an investor’s degree of effort exhibited in seeking out information on a mutual fund prior to making an investment.

Information-seeking

Russo and Shoemaker (2002) state that the backbone of almost any decision-making process is framing, gathering intelligence, coming to conclusions, and learning

from experience. In fact, most of the literature on decision-making includes some form of “information-seeking” component (Dawes, 1988; Fischhoff, Goitein, & Shapira, 1981; Janis & Mann, 1977; Nisbett & Ross, 1980; Paolucci et al., 1977). This study is primarily concerned with the area of gathering intelligence, and specifically, the limits of a consumer’s ability to gather and process information. With the technological advances associated with the Internet and other information sources, American consumers are finding themselves in decision-making situations where information is plentiful, and may need to be filtered (Lee & Cho, 2005). Otherwise, consumers risk being confused by “information overload”.

Sproles and Kendall (1986) developed an instrument to measure the mental characteristics of consumers’ decision-making processes and label the confusion some consumers feel by having too much information. This instrument is known as the Consumer Styles Inventory. While it is stated that additional research needs to be performed to assess the instrument’s validity, it did demonstrate the complexity of consumer decisions. In a follow-up to their 1986 research, Sproles and Kendall (1990, p. 144) explore the interrelationships between individual learning styles and specific consumer decision-making styles and discovered a strong correlation between them. “Perhaps the most important findings with educational implications are the relationships found between perfectionistic, high-quality conscious consumer decision-making and an active and serious approach to learning. These findings imply that consumers seeking the best results (e.g., quality, performance) in their purchases have a particular learning style that employs systematic and careful market search, observation, and learning.”

According to Janis and Mann (1977, p. 129), “mulling over the uncertainties of a major decision and preoccupation with the search for an ideal choice often lead nowhere and may even be detrimental. The obsessed person may become so overloaded with information that he ends up failing to appreciate the most important factors that need to be taken into account.”

Information overload

Additional studies have supported the notion of information overload, or receiving too much information. This concept has also been referred to as: cognitive

overload (Vollmann, 1991), data smog (Shenk, 1997) and more recently, information fatigue syndrome (Wurman, 2001).

Most studies agree that consumers tend to make better decisions with more information, in some cases with decreased marginal utility; however, there is a tipping point when consumers actually find additional information confusing and frustrating, thus decreasing the performance associated with a decision (Chewning & Harrell, 1990; O'Reilly, 1980; Schick, Gorden, & Haka, 1990).

Given the risk of information overload, how do consumers choose to collect and use information for an investment decision? Some investors choose to seek help from other sources (Joo & Grable, 2001) while others engage in a decision framework known as “satisficing” (Simon, 1957). Satisficing is a method of decision-making where (in this case) investors would settle on a decision that is “good enough”. While they understand that more information is available, they choose to make the decision without committing any additional time to the information-seeking effort (Deacon & Firebaugh, 1988; Gross et al., 1973). In fact, perceived time constraint has been shown to increase satisficing behavior (Weenig & Maarleveld, 2002).

Satisficing has been studied as it is applied to investment decision-making. Francesca and Alessandra (2006) researched benchmarking (a form of satisficing) as it applies to the modeling of investment risk. In general, benchmarking means that one has identified historical data against which a data set may be compared, both now and in the future. Francesca and Alessandra developed a decision criterion that represents an application of the benchmarking procedure to finance, utilizing a risk measure. However, there are thousands of benchmarks, and the research did not address the issue of the benchmark choice, which in itself may contribute significantly to information overload.

Summary of literature review

There are numerous studies on the Myers-Briggs Type Indicator®. In fact, there is a journal dedicated solely to studies that utilize the instrument. For the purposes of this study, the dominant functions of the MBTI® are the primary focus. While still prevalent, there is substantially less literature that describes only the dominant functions, especially in their relation to behaviors related to seeking information. Most literature includes information-seeking as a component in the decision-making process. It is this component

that is the primary focus of this study; however, there is a significant level of research that identifies error in the information-seeking effort of consumers, including information overload, bounded rationality, and satisficing.

CHAPTER III

Methodology

The purpose of this study was to test the relationship that an investor's personality, as measured by the Jungian inspired Myers-Briggs Type Indicator® (MBTI®), has on the effort exhibited by the potential investor in seeking information about a mutual fund investment, as well as the type of information considered important. This research specifically investigated the information-seeking efforts of the eight dominant functions of the MBTI® in regard to mutual fund features and characteristics.

Due to the fact that there was no treatment associated with this study, this research was most closely related to a non-experimental design. More specifically, the design was that of multiple categorical independent variables in a non-experimental design. For statistical purposes, the design was most closely related to that of a factorial design and was analyzed with correlation, T-tests, analysis of variance, and pairwise post-hoc analysis.

For this research, the participants were provided with Form M of the Myers-Briggs Type Indicator®, and once completed, were labeled according to their dominant functions (TE, FE, SE, NE, TI, FI, SI, NI). Note that the MBTI® uses four dichotomies to develop a total of sixteen personality types, but for the purposes of this research, only the information-seeking efforts of the eight dominant functions were hypothesized. Participants were also provided with a survey to investigate the degree of importance they placed on mutual fund characteristics, and the effort they would make to obtain more information on those characteristics.

The research variables may be simplified as follows:

A ₁ B ₁	O ₁
A ₂ B ₁	O ₂
A ₁ B ₂	O ₃
A ₂ B ₂	O ₄
A ₁ C ₁	O ₅
A ₂ C ₁	O ₆
A ₁ C ₂	O ₇
A ₂ C ₂	O ₈

Where: A = the “extraverted” or “introverted” indicator test results
 B = the “sensing” or “intuitive” indicator test results
 C = the “thinking” or “feeling” indicator test results
 O = the scores that reflect the individual’s information seeking effort

These simplified variable labels (A, B, and C) correspond with the dominant functions of the Myers-Briggs Type Indicator®. For each individual, the preference for the dominant attitude (sensing, intuition, thinking, or feeling) was either extraverted or introverted. The simplified variable label (O) represented the mean scores of the importance placed on the Likert-scaled information-seeking questions or the Likert-scaled satisfaction levels expressed about the investment decision.

The methodology for this study included: (1) the development of an instrument to test the information-seeking effort of investors, (2) a pilot study of the instrument (3) the Myers-Briggs Type Indicator® assessment instrument, (4) sampling procedures, (5) collection of the data, and (6) the data analysis.

Information-seeking effort

An instrument for testing investor’s information-seeking preferences before mutual fund purchases did not currently exist. Therefore, an instrument that meets this need was created specifically for this study. A copy of this instrument is located in Appendix A.

The format of this instrument consisted of fifteen questions regarding mutual fund features and characteristics, and one additional question on satisfaction. Participants

were asked to rank the importance they placed on each feature, and describe the effort they would make to seek out this information in the prospectus. Specifically, participants were asked to assume the following hypothetical situation.

Assume you have just started a new job. As a benefit to your job, your employer will save an extra \$5,000 a year into a mutual fund for you. If you do not save the \$5,000 into a mutual fund, you do not receive the benefit. You won't be able to access or spend this investment until after you retire or leave your job.

Assume there are three mutual funds from which to choose and you have access to three booklets (or prospectuses) that describe each fund in great detail. You can only choose one fund to save the entire \$5,000. There is no one available to help you. You must get the information you need to make your decision on your own using the prospectuses.

How much information will you look up about each fund before arriving at a decision? Please be as honest as possible. There are no "right" or "wrong" answers.

The primary benchmarks for the investment information-seeking questions were actual mutual fund prospectuses from companies, such as Vanguard, Ameriprise, Fidelity, Goldman Sachs, and Royce. While prospectuses from different companies differ slightly, regulations mandate the information that needs to be covered; therefore, the differences among the different company prospectuses were primarily cosmetic. The instrument's questions were designed around the information conveyed in the prospectuses, and cover the following topics:

- 1) **Fund style** – Description of the investment objective and strategy of the fund's investment portfolio, including industry/government security information.
- 2) **Fund risk** – Description of the associated volatility of the fund's investment portfolio. Probability that the investor may lose money.
- 3) **Fund performance** – Historical data on the percentage returns of the fund. Generally stated over 1-year, 3-year, 5-year, 10-year, and since inception (subject to availability) as a percentage of the fund's net asset value.

- 4) **Fund holdings** – Listing of the specific underlying investments of the fund. May include specific stocks, bonds, treasuries, etc. Funds may have hundreds or even thousands of holdings and the holdings may change daily, thus information on fund turnover is provided. Generally, only the ten to twenty largest holdings are specifically identified in the prospectus.
- 5) **Fund fees** – Description of the fund’s management fees generally as a percentage of investment (all funds charge management fees). Other fees may include sales charges or loads or 12b-1 fees (from the SEC rule 12b-1 that authorizes fund companies to charge fees for promotion, distribution, and marketing expenses). While not specifically fees, also included is information on the minimum initial and subsequent investments.
- 6) **Fund distributions** – Description of the amount and timing of fund distributions, including capital gain distributions or dividends. May include descriptions of the tax implications of said distributions.
- 7) **Fund management** – Description of the fund company and management. Generally includes information on the fund’s senior management, including tenure and experience.

In order to provide more meaningful results, the investment questions were designed to incorporate basic, intermediate, and advanced topics. A pilot study was conducted to initially determine investor opinions as to what information constitutes basic, intermediate, and advanced topics. See the section on the pilot study located in this chapter for more information.

The participant was provided with five (5) options after each question. Answers to these questions were arranged in a Likert-scale format, and consisted of the following possible responses.

- A) *I think this is very important, and I would definitely look it up in the prospectus.*
- B) *I think this is somewhat important, and I would probably look it up in the prospectus.*
- C) *I don’t need this information to make a purchase, as long as I can look it up later.*

D) I wouldn't care about this. I would not look it up in the prospectus.

E) This information would only confuse me. I do not wish to know it.

Once participants completed the investment information-seeking effort portion of the survey, the responses were assigned a value (A = 5... E = 1) for statistical and quantifying purposes.

The instrument created to measure the information-seeking effort of investors had never been used in research, and posed a significant threat to the reliability and validity of this study. See the section on threats in this chapter for more information. However, to alleviate a portion of this risk, a pilot study was undertaken to test the instrument.

Pilot study

The purpose of the pilot study was primarily that of lending credibility to the information-seeking portion of the research instrument. The primary goal of the pilot study was to develop reliability statistics for the investment information-seeking questions. The surveys (including the information-seeking portion and the MBTI®) were distributed to a small convenience sample of eighteen participants. Due to the limited time available, and the costs associated with publishing the study via the web, the instruments were incorporated into a Microsoft Excel spreadsheet, and electronically mailed to participants. The surveys were originally provided to two additional participants whose results were not incorporated due to a software malfunction and subsequent data corruption. A copy of the investment information-seeking portion of the pilot study can be found in Appendix B.

Reliability testing of pilot study

All measurement procedures have the potential for error. The purpose of the pilot study was to attempt to ascertain the internal consistency of the information-seeking effort questions and to determine the level of variability in scores due to measurement error. For the purposes of this test, Cronbach's Alpha was used as the reliability measurement statistic. Cronbach's Alpha measured how well the survey items measured a single construct; in this case, information-seeking effort. It can be inferred that if the inter-item correlations are high, then they are measuring the same underlying construct. Due to the nature of the research, and the fact that the questions were designed to cater to

the information-seeking efforts of individuals in different categories (the MBTI® preferences), it was not assumed that a high alpha score (above .80) would be attainable. However, in this case a score above .70 would be desirable, as this is the level generally determined to be acceptable in social science research (Pedhazur & Schmelkin, 1991).

For the eighteen participants, the alpha computed for the fifteen information-seeking questions was .5578. This score was considered low, even for a social science study, and indicated a low level of inter-item consistency. Please see Tables B.1 and B.2 in Appendix B.

There were several possibilities that explained this low score. The first of which is that the pilot study sample was too small. This problem was easily relegated as the actual study encompassed many more participants (101 total participants). Another possibility for the low alpha was that the questions were unclear and interpreted differently by different participants. To alleviate this problem, some questions (#4, 7, and 11), the directions for completing the survey, and the response options were reworded based on qualitative feedback from several participants and quantitative correlative results. Lastly, it was possible that the instrument lacked consistency. During the pilot study analysis, it was determined that if the first two changes to the survey did not increase the alpha (to above .70) for the actual study, it may be necessary to delete questions that lacked consistency. It was possible in the pilot study to increase the reliability quotient to the desired level by deleting several questions. By deleting six questions (of the fifteen), the alpha statistic of the pilot study was raised to the desired (above .70) level at .7201. See Table B.3 in Appendix B.

In analyzing the results of this study, it was beneficial to label the investment questions as either “basic”, “intermediate”, or “advanced”. The researcher originally classified the questions, based on personal knowledge of mutual funds and the investment industry. These classifications were:

Basic – Questions 1, 2, 5, 10, 12

Intermediate – Questions 3, 4, 8, 11, 14

Advanced – Questions 6, 7, 9, 13, 15

However, analyzing the responses of the pilot study provided greater insight into these classifications. The mean values decreased and the variance of responses increased

based on the perceived complexity of the question. Therefore, highly volatile responses to a question implied a complex question, and a low volatility suggested a basic question. The standard deviations were ranked, and based on the variances of the responses; the pilot study participants classified the questions into the following:

Basic – Questions 1, 2, 5, 10, 11

Intermediate – Questions 3, 4, 7, 8, 12

Advanced – Questions 6, 9, 13, 14, 15

These results are very similar to the original assumptions of the researcher. See Table B.4 in Appendix B for the means and standard deviations associated with each investment question. To further test the question complexity labels, the “Profile Plus” was analyzed. The “Profile Plus” is the two-page web document recommended by the NASD as a consumer education vehicle for prospective mutual fund buyers. The “Profile Plus” contains what the NASD would consider “basic” information on the two-page document, and provides links to more complicated information. In analyzing the “Profile Plus” there was consistency between the information that was easy to locate on the web document and the questions labeled as “basic” on the survey. Other information, while not instantly available on the two-page document was easily located once the links were utilized. This information correlated with the questions labeled as “intermediate” on the survey. Finally, some information (considered “advanced” in this survey) was not easily located on the two-page document, or in the linked information. Given these consistencies, the complexity labels (basic, intermediate, and advanced) have face validity, though these labels, in themselves, do pose a threat to the criterion validity of this study.

This ends the description of the pilot study and the information obtained from the pilot study. The remainder of this section returns to the description of the actual research study implemented after the data from the pilot study were compiled and analyzed.

The Myers-Briggs Type Indicator

After completing the fund selection portion of the study, participants were given on-line instructions for completing the MBTI®. Participants were then asked to complete Form M of the MBTI® preference survey, consisting of 93 questions. Participants had the option of providing their mailbox numbers on the survey, and assurances were provided that these numbers were not for identification purposes. If the participant provided a mailbox number, an official CPP (formerly Consulting Psychologists Press) sponsored report form was mailed to participants that described the participant's MBTI® preferences. Respondents were also given the chance to follow-up with the researcher via email if they had any additional questions. Once the personality indicator was completed, the scores were then utilized as the randomizing independent "personality" variable.

Threats

The time needed to complete the investment and MBTI® portions of the survey was generally between 20 and 30 minutes. No time limit was imposed. It is possible that some participants grew tired before completing the entire survey; however, in general, history, mortality, and maturation were not threats to internal validity. In addition, the participants were only measured once per survey; therefore, testing was not a threat to internal validity, and there was no pre-test or post-test threats to external validity. Since no actual treatment was applied, the threats of diffusion, compensatory rivalry, and resentful demoralization did not threaten the study's internal validity.

In regard to the personality test component of the study, the MBTI® personality test has been extensively tested for reliability and validity. The MBTI® Manual (Myers et al., 2003) reports the internal consistency and test-retest reliability of the MBTI®, as very strong and consistent for most people, regardless of age, gender, or race. The internal consistency of the four MBTI scales is quite high in all samples available to date, whether computed using logical split-half, consecutive item split-half, or coefficient alpha. Please see Tables 3.1 and 3.2 for more information. There is substantial improvement in Form M reliabilities over those of Form G, at least in the samples collected thus far (Myers et al., 2003). Form G was the MBTI® assessment from 1985 – 1998, however, Form M is considered superior to Form G as a significant level of

research was conducted on the revisions. “All decisions were guided by both theoretical and empirical criteria. Item response theory methods, derived from modern test theory, were used to select items that better discriminated between people of opposite preferences. An improvement was made in classification of respondents around the midpoint. A new scoring methodology was introduced using the prediction of best-fit type as the criterion” (2003, p. 158). In addition, test-retest reliabilities of the MBTI show consistency over time, with levels of agreement much greater than by chance.

Table 3.1 – Internal consistency of the MBTI®

Internal Consistency (Corrected) of Form G and Form M Continuous Scores Based on Split-Half Correlations

Sample	N	E-I	S-N	T-F	J-P
Form G CAPT Databank	32,671	.82	.84	.83	.86
Form M National Sample	3,036				
Logical Split-Half					
X Half		.90	.92	.91	.92
Y Half		.91	.92	.90	.92
Consecutive Split-Half					
X Half		.91	.92	.89	.92
Y Half		.90	.92	.92	.92
Word Pairs		.91	.93	.92	.94
Phrases		.91	.91	.90	.93

(Myers et al., 2003, p. 160)

Table 3.2 – Percentage agreement of the MBTI®

Test-Retest Percentage Agreement of Dichotomies of Form G and Form M

Sample	Interval	N	E-I	S-N	T-F	J-P
Form G						
Meta-analysis	> 9 months	1,133	75	76	75	77
Meta-analysis	< 9 months	356	82	87	82	83
Form M						
VA Commonwealth	4 weeks	116	87	87	84	88
Public Utilities Company	4 weeks	258	91	92	84	89
CPP	4 weeks	50	96	96	92	96

(Myers et al., 2003, p. 163)

Additionally, the MBTI® Manual (Myers et al., 2003) reports scores for face, content, and construct validity from a multitude of studies. All scores appear high. Myers (2003, p. 219) writes “a number of exploratory factor analysis of the MBTI scales have demonstrated very close correspondence with the hypothesized four-factor structure. More rigorous confirmatory factor analyses provide even stronger support for the model. Correlations of the four preferences scales with a wide variety of scales from other instruments support the predictions of type theory regarding the meaning of and the behaviors believed to be associated with the four dichotomies.” Lastly, the MBTI® instrument has been revised using a national sample and item response theory (IRT), a powerful statistical methodology. IRT models are mathematical functions that specify the likelihood of an outcome, such as a correct response to one of the questions on Form M, in terms of the person and their preference. The MBTI® is currently the only personality instrument that has been revised by IRT (2003). A panel of Ph.D. specialists oversaw the Form M revision, and ensured that high scientific standards were met in the application of IRT methods.

The Mental Measurements Yearbook (Fleenor & Mastrangelo, 1998) made the following conclusion:

The MBTI appears to have some value as a tool for increasing self-insight, and for helping people to understand individual differences in personality type. The authors, however, continue to report studies that employ continuous scores as evidence of reliability and validity for the instrument, although they continue to stress that the instrument is not designed to measure personality traits on a continuous scale. The MBTI, therefore, cannot be recommended without reservation until additional analyses that are appropriate for categorical data are conducted and reported in the manual. (1998, p. 1)

Since Fleenor and Mastrangelo made their conclusions in 1998, Myers-Briggs has updated the MBTI Manual. These changes document the improvements from Form G to Form M. However, many of the reliability and validity studies remain on continuous data. Therefore, the reliability and validity of the MBTI® may still be a threat to this study. To decrease the risk of this threat, even though MBTI® scores are reported numerically on a continuous scale, for the purposes of this study, the recommendation to only utilize the MBTI® as a categorical (rather than a continuous) variable will be followed. While more information may be deemed from the continuous scores of the MBTI®, since Myers (2003) states that the instrument is designed to provide categorical information only, then only the dichotomous variables will be utilized for analysis. To exemplify how this choice impacts the findings, consider that a participant who completes the questionnaire in a manner where he/she is just barely extraverted is labeled simply as an “extravert”. In addition, if a participant answers every question designed to test extraversion positively, the label is still that of an “extravert”.

While a significant amount of research has been completed on the reliability and validity of the MBTI®, the only research completed on the information-seeking questionnaire consists of the pilot study. The reliability and validity of the information-seeking questions continue to be a significant threat to this study.

Participant selection

Participants for this research study were limited to the following:

1. *Participants must be at least eighteen years of age.*
2. *Participants must be aware of the term “mutual fund” and know that it is a type of investment.*
3. *Participants must not have purchased a mutual fund in the past. However, they may own mutual funds if the fund was originally purchased for them by another entity.*

The reasoning for the first two limiting factors is due to the hypothesis that few people who are unaware of mutual funds would ever make an effort to purchase them. This study is also not authorized by the Institutional Review Board to survey non-adults. In addition, a basic level of financial literacy is required in order for participants to be able to complete the investment portion of the study.

The third limiting factor is due to the fact that mutual funds may be purchased via different mediums (on-line, broker, financial advisor, etc.). It is hypothesized that past purchases may influence the current information-seeking effort. “Decisions are influenced not only by the present situation but also by past decisions. Decisions have a sequential effect; a decision made in the present may be influenced by past decisions and may influence future decisions and actions” (Paolucci et al., 1977, p. 12). In essence, prior influence may bias results.

Sampling procedure

Given the limiting factors for participants, the study was limited to junior-level and senior-level college students. It was hypothesized that they (as a group) had the best chance of meeting all three criteria. Therefore, a cluster sample was taken from students from a small liberal arts college and a large research institution.

In the cluster selection, all higher level business/economics courses and consumer studies courses were identified for two institutions, Virginia Tech (a large research academy) and Roanoke College (a small liberal arts college). Business, consumer studies, and economics courses were hypothesized to contain the highest relative percentage of students who have completed some personal finance or other finance-related courses, thereby meeting the criteria for the study, as these courses generally

introduce students to mutual funds. Classes were then randomly selected utilizing a random number generator within Microsoft Excel. Six classes were identified at Roanoke College and six classes were identified at Virginia Tech. While exact enrollment is unknown, it was assumed that approximately 300-600 students were enrolled in these twelve courses. The instructors of the selected classes were then contacted via email and asked to participate in the study. The email to instructors can be found in Appendix C; however, they were in essence asked if they would share an on-line survey with their students. The email to instructors contained a link that, when clicked, would open up the web survey in a new window.

Students were asked to provide their age, gender, school, and major. While it was not the purpose of this study, the small liberal arts college students may be compared and contrasted with the students from a large research institution to determine if any of the findings are interesting in future research. In addition, analysis may be conducted on the other demographic information, as well.

It was assumed that instructors asked for participants to complete the on-line survey during class announcements or via email; however, exact methods are unknown to the researcher. The study was designed so that the researcher did not have any contact with the student participants, only the course instructors; however, in two instances, the researcher was asked by the instructor to speak to the student participants of selected classes about the Myers-Briggs® and investment decision-making.

Collection of data

Once the survey was posted, and the instructors were notified, the researcher received 101 responses. Of these responses, 80.2% (or 81 participants) met the criteria of: 1) 18 years of age or older, 2) knew of mutual funds as an investment, and 3) had not previously purchased a mutual fund. The survey remained open from March 26th, 2007 through April 20th, 2007. The researcher encouraged instructors in the correspondence (Appendix C) to assure students that participation was voluntary and the data collected would be used for no purpose other than the stated research. It was also announced that the research included a free MBTI® official assessment for those who wished to learn their preferences. If the participants requested access to their results, they only needed to include their mailbox number in the space provided on the survey. An official CPP

MBTI® report form was then mailed to those respondents outlining their MBTI® scores and provided a brief description on the meaning of these scores. Approximately 33% of respondents requested their MBTI® results. However, in some instances, the participants wrote their names or school IDs in the space provided for the student mailbox number. This was due to an oversight on the researcher's part, as not all participants had a mailbox number where they could have results delivered. It is deemed that other participants chose to forego receiving their scores due to this oversight.

Roanoke College was dramatically overrepresented in the sample as 74% of the 101 respondents listed themselves as students of Roanoke College. This overrepresentation is likely due somewhat to the fact that during the final week of the survey's open period, Virginia Tech experienced a terrible school tragedy, and no surveys were returned from Virginia Tech after April 15th. As the closing date for the survey was announced in the instructor email correspondence, it is possible that many Virginia Tech students, who chose to wait until the final days of the open period to complete their survey, understandably lost their motivation and interest. As a comparison, thirty one of the total seventy five Roanoke College students (41%) completed the survey in the final five days of the open period (between April 15th and April 20th).

Utilizing an on-line survey administration tool (survey.vt.edu), the survey results were downloaded into Microsoft Excel for data analysis. From Excel, the data were structured in a manner so as to allow transference to the Statistical Package for the Social Sciences (SPSS) for Windows.

Analysis of the data

The data were coded and entered into the computer file. The first tests run on the data were correlations and Cronbach's Alpha to determine the reliability of the fifteen information-seeking questions. The inter-item correlations of the study were dramatically improved from that of the pilot study, with only a minimal amount of negative correlations (as compared to several negative correlations in the pilot study). SPSS returned an alpha score of .78 for the fifteen information-seeking questions. Since the minimum acceptable level for social science research is .70 (Pedhazur & Schmelkin, 1991), no additional actions were taken to increase the alpha score of this study. In addition, the scaled means of the items were calculated if items were deleted. No

significant improvement in alpha was predicted for any deleted question, in fact, in most cases, the alpha declined slightly. Please see Table D.1, Table D.2, and Table D.3 in Appendix D for more information.

The second analysis of the data included descriptive statistics on the participant's information-seeking questions to determine the consistency of the "basic, intermediate, and advanced" complexity descriptions.

When analyzing all fifteen investment information-seeking questions, the total mean response was 4.2 on a scale where five (5) means that the participants stated they would "definitely" look up the information, and four (4) means they would "likely" look up the information.

The mean score for questions labeled as "basic" was 4.55 on a scale where five (5) means that the participants stated they would "definitely" look up the information, and four (4) means they would "likely" look up the information. The standard deviation was .44.

The mean score for questions labeled as "intermediate" was 4.00 on a scale where five (5) means that the participants stated they would "definitely" look up the information, and four (4) means they would "likely" look up the information, and three (3) means they would not need the information to make a decision. The standard deviation was higher than the "basic" standard deviation at .54.

Lastly, the mean score for questions labeled as "advanced" was 4.05 on a scale where five (5) means that the participants stated they would "definitely" look up the information, and four (4) means they would "likely" look up the information, and three (3) means they would not need the information to make a decision. It is somewhat surprising that the "advanced" mean is slightly higher than the "intermediate" mean; however, not surprising is the fact that the standard deviation was increased from the "intermediate" standard deviation at .60.

Please see Figures 3.1, 3.2, 3.3, and 3.4 for a graphical plot of the descriptive complexity statistics. Also see Table D.4 in Appendix D for the means and standard deviations associated with each investment question.

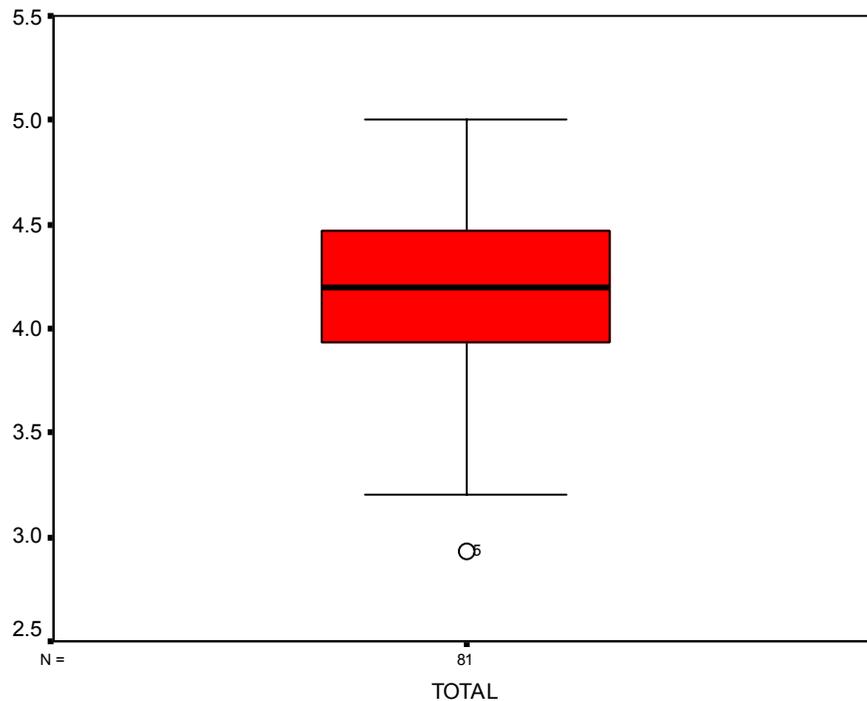


Figure 3.1 – Total information-seeking questions box plot among all participants

This box plot represents the lowest quartile, median, and upper quartile of the mean scores provided by the eight dominant MBTI® preferences based on their responses to fifteen basic, intermediate, and advanced-level investment information-seeking questions provided in the survey ($p = 0.05$). The Likert-scaled responses located on the y-axis of the chart correspond with the following descriptions:

- 5 = Very important (*Highest Possible Importance*)
- 4 = Somewhat important
- 3 = Don't need now if available later
- 2 = Wouldn't care
- 1 = Would only confuse (*Lowest Possible Importance*)

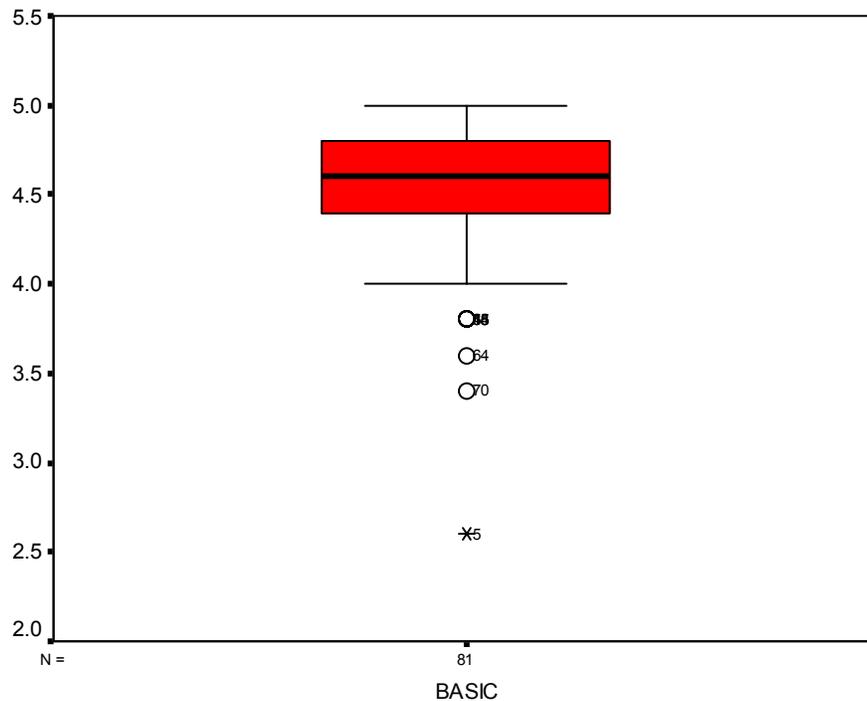


Figure 3.2 – Basic information-seeking questions box plot among all participants

This box plot represents the lowest quartile, median, and upper quartile of the mean scores provided by the eight dominant MBTI® preferences based on their responses to five basic-level investment information-seeking questions provided in the survey ($p = 0.05$). The Likert-scaled responses located on the y-axis of the chart correspond with the following descriptions:

- 5 = Very important (*Highest Possible Importance*)
- 4 = Somewhat important
- 3 = Don't need now if available later
- 2 = Wouldn't care
- 1 = Would only confuse (*Lowest Possible Importance*)

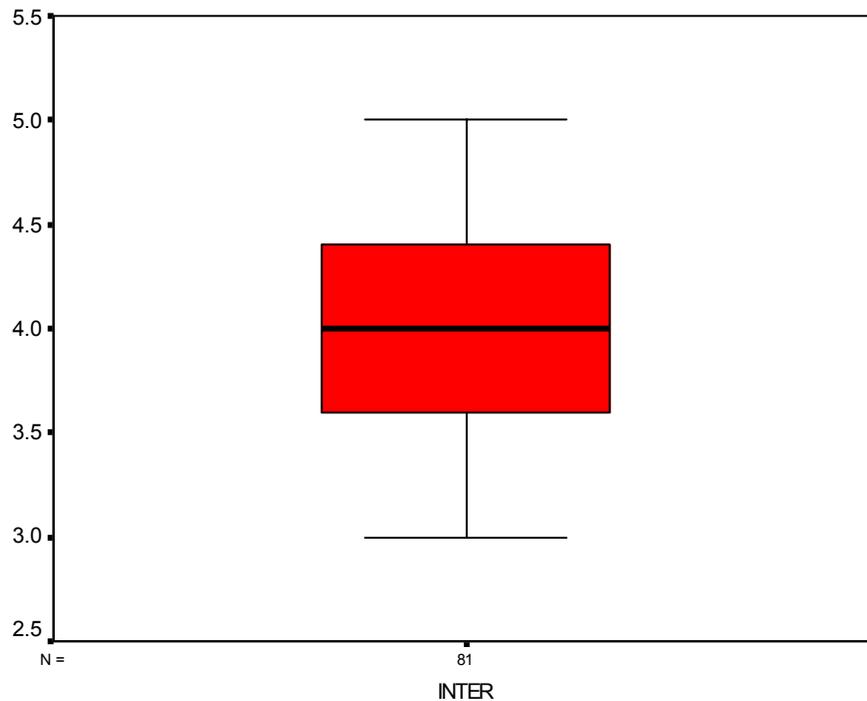


Figure 3.3 – Intermediate information-seeking questions box plot among all participants

This box plot represents the lowest quartile, median, and upper quartile of the mean scores provided by the eight dominant MBTI® preferences based on their responses to five intermediate-level investment information-seeking questions provided in the survey ($p = 0.05$). The Likert-scaled responses located on the y-axis of the chart correspond with the following descriptions:

- 5 = Very important (*Highest Possible Importance*)
- 4 = Somewhat important
- 3 = Don't need now if available later
- 2 = Wouldn't care
- 1 = Would only confuse (*Lowest Possible Importance*)

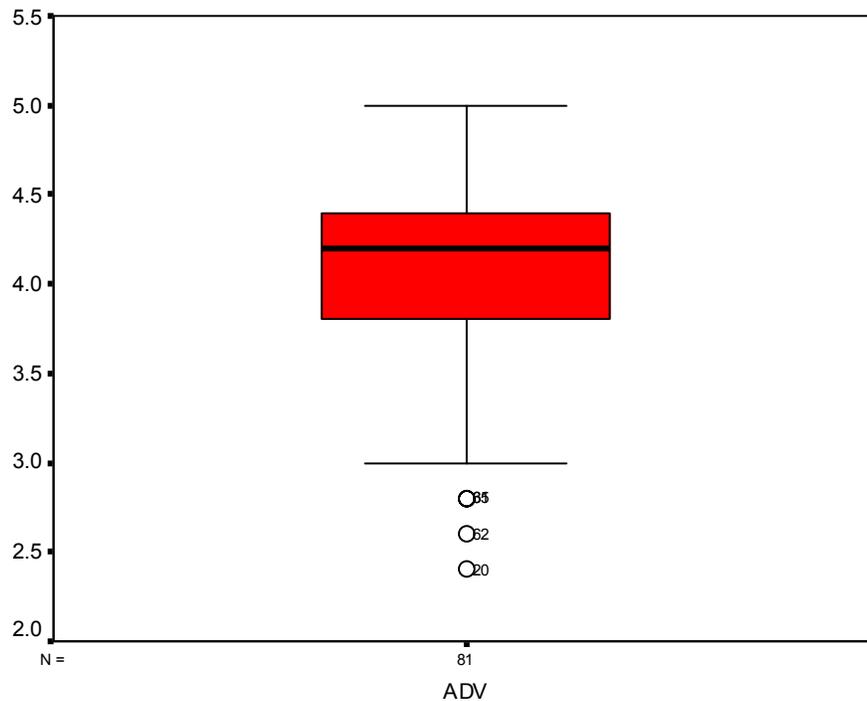


Figure 3.4 – Advanced information-seeking questions box plot among all participants

This box plot represents the lowest quartile, median, and upper quartile of the mean scores provided by the eight dominant MBTI® preferences based on their responses to five advanced-level investment information-seeking questions provided in the survey ($p = 0.05$). The Likert-scaled responses located on the y-axis of the chart correspond with the following descriptions:

- 5 = Very important (*Highest Possible Importance*)
- 4 = Somewhat important
- 3 = Don't need now if available later
- 2 = Wouldn't care
- 1 = Would only confuse (*Lowest Possible Importance*)

Given these findings, the decision was made to keep the complexity labels developed during the pilot study. These labels thus correspond to an increased variance in responses as the complexity increases, as well as, generally correspond to the NASD's "Profile Plus".

Summary

This section encompassed four parts: (1) the development of an instrument to test the information-seeking effort of investors, (2) a pilot study of the instrument (3) the Myers-Briggs Type Indicator® assessment instrument, (4) sampling procedures, (5) collection of the data, and (6) the data analysis.

In developing an instrument to test the information-seeking efforts of investors, current mutual fund prospectuses were utilized to develop questions that match the information generally found at point-of-sale disclosure. The pilot study was primarily utilized to test the investment information-seeking instrument. The results of the pilot study and the preliminary data analysis of the actual study demonstrate that the instrument reliably measures information-seeking effort, but there appears to be room for improvement.

The methodology of this research also includes the Myers-Briggs Type Indicator®, a popular and well tested instrument. While the MBTI® is primarily a psychological assessment, with inherent issues of reliability and validity, it is arguably the best instrument assessing personal preferences.

Sampling decisions were made based on three criteria:

- 1. Participants must be at least eighteen years of age.*
- 2. Participants must be aware of the term "mutual fund" and know that it is a type of investment.*
- 3. Participants must not have purchased a mutual fund in the past. However, they may own mutual funds if the fund was originally purchased for them by another entity.*

Given this criteria, upper-class college students were selected and provided with an on-line survey to test both their information-seeking effort and their MBTI® preferences. The data were collected utilizing Microsoft Excel and SPSS for Windows. The subsequent data analysis showed no significant errors in reliability.

CHAPTER IV

Findings and Discussion

The findings of the study are presented in this chapter. Included in the results are a description of the sample and analyses used to test the hypothesized relationships.

Characteristics of the sample

One hundred one (101) students participated in this study. This sample is relatively small, as the goal sample size was 150 to 200 participants. Of the 101 participants, only 81 participants met the stated criteria, and were analyzed to test the hypotheses. Of the 20 rejected participants, 6 stated that they did not know that a mutual fund was an investment, and 9 stated that they had previously purchased a mutual fund. The remaining rejections were based on questionnaire submissions without a sufficient number of responses to ascertain reliable assessments.

The majority (60%) of the respondents were male ($n = 49$). The ages of the respondents ranged from 18 to 30 years. Seventy-nine percent of respondents were aged 20, 21, or 22 ($n = 64$). Seventy-five percent of the participants listed themselves as students at Roanoke College ($n = 61$) and the remaining ($n = 20$) students stated that they currently attended Virginia Tech. The majority of participants listed business as their major ($n = 49$). All of the participants were currently enrolled in a business, consumer studies or economics course. The demographic characteristics of the analyzed sample are presented in Figures 4.1 – 4.5. For more detailed information on the demographics, see Appendix E, Table E.1 – E.4.

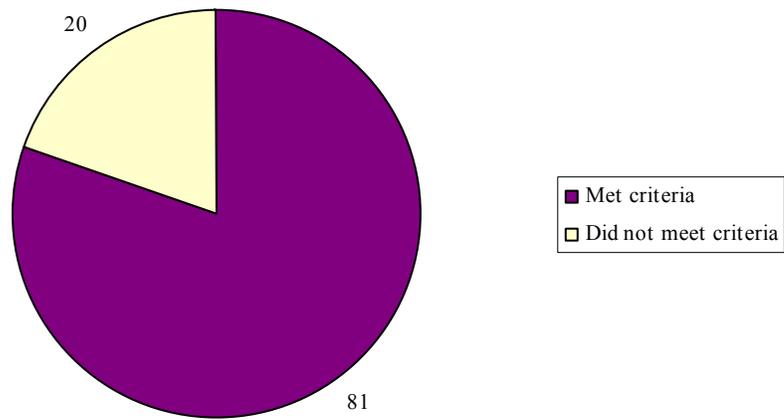


Figure 4.1 - Students meeting criteria

Eighty-one participants (18 years and older) stated that they knew that a mutual fund was an investment, but had not purchased a mutual fund themselves

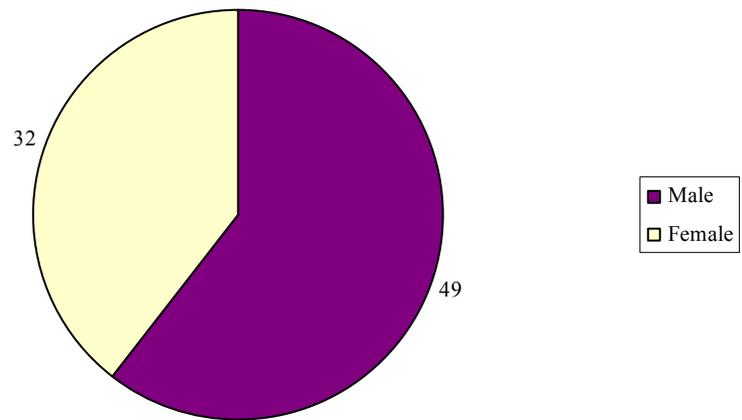


Figure 4.2 – Gender of participants meeting criteria

Of the eighty-one participants whose surveys were utilized for analysis, forty-nine were male, and thirty-two were female

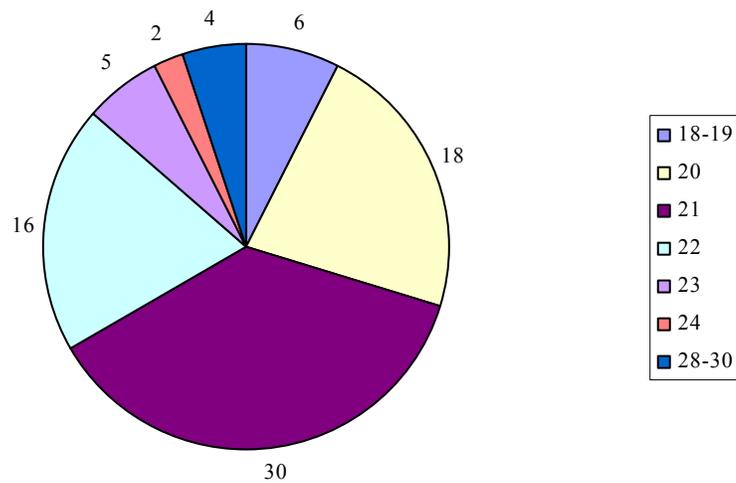


Figure 4.3 - Age distribution of participants meeting criteria

Ages of the eighty-one students ranged from eighteen to thirty. The largest portion of participants (thirty) was twenty-one years old, while eighteen participants were twenty years old, and sixteen participants were twenty-two years old

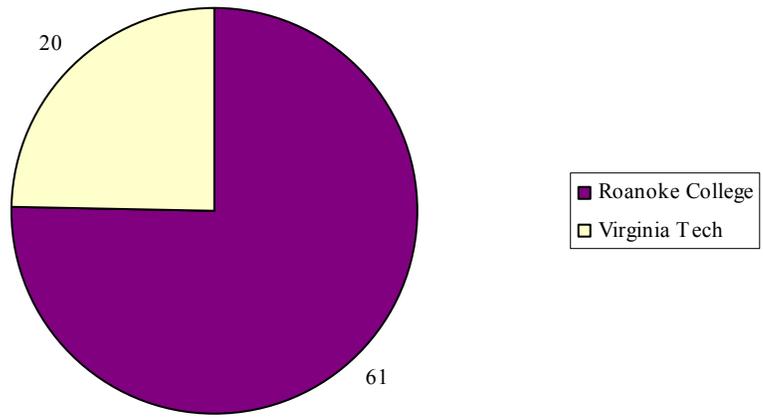


Figure 4.4 - School distribution (Breakdown of participants by school)

Sixty-one participants were students at Roanoke College, and the remaining twenty participants attended Virginia Tech

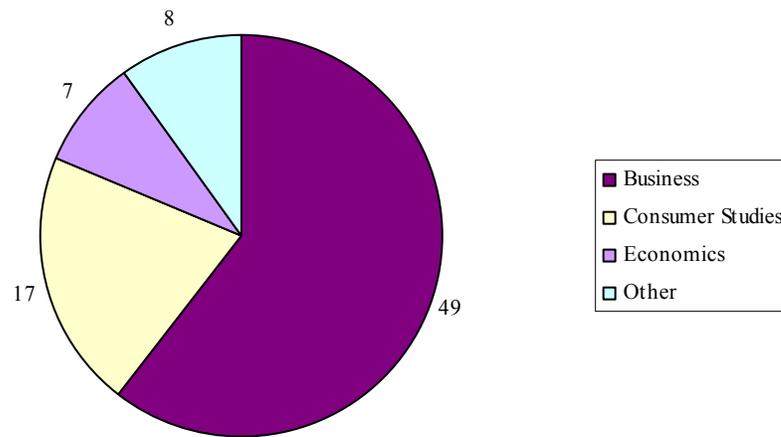


Figure 4.5 - Major distribution (Breakdown of participants by major)

Forty-nine participants were majoring in Business, seventeen in Consumer Studies, seven in Economics, and eight from various other disciplines

In completing the Myers-Briggs® Type Indicator, each participant was also labeled with their Myers-Briggs® type preference. A national sample of approximately 3,000 respondents was taken in 1996 (Myers et. al, 2003) that provides a distribution of types and preferences. Of note is that this national sample was taken before the development of Form M, and therefore may not provide data results as representative of the actual population, had the national sample been performed with the latest tested version of the MBTI® assessment. These results are indicated in Table 4.1. The preference findings of this study and the national sample are fairly representative with two substantial differences – the preferences for focusing attention (E vs. I) for males and females and the preferences for collecting information (S vs. N) for males. The preference results for this study are indicated in Table 4.2.

Table 4.1 – National survey of preferences

Distribution of Preferences 1996 National Survey						
Type	Male	Percent	Female	Percent	Total	Percent
E	679	46%	804	53%	1,483	49%
I	799	54%	727	47%	1,526	51%
S	1,060	72%	1,146	75%	2,206	73%
N	418	28%	385	25%	803	27%
T	835	56%	375	24%	1,210	40%
F	643	44%	1,156	76%	1,799	60%
J	769	52%	860	56%	1,629	54%
P	709	48%	671	44%	1,380	46%

(Myers et al., 2003, pp. 156-158)

Table 4.2 – Preference results for current study

Distribution of Preferences Current Research						
Type	Male	Percent	Female	Percent	Total	Percent
E	34	69%	20	63%	54	67%
I	15	31%	12	38%	27	33%
S	24	49%	23	72%	47	58%
N	25	51%	9	28%	34	42%
T	30	61%	9	28%	39	48%
F	19	39%	23	72%	42	52%
J	21	43%	19	59%	40	49%
P	28	57%	13	41%	41	51%

The participants of this study stated a preference for “extraversion” that was significantly higher than the national preference. While the national sample stated an approximately 50% preference for extraversion, the participants in this study represent a 67% preference for extraversion. It is not inconceivable with this study’s sample size that extraversion could be realistically over-represented. However, there are several other possibilities for this divergence from the national sample. It is very possible that the sample collected is biased in some manner. College students may wish that they had an extraverted preference due to the importance placed on social behavior in the college environment. Due to this pressure, it is possible that the sample participants had a slight bias to answer the attention focusing preference questions in an extraverted manner, so as not to risk a label that (quite inaccurately, in their minds) may imply social awkwardness. Since Roanoke College, a small liberal arts college was over-represented in the sample; it may be that those who choose the smaller-sized colleges tend to be extraverted. This suggestion ties in to some degree with the findings of Fourqurean (1990) who found that introverted individuals preferred lecture formats over active participation. Perhaps

introverts associate a large university with more lecture-oriented classroom environments, while extraverts hope that smaller class sizes will motivate active classroom experimentation and fewer lectures. Another possibility is that extraverts are more likely to be accepted into or attend any college. It may also be that extraverts are over-represented in the majors sought for this study. Lastly, there is the possibility that extraverts were just more likely to respond to the survey than introverts. Based on the findings of Myers (2003), any of these options are a possibility.

The second major difference in findings between the national sample and this study lies in the preference for collecting information. The national sample had a strong preference for “sensing” with almost three quarters of participants preferring the sensing function to the intuition function. While the female college students surveyed in this research were also close to these percentages, the results from male college students surveyed were much closer to half, as only 49% stated a preference for sensing. This finding implies the possibility of a gender difference on this function. The national sample surveyed a much higher percentage of females than did this research, possibly adding to the differences in findings. Other possibilities for the difference include the size of the sample and perhaps a sample bias similar to some of the possibilities discussed above for the extraversion preference.

The national data is also described by type. In this respect, a person’s type is the combination of the four functions to create one of sixteen specific temperaments. Each temperament generally has specific associated qualities. While it was not the goal of this research to hypothesize on the sixteen types, the statistics of this study can be compared to the national sample. See Table 4.3 for a comparison of types between this study and the national sample. Again, most of the percentage distributions of the current research are in-line with the national sample. A test on proportion was run (see Appendix E, Table E.5) using normal approximation with continuity correction to define the test statistics. At $p = 0.05$, the tests showed that ISFPs were underrepresented and that ESTPs, ENFJs, and ENTJs were overrepresented; however, the current sample does not appear to be significantly overrepresented by any one type.

Table 4.3 – Distribution of the sixteen types (national sample and current research)

Distribution of Types National Sample and the Current Research Figures			
ISTJ National Sample 12% Current Research 7%	ISFJ National Sample 14% Current Research 7%	INFJ National Sample 1% Current Research 1%	INTJ National Sample 2% Current Research 5%
ISTP National Sample 5% Current Research 4%	ISFP National Sample 9% Current Research 1%	INFP National Sample 4% Current Research 5%	INTP National Sample 3% Current Research 2%
ESTP National Sample 4% Current Research 10%	ESFP National Sample 9% Current Research 11%	ENFP National Sample 8% Current Research 11%	ENTP National Sample 3% Current Research 6%
ESTJ National Sample 9% Current Research 9%	ESFJ National Sample 12% Current Research 9%	ENFJ National Sample 2% Current Research 6%	ENTJ National Sample 2% Current Research 5%

(Myers et al., 2003, pp. 156-158)

The final comparison between the current research and the national sample was centered on the dominant processes. The dominant processes are the lead functions and represent the independent variable for several of this study’s hypotheses. Unfortunately, the national survey conducted in 1996 did not post the results for the lead or dominant processes; however, results were posted for type pairs (it is just unknown which type pair is the lead, and which is the auxiliary). While other research is available that provides results for the percentages of dominant type, no other research has taken the degree of care that the 1996 national sample took to truly represent the gender, age, and ethnic backgrounds of the population. Therefore, for comparative purposes, the lead and auxiliary pairings of this research were compared with the national sample. As with the

other comparisons, there is a noticeable difference in the extraversion/introversion dichotomy, as the current research is dramatically underrepresented for the introversion pairings and overrepresented for the extraversion pairings. A test on proportion was run (see Appendix E, Table E.6) using normal approximation with continuity correction to define the test statistics. At $p = 0.05$, the tests showed that ISs and IFs were underrepresented and that ENs, and ETs were overrepresented. See Table 4.4 for more information.

Table 4.4 – Distribution of dominant and auxiliary types

Distribution of Dominant and Auxiliary Type Pairs National Sample and Current Research Figures		
	National Sample	Current Research
IS	40% (n = 1,190)	20% (n = 16)
ES	34% (n = 1,016)	38% (n = 31)
IN	11% (n = 336)	14% (n = 11)
EN	16% (n = 467)	28% (n = 23)
IT	22% (n = 670)	19% (n = 15)
ET	18% (n = 540)	30% (n = 24)
IF	28% (n = 856)	15% (n = 12)
EF	31% (n = 943)	37% (n = 30)

(Myers et al., 2003, pp. 156-158)

Tests of hypotheses

Nine major hypotheses were formulated for this study to answer nine research questions and one sub-question. The data were analyzed to test these hypotheses. While continuous data were collected on the MBTI® preferences, only categorical data were used for hypothesis testing purposes, based on the dichotomous relationships of the variables. Statistical procedures used to test the hypotheses included correlations, T-tests,

one-way analysis of variance, and pairwise post-hoc tests. The level of significance was set at $p = 0.05$ for all tests.

Hypothesis One: Information-seeking effort for total information

1. H0 – In respect to the total information-seeking effort when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to the total information-seeking effort when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

It was hypothesized that different personalities (as measured by the MBTI® dominant preferences) do not perceive the same characteristics and features of mutual funds to have the same level of importance when it comes to making an investment decision, thus influencing the potential investor’s effort to seek said information. In order to test this hypothesis, the total mean scores of the Likert-scaled responses to the fifteen investment questions were analyzed as the dependent variable in a one-way analysis of variance, utilizing the MBTI® dominant functions as the independent variable. At $p = 0.05$, this study fails to reject the null hypothesis that the dominant functions differ when it comes to seeking investment information. See Table 4.5 for the complete analysis of variance.

Table 4.5 – ANOVA on the total scores of the information-seeking survey

ANOVA

TOTAL					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.647	7	.092	.515	.821
Within Groups	13.121	73	.180		
Total	13.769	80			

Based on these findings, the MBTI® dominant processes of the sample participants are equal when it comes to the level of total information the participants labeled as important and would make an effort to seek out before making an investment decision.

Hypothesis Two: Information-seeking effort for basic-level information

1. H0 – In respect to the information-seeking effort of basic information when it comes to making a decision to purchase a mutual fund, IS = ES = IN = EN = IT = ET = IF = EF. There are no differences among the personality preferences.
2. H1 - In respect to the information-seeking effort of basic information when it comes to making a decision to purchase a mutual fund, IS ≠ ES ≠ IN ≠ EN ≠ IT ≠ ET ≠ IF ≠ EF. There are differences among the personality preferences.

For this hypothesis, only the mean scores for the “basic” questions were analyzed as the dependent variable. The basic-level questions were questions one, two, five, ten, and eleven. The reasoning for this hypothesis (as well as hypothesis three and four) is due to the possibility that many potential investors are unfamiliar with many investment terms, especially in regard to mutual fund selection. Unfamiliarity may cause discomfort in the decision process, thus biasing results.

However, the basic questions were very straightforward and used terminology that almost anyone in the target sample could easily understand. In order to test this hypothesis, the mean scores of the Likert-scaled responses to the five basic-level investment questions were analyzed as the dependent variable in a one-way analysis of variance, utilizing the MBTI® dominant functions as the independent variable. At p = 0.05, the findings reject the null hypothesis that the dominant functions differ when it comes to seeking “basic” investment information. See Table 4.6 for the complete analysis of variance.

Table 4.6 - ANOVA on the scores of basic-level information only

ANOVA

BASIC					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.791	7	.399	2.251	.039
Within Groups	12.931	73	.177		
Total	15.722	80			

Since the null hypothesis was rejected in the one-way ANOVA, it was concluded that some groups (based on dominant functions) differ when it comes to labeling the importance of basic information, and in stating the efforts they would make to seek this information out before making a mutual fund purchase. Pairwise comparisons were used to determine the groups that differed. In order to run pairwise comparisons, the dominant functions were labeled one (1) through eight (8) so that they could be inputted into SPSS for analysis. See Table 4.7 for the complete listing of the input labels.

Table 4.7 – Dominant function data labels for SPSS analysis

IS	ES	IN	EN	IT	ET	IF	EF
1	2	3	4	5	6	7	8

Fisher’s least significant difference (LSD) procedure was the first post-hoc analysis performed on the data. LSD is a commonly used multiple comparison procedure, and carries out all the possible T-tests that could be run on the data, once an ANOVA has been run and shown significance (in this case at the 5% level). LSD provided the smallest difference between the sample means which led to the rejection of the null hypothesis. The LSD findings (provided in Table 4.8) indicated that the mean score for group 5 (Introverted Thinking) was significantly different from groups 1, 3, 6, and 8 (Introverted Sensing, Introverted Intuition, Extraverted Thinking, and Extraverted Feeling).

Table 4.8 – Fisher’s least significant difference analysis of the dominant types seeking basic-level information

Multiple Comparisons

Dependent Variable: BASIC

LSD

(I) TYPE	(J) TYPE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	.1696	.15869	.289	-.1467	.4859
	3	-.1433	.22403	.524	-.5898	.3032
	4	.1881	.16557	.260	-.1419	.5181
	5	.5767*	.22403	.012	.1302	1.0232
	6	-.1106	.17569	.531	-.4607	.2395
	7	.0967	.22403	.667	-.3498	.5432
	8	-.1333	.17182	.440	-.4758	.2091
2	1	-.1696	.15869	.289	-.4859	.1467
	3	-.3129	.21412	.148	-.7397	.1138
	4	.0185	.15190	.903	-.2842	.3212
	5	.4071	.21412	.061	-.0197	.8338
	6	-.2802	.16286	.090	-.6048	.0444
	7	-.0729	.21412	.734	-.4997	.3538
	8	-.3029	.15869	.060	-.6192	.0133
3	1	.1433	.22403	.524	-.3032	.5898
	2	.3129	.21412	.148	-.1138	.7397
	4	.3314	.21928	.135	-.1056	.7684
	5	.7200*	.26619	.008	.1895	1.2505
	6	.0327	.22701	.886	-.4197	.4852
	7	.2400	.26619	.370	-.2905	.7705
	8	.0100	.22403	.965	-.4365	.4565
4	1	-.1881	.16557	.260	-.5181	.1419
	2	-.0185	.15190	.903	-.3212	.2842
	3	-.3314	.21928	.135	-.7684	.1056
	5	.3886	.21928	.081	-.0484	.8256
	6	-.2987	.16958	.082	-.6367	.0393
	7	-.0914	.21928	.678	-.5284	.3456
	8	-.3214	.16557	.056	-.6514	.0086
5	1	-.5767*	.22403	.012	-1.0232	-.1302
	2	-.4071	.21412	.061	-.8338	.0197
	3	-.7200*	.26619	.008	-1.2505	-.1895
	4	-.3886	.21928	.081	-.8256	.0484
	6	-.6873*	.22701	.003	-1.1397	-.2348
	7	-.4800	.26619	.075	-1.0105	.0505
	8	-.7100*	.22403	.002	-1.1565	-.2635
6	1	.1106	.17569	.531	-.2395	.4607
	2	.2802	.16286	.090	-.0444	.6048
	3	-.0327	.22701	.886	-.4852	.4197
	4	.2987	.16958	.082	-.0393	.6367
	5	.6873*	.22701	.003	.2348	1.1397
	7	.2073	.22701	.364	-.2452	.6597
	8	-.0227	.17569	.897	-.3729	.3274
7	1	-.0967	.22403	.667	-.5432	.3498
	2	.0729	.21412	.734	-.3538	.4997
	3	-.2400	.26619	.370	-.7705	.2905
	4	.0914	.21928	.678	-.3456	.5284
	5	.4800	.26619	.075	-.0505	1.0105
	6	-.2073	.22701	.364	-.6597	.2452
	8	-.2300	.22403	.308	-.6765	.2165
8	1	.1333	.17182	.440	-.2091	.4758
	2	.3029	.15869	.060	-.0133	.6192
	3	-.0100	.22403	.965	-.4565	.4365
	4	.3214	.16557	.056	-.0086	.6514
	5	.7100*	.22403	.002	.2635	1.1565
	6	.0227	.17569	.897	-.3274	.3729
	7	.2300	.22403	.308	-.2165	.6765

*. The mean difference is significant at the .05 level.

One issue with using LSD as the sole post-hoc test is that each comparison was tested using $\alpha = 0.05$. Therefore, there was a 5% chance of making a Type I error on each pairwise test. Because this analysis was using several comparisons, there was a relatively large probability of a Type I error. In an attempt to rectify this error, Tukey's honestly significant difference (HSD) procedure was also run on the data. Tukey's HSD is designed to eliminate the large chance of making at least one Type I error that is inherent in LSD due to the fact that Tukey's HSD sets $\alpha = 0.05$ on an experimentwise basis, rather than a testwise basis. Even controlling for this error, Tukey's HSD found a significant difference between the mean score of group 5 (Introverted Thinking) and the mean score of group 8 (Extraverted Feeling). See Table 4.9 for more information.

Table 4.9 – Tukey’s honestly significant difference analysis of the dominant types seeking basic-level information

Multiple Comparisons

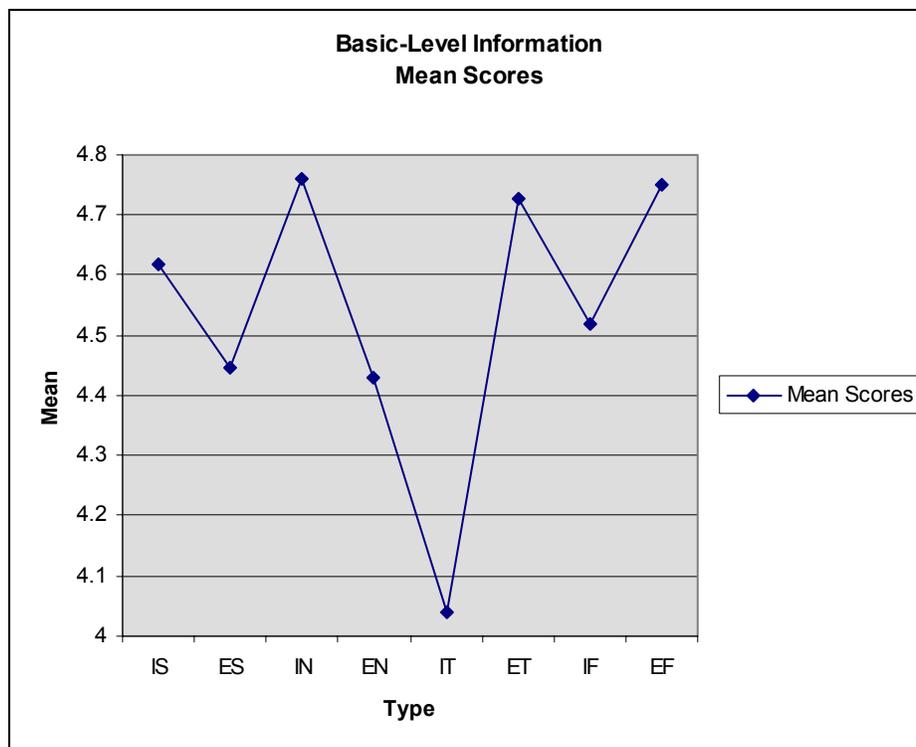
Dependent Variable: BASIC
Tukey HSD

(I) TYPE	(J) TYPE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	.1696	.15869	.961	-.3256	.6648
	3	-.1433	.22403	.998	-.8424	.5558
	4	.1881	.16557	.947	-.3286	.7048
	5	.5767	.22403	.182	-.1224	1.2758
	6	-.1106	.17569	.998	-.6588	.4376
	7	.0967	.22403	1.000	-.6024	.7958
	8	-.1333	.17182	.994	-.6695	.4029
2	1	-.1696	.15869	.961	-.6648	.3256
	3	-.3129	.21412	.825	-.9811	.3552
	4	.0185	.15190	1.000	-.4555	.4925
	5	.4071	.21412	.555	-.2611	1.0752
	6	-.2802	.16286	.674	-.7884	.2280
	7	-.0729	.21412	1.000	-.7411	.5952
	8	-.3029	.15869	.549	-.7981	.1923
3	1	.1433	.22403	.998	-.5558	.8424
	2	.3129	.21412	.825	-.3552	.9811
	4	.3314	.21928	.799	-.3528	1.0157
	5	.7200	.26619	.138	-.1107	1.5507
	6	.0327	.22701	1.000	-.6757	.7411
	7	.2400	.26619	.985	-.5907	1.0707
	8	.0100	.22403	1.000	-.6891	.7091
4	1	-.1881	.16557	.947	-.7048	.3286
	2	-.0185	.15190	1.000	-.4925	.4555
	3	-.3314	.21928	.799	-1.0157	.3528
	5	.3886	.21928	.641	-.2957	1.0728
	6	-.2987	.16958	.648	-.8279	.2305
	7	-.0914	.21928	1.000	-.7757	.5928
	8	-.3214	.16557	.528	-.8381	.1953
5	1	-.5767	.22403	.182	-1.2758	.1224
	2	-.4071	.21412	.555	-1.0752	.2611
	3	-.7200	.26619	.138	-1.5507	.1107
	4	-.3886	.21928	.641	-1.0728	.2957
	6	-.6873	.22701	.064	-1.3957	.0211
	7	-.4800	.26619	.620	-1.3107	.3507
	8	-.7100*	.22403	.044	-1.4091	-.0109
6	1	.1106	.17569	.998	-.4376	.6588
	2	.2802	.16286	.674	-.2280	.7884
	3	-.0327	.22701	1.000	-.7411	.6757
	4	.2987	.16958	.648	-.2305	.8279
	5	.6873	.22701	.064	-.0211	1.3957
	7	.2073	.22701	.984	-.5011	.9157
	8	-.0227	.17569	1.000	-.5710	.5255
7	1	-.0967	.22403	1.000	-.7958	.6024
	2	.0729	.21412	1.000	-.5952	.7411
	3	-.2400	.26619	.985	-1.0707	.5907
	4	.0914	.21928	1.000	-.5928	.7757
	5	.4800	.26619	.620	-.3507	1.3107
	6	-.2073	.22701	.984	-.9157	.5011
	8	-.2300	.22403	.969	-.9291	.4691
8	1	.1333	.17182	.994	-.4029	.6695
	2	.3029	.15869	.549	-.1923	.7981
	3	-.0100	.22403	1.000	-.7091	.6891
	4	.3214	.16557	.528	-.1953	.8381
	5	.7100*	.22403	.044	.0109	1.4091
	6	.0227	.17569	1.000	-.5255	.5710
	7	.2300	.22403	.969	-.4691	.9291

*. The mean difference is significant at the .05 level.

When the means were plotted on a chart (Chart 4.1), it was clear that group 5 (Introverted Thinking) returned a mean score for the basic-level investment questions that was significantly lower than the other groups. Taken alone, this finding, while interesting, did not lend itself to explanation. It would seem (based on the characteristics of introverted thinkers from prior research findings) that Introverted Thinking as a preference would not lend itself to a greater level of satisficing than the other preferences. Pearman and Albritton (1997) found introverted thinkers to be (among other characteristics) organized, curious, critical, and skeptical. Therefore, the fact that this dominant type sought out significantly less information (statistically) than other types seems odd. However, this statistically significant finding, when analyzed, did reveal a more prominent pattern.

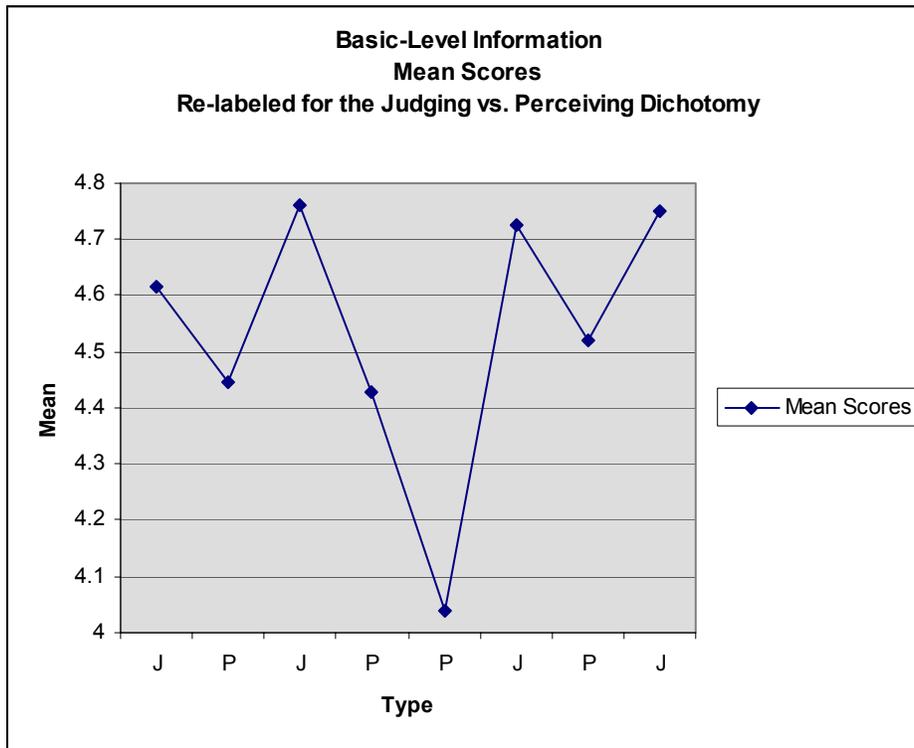
Chart 4.1 – Plot of means for basic-level information



In analyzing the means plot, there appeared to be a pattern that emerged from group to group. Upon further analysis, it was discovered that groups 1, 3, 6, and 8 (Introverted Sensing, Introverted Intuition, Extraverted Thinking, and Extraverted Feeling) all stem from types utilizing the “Judging” function as their orientation toward the outer world. Groups 2, 4, 5, and 7 (Extraverted Sensing, Extraverted Intuition, Introverted Thinking, and Introverted Feeling) all stem from types that utilize the “Perceiving” function (refer to Table 1.2 to see how the J and P functions influence the dominant types). The post-hoc test of Fisher’s LSD backs up this finding as the dominant functions that spawn from the judging preference are all significantly different from Introverted Thinking, a function of the perceiving preference. There appears to be a distinct and discernable pattern that potential investors with a preference for judging behaviors consistently rank information more important (and thus plan to look it up) than do those investors whose preference is from the opposite dichotomous perceiving function.

This finding does fit with the research completed on the preferences of judging and perceiving. As was revealed in the literature review, those with a judging preference tend to be more studious, focusing on fact retention and methodical study (Elliott & Sapp, 1988). On the opposite spectrum of the dichotomy are those with a perceiving preference. The literature review found that those with the perceiving preference tended to be more tactile (hands-on) learners (Fourqurean et al., 1990). Chart 4.2 shows the means-plot for basic information labeled for the judging and perceiving functions.

Chart 4.2 - Plot of means for basic-level information (re-labeled for the judging vs. perceiving dichotomy)



With this new pattern, a new and unscheduled T-test was run on the basic-level information data using the dichotomous judging and perceiving functions as the independent variables (Table 4.10). These findings produced a p-value of 0.004 which is a stronger correlation than the findings of the dominant preferences (p-value = .039).

Table 4.10 – T-test on basic information utilizing the judging and perceiving functions

Group Statistics

	JP	N	Mean	Std. Deviation	Std. Error Mean
BASIC	1	40	4.7050	.28640	.04528
	2	41	4.4000	.51575	.08055

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
BASIC	Equal variances assumed	9.008	.004	3.279	79	.002	.3050	.09302	.11986	.49014
	Equal variances not assumed			3.301	62.843	.002	.3050	.09240	.12034	.48966

In summation, based on these findings, the MBTI® dominant processes of the sample participants are not equal when it comes to the level of basic information the participants labeled as important and would make an effort to seek out before making an investment decision. Upon further analysis, it appeared that the dichotomous judging vs. perceiving function had a more direct correlation with basic information-seeking than the dominant functions, as well as a more prominent pattern and consistency with previous research findings.

Hypothesis Three: Information-seeking effort for intermediate-level information

1. H0 – In respect to the information-seeking effort of intermediate-level information when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to the information-seeking effort of intermediate-level information when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

In analyzing hypothesis three, only the mean scores for the “intermediate” questions were analyzed as the dependent variable. The intermediate-level questions were questions three, four, seven, eight, and twelve. In order to test this hypothesis, the mean scores of the intermediate-level responses to the five intermediate-level investment questions were analyzed as the dependent variable in a one-way analysis of variance, utilizing the MBTI® dominant functions as the independent variable. At $p = 0.05$, this study fails to reject the null hypothesis that the dominant functions differ when it comes to seeking intermediate-level investment information. See Table 4.11 for the complete analysis of variance.

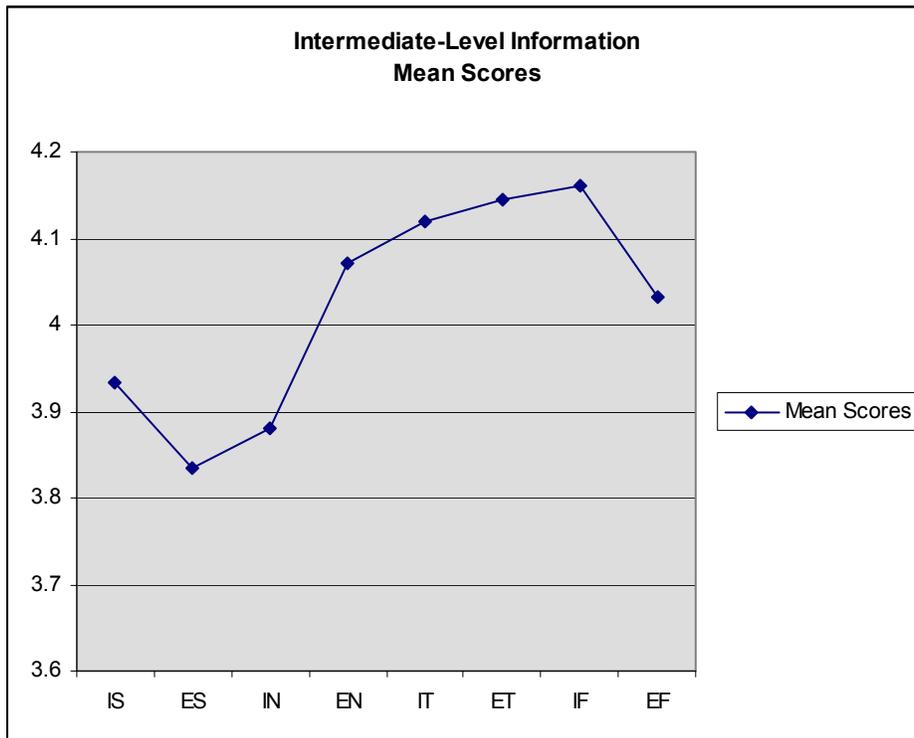
Table 4.11 - ANOVA on the scores of intermediate-level information

ANOVA

INTER					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.104	7	.158	.516	.820
Within Groups	22.296	73	.305		
Total	23.400	80			

Based on these findings, the MBTI® dominant processes of the sample participants are equal when it comes to the intermediate-level information the participants labeled as important and would make an effort to seek out before making an investment decision. A means-plot was generated to determine if the same pattern emerged from the intermediate-level of information as did the basic-level information; however, a similar pattern did not emerge. As can be seen in Chart 4.3, the means did exhibit a non-linear “S” shaped pattern. This pattern did not follow the judging vs. perceiving dichotomy as did the basic-level information. The emergent pattern, while interesting, had no statistical significance, and was not easily categorized by type descriptions.

Chart 4.3 - Plot of means for intermediate-level information



Hypothesis Four: Information-seeking effort for advanced-level information

1. H0 – In respect to the information-seeking effort of advanced-level information when it comes to making a decision to purchase a mutual fund, IS = ES = IN = EN = IT = ET = IF = EF. There are no differences among the personality preferences.
2. H1 - In respect to the information-seeking effort of advanced-level information when it comes to making a decision to purchase a mutual fund, IS ≠ ES ≠ IN ≠ EN ≠ IT ≠ ET ≠ IF ≠ EF. There are differences among the personality preferences.

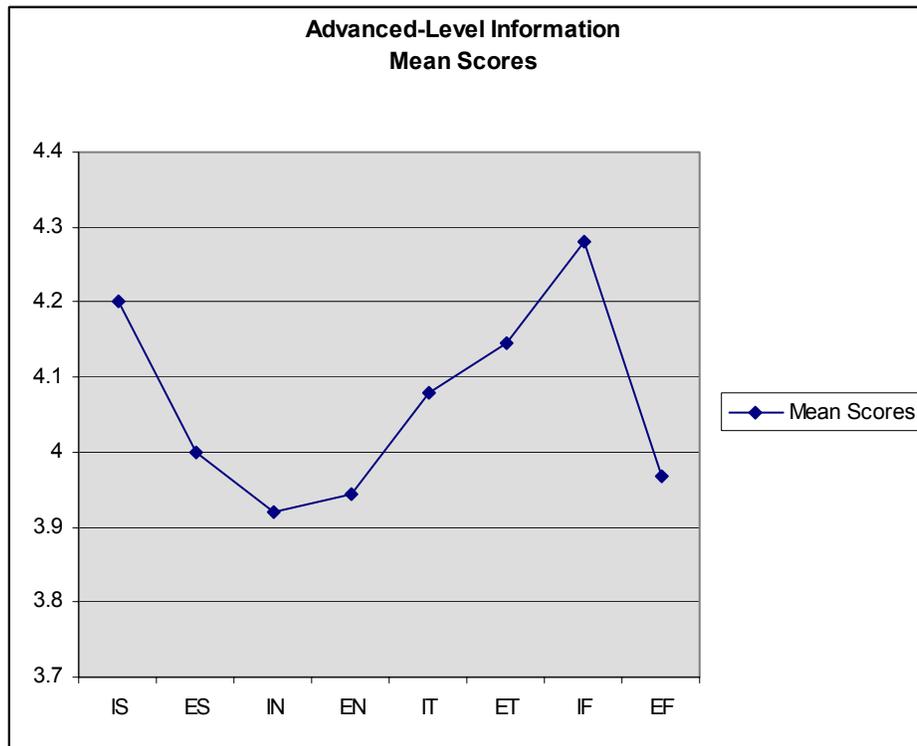
Hypothesis four was analyzed using only the mean scores for the “advanced” questions. The advanced-level questions were questions six, nine, thirteen, fourteen, and fifteen. As with the basic-level and intermediate-level tests, the mean scores of the advanced-level responses to the five intermediate-level investment questions were analyzed as the dependent variable in a one-way analysis of variance, utilizing the MBTI® dominant functions as the independent variable. At $p = 0.05$, this study fails to reject the null hypothesis that the dominant functions differ when it comes to seeking advanced-level investment information. However, when the means are plotted an “S” shaped pattern emerges, very similar to the pattern found by plotting the means of the intermediate-level responses. See Table 4.12 for the complete analysis of variance and Chart 4.4 for the means-plot.

Table 4.12 - ANOVA on the scores of advanced-level information

ANOVA

ADV					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.010	7	.144	.373	.915
Within Groups	28.252	73	.387		
Total	29.262	80			

Chart 4.4 - Plot of means for advanced-level information



Based on these findings, the MBTI® dominant processes of the sample participants are equal when it comes to the advanced-level information the participants labeled as important and would make an effort to seek out before making an investment decision.

Hypothesis Five: Information-seeking effort for qualitative information

1. H0 – In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 1, 4, 8, 11, 12, 14), $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 1, 4, 8, 11, 12, 14), $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

In the test of hypothesis five, the dependent variable became the mean scores for the qualitative questions only. Since it has been suggested in the literature that some

types have a preference for left-hemisphere brain activity, and others prefer right-hemisphere brain activity (Grabowska & Nowicka, 1996; Wilson & Languis, 1990), it was hypothesized that some types may prefer qualitative information to quantitative information. At $p = 0.05$, this study fails to reject the null hypothesis that the preference for qualitative information differs between the types. See Table 4.13 for the complete analysis of variance performed on the mean differences between the types for a qualitative information preference.

Table 4.13 – ANOVA on qualitative information

ANOVA					
QUAL					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.829	7	.261	1.190	.319
Within Groups	16.029	73	.220		
Total	17.858	80			

Hypothesis Six: Information-seeking effort for quantitative information

1. H₀ – In respect to information-seeking effort when it comes to the level of importance placed on the quantitative questions (questions 2, 3, 5, 6, 7, 9, 10, 13, 15), IS = ES = IN = EN = IT = ET = IF = EF. There are no differences among the personality preferences.
2. H₁ - In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 2, 3, 5, 6, 7, 9, 10, 13, 15), IS ≠ ES ≠ IN ≠ EN ≠ IT ≠ ET ≠ IF ≠ EF. There are differences among the personality preferences.

Similar to hypothesis five, hypothesis six tested the mean differences between the personality types for quantitative information. In this case, only the questions that dealt specifically with quantitative information were analyzed. Once again at $p = 0.05$, the mean differences were not significant. Table 4.14 provides the complete analysis of variance that was performed on the mean differences between the types for quantitative information.

Table 4.14 – ANOVA on quantitative information

ANOVA

QUAN

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.324	7	.046	.220	.980
Within Groups	15.351	73	.210		
Total	15.675	80			

Hypothesis Seven: Preference for qualitative or quantitative information

1. H0 – In respect to information-seeking effort when it comes to a preference for either qualitative or quantitative data among all personality types, $\mu_{Qual} = \mu_{Quan}$. There is no preference for either qualitative or quantitative information.
2. H1 - In respect to information-seeking effort when it comes to a preference for either qualitative or quantitative data among all personality types, $\mu_{Qual} \neq \mu_{Quan}$. There is a preference for either qualitative or quantitative information.

Hypothesis seven did not utilize MBTI® type preferences as an independent variable. Instead, it compared the scores of relative importance placed on qualitative mutual fund characteristics (questions 1, 4, 8, 11, 12, 14) with those of quantitative characteristics (questions 2, 3, 5, 6, 7, 9, 10, 13, 15) as labeled by each individual. Given the risk of information overload by consumers (Chewning & Harrell, 1990; O'Reilly, 1980; Schick et al., 1990) it is important to identify the type of information (qualitative vs. quantitative) that potential investors prefer before making a mutual fund purchase decision.

A statistically significant finding was identified on hypothesis seven and the preference for qualitative versus quantitative data. A paired T-test was run to determine if the means differed (for all respondents) between the qualitative and the quantitative information. Based on the results of this T-test, it is sufficient to conclude that the respondents of this survey placed a higher value on quantitative information than qualitative information. Table 4.15 provides the results of the paired T-test.

Table 4.15 – T-test on the overall preference for quantitative versus qualitative data

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	QUAL	4.1173	81	.47247	.05250
	QUAN	4.2579	81	.44264	.04918

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	QUAL & QUAN	81	.656	.000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	QUAL - QUAN	-.1406	.38047	.04227	-.2247	-.0565	-3.326	80	.001

At $p = 0.05$, the T-test reveals that the mean of the qualitative responses is statistically significantly lower than the mean responses of the quantitative responses with the significance finding of 0.001. Also interesting is the degree of correlation between qualitative responses and quantitative responses (.656). While this may be interpreted as a fairly strong positive correlation, it may not be as strong as one would think, especially given the statistically insignificant findings of hypotheses five and six. In this hypothesis, it appears that some participants did not respond similarly to both types of questions. This preference for quantitative information by individuals before making a mutual fund purchase may, in fact, be a form of satisficing. If it is deemed by the potential investor that (for a mutual fund purchase) quantitative information is more important, then the investor may forego seeking qualitative information, even though he/she understands it is available. This finding would thus be consistent with the findings of Deacon and Firebaugh (1988) and Gross, et al., (1973). However, based on the mean scores of this study, while quantitative information is statistically more important for a decision than qualitative information, qualitative information is still important.

Hypothesis Eight: Relationship between information-seeking effort and satisfaction

1. H0 – In respect to the degree of satisfaction expressed, there is no relationship between satisfaction and the degree of information sought. $\rho = 0$.
2. H1 – In respect to the satisfaction expressed, there is a relationship between satisfaction and the degree of information sought. $\rho \neq 0$.

One of the goals in providing information to investors, prior to the investor’s purchase decision is to influence the degree of satisfaction the investor feels in having made the purchase decision. In this hypothesis, as with hypothesis seven, personality type was not a considered variable. Hypothesis eight attempted to discern whether or not the degree of information sought by the potential investor was related to the degree of stated satisfaction in the investment decision. Pearson’s product moment correlation coefficient (Pearson’s r) is a measure of correlation of two variables (in this case information-seeking effort and satisfaction) on the same object (potential investor). Simply, Pearson’s r measures the tendency of variables to increase or decrease together, and thus was used to determine the relationship between information-seeking effort and satisfaction. In a two-tailed test of significance, Pearson’s r (Table 4.16) showed no linear association, with points that were essentially random

Table 4.16 – Pearson’s r on satisfaction

Correlations			
		SATIS	TOTAL
SATIS	Pearson Correlation	1	.131
	Sig. (2-tailed)	.	.245
	N	81	81
TOTAL	Pearson Correlation	.131	1
	Sig. (2-tailed)	.245	.
	N	81	81

These findings mean that we fail to reject the null hypothesis and it was concluded that the degree of information sought did not have any relationship with the degree of satisfaction expressed.

An interesting finding that related to this hypothesis was the mean level of satisfaction expressed by respondents. No respondent reported a score below three (3) meaning that no respondent felt he/she would be dissatisfied with his/her decision. The mean level of satisfaction was relatively high at 4.53 (between somewhat satisfied and

very satisfied). While this mean score for satisfaction was not correlated with the degree of information sought, it can be inferred that the information provided (within the fifteen questions) was sufficient for the participants to state that they would be very satisfied with their decisions. It is, however, important to recognize that the participants are expressing satisfaction without the benefit of any results. After the initial purchase, satisfaction levels will likely rise and fall with their investment's performance in conjunction with their expectations, which was not the purpose of this research.

Hypothesis Nine: Relationship between personality type and satisfaction

1. H0 – In respect to satisfaction expressed with the purchase decision of a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to satisfaction expressed with the purchase decision of a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

In analyzing hypothesis nine, the stated satisfaction levels were analyzed as the dependent variable, utilizing the dominant preferences as the independent variable. In a one-way analysis of variance (Table 4.17), this study fails to reject the null hypothesis (at $p = 0.05$) that the dominant type preferences influence the stated level of satisfaction.

Table 4.17 - ANOVA on satisfaction

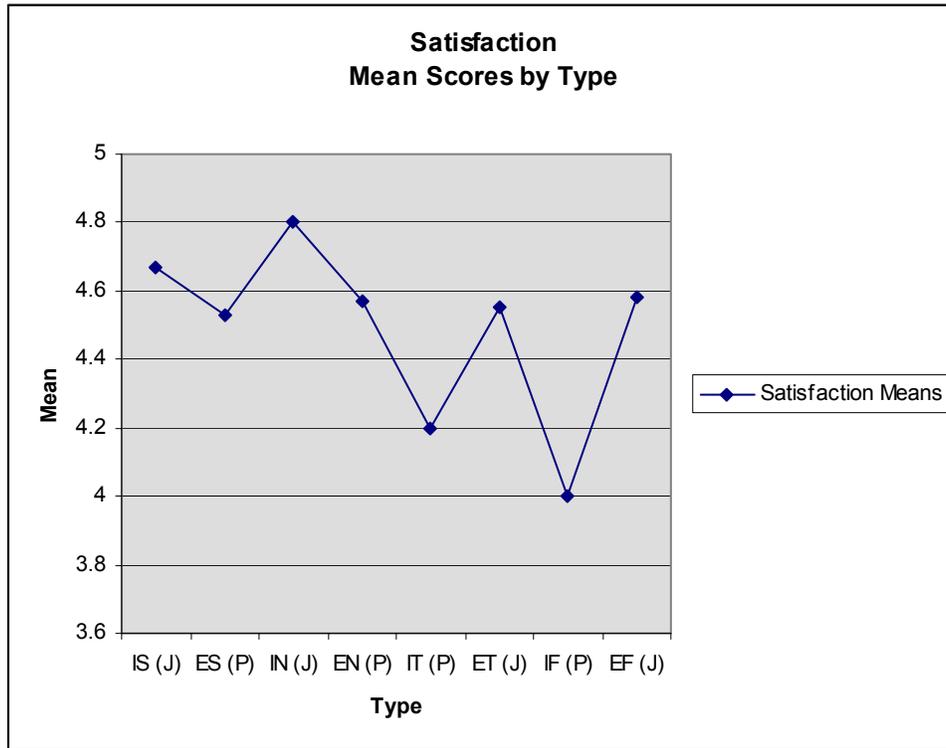
ANOVA

SATIS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.598	7	.371	.983	.451
Within Groups	27.574	73	.378		
Total	30.173	80			

Though not statistically significant, a familiar pattern emerged when the means were plotted (Chart 4.5). Similar to the means plot of hypothesis two, the levels of stated satisfaction appeared to be higher for those exhibiting the “Judging” preference, and lower for those exhibiting the “Perceiving” preference for each paired dominant style.

Chart 4.5 – Satisfaction means by type



An additional T-test was run on satisfaction, using the judging vs. perceiving preference as the independent variable. As with hypothesis two, the results of this test were statistically significant (Table 4.18); however, in this case the null hypothesis was rejected by only a slight margin ($p = 0.045$). It is possible that a larger sample size may produce a different outcome.

Table 4.18 – T-test on satisfaction utilizing the judging and perceiving functions

Group Statistics					
	JP	N	Mean	Std. Deviation	Std. Error Mean
SATIS	1	40	4.63	.540	.085
	2	41	4.44	.673	.105

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SATIS	Equal variances assumed	4.108	.046	1.370	79	.175	.19	.136	-.084	.456
	Equal variances not assumed			1.374	76.202	.174	.19	.135	-.084	.456

To summarize hypothesis nine, based on these findings, the MBTI® dominant processes of the sample participants are equal when it comes to the level of satisfaction the participants expressed in regard to their investment decision. However, when the judging vs. perceiving function was substituted for the independent variable, a slight, yet statistically significant correlation was found. Participants with a judging preference stated a higher level of satisfaction with their decision than did those participants with a perceiving preference. Given that mutual fund information is generally provided in a methodically written format with structure and sequence, this finding reinforces the findings of Drummond and Stoddard (1992), Beyler and Schmeck (1992) and Fourquean et al. (1990) as those with a judging preference would likely find this type of information more satisfying than those with a perceiving preference.

Summary

In this chapter, each hypothesis was tested individually. The majority of the tests failed to reject the null hypothesis. These tests included:

1. Hypothesis one – The test failed to reject the hypothesis that the eight dominant preferences were equal when it came to labeling the importance of the total information provided.
2. Hypothesis three - The test failed to reject the hypothesis that the eight dominant preferences were equal when it came to labeling the importance of intermediate-level information provided (though a pattern was identified).
3. Hypothesis four - The test failed to reject the hypothesis that the eight dominant preferences were equal when it came to labeling the importance of advanced - level information provided (though a pattern was identified).
4. Hypothesis five - The test failed to reject the hypothesis that the eight dominant preferences were equal when it came to labeling the importance of the qualitative information provided.

5. Hypothesis six - The test failed to reject the hypothesis that the eight dominant preferences were equal when it came to labeling the importance of the quantitative information provided.
6. Hypothesis eight – The test failed to reject the hypothesis that the degree of information-seeking effort was correlated with the investor’s stated satisfaction with the final decision.

However, the tests for three hypotheses did show significance in the statistical results. Distinct patterns were also identified and plotted.

1. Hypothesis two – The test rejected the null hypothesis that the eight dominant preferences were equal when it came to labeling the importance of basic-level information. Upon further analysis, it was determined that a stronger correlation existed between the two dichotomous judging vs. perceiving variables.
2. Hypothesis seven – The test rejected the null hypothesis that the mean scores of qualitative question responses were equal to the mean scores of quantitative question responses. Quantitative question responses had a statistically significant higher mean than did qualitative question responses.
3. Hypothesis nine – The test failed to reject the null hypothesis that the eight dominant preferences were equal when it came to the stated satisfaction level. However, upon further analysis, it was determined that the judging vs. perceiving preferences were not equal when it came to the stated satisfaction level.

Table 4.19 – Summary table of tested hypotheses

Failed to reject hypothesis with no significant finding (p = 0.05)	Failed to reject hypothesis with related significant finding (p = 0.05)	Rejected hypothesis (p = 0.05)
Hypothesis 1	Hypothesis 9	Hypothesis 2
Hypothesis 3		Hypothesis 7
Hypothesis 4		
Hypothesis 5		
Hypothesis 6		
Hypothesis 8		

CHAPTER V

Summary, Conclusions, and Recommendations

This chapter summarizes the objectives, methodology, and results of the study. Conclusions based on the results are presented, and the chapter concludes with recommendations for further research.

Summary of the study

More and more investors are saving their dollars using mutual funds. With each mutual fund purchase, the SEC requires that the investor be provided with a prospectus at the point-of-sale. The prospectus provides a wealth of information on the particular fund, but some have argued that this information (while relevant) is not often used by prospective investors. It has also been suggested that mutual fund disclosure is too complicated with difficult terminology, thus causing potential investors to “satisfice” (Deacon & Firebaugh, 1988; Gross et al., 1973; Simon, 1957) due to information overload (Chewning & Harrell, 1990; O'Reilly, 1980; Schick et al., 1990). However, there are others who state that the current efforts to simplify mutual fund disclosure are not feasible. Therefore, those who wish for investors to be well-informed prior to making a mutual fund purchase have a dilemma. What should be done to help improve mutual fund disclosure so that it provides the greatest benefit to potential investors?

This study was designed to provide insight into how much information an investor chooses to explore before deciding on a particular mutual fund for his/her own personal investment. Choosing a mutual fund, like any other purchase decision, generally follows five basic steps of the decision-making process: 1) recognize and define the problem or opportunity, 2) identify and analyze alternative courses of action, and estimate their effects on the problem or opportunity, 3) choose a preferred course of action, 4) Implement the preferred course of action, 5) evaluate the results and follow up as necessary (Schermerhorn et al., 2005). The primary focus of this study was on the second step of the decision-making process, and how much effort

potential investors dedicated to this step, before moving to the third step of choosing their preferred course of action.

Personality was used as the independent variable for the majority of the hypotheses in this study. It was hypothesized that different personality types (as measured by the Myers-Briggs Type Indicator®) would not be equal in their stated levels of importance of different mutual fund characteristics, and thus would expend different amounts of effort to seek information before making a mutual fund purchase. In particular, it was hypothesized that the dominant preferences (the balance of judgment and perception between the extraverted and introverted worlds) would not be equal in their desire for information.

Based on these two variables, the nine research questions were designed as follows:

1. Does personality (as determined by the MBTI®) influence the total information-seeking effort of a potential mutual fund investor in the investment decision-making process?
2. Does personality (as determined by the MBTI®) influence the basic-level information-seeking effort of a potential mutual fund investor in the investment decision-making process?
3. Does personality (as determined by the MBTI®) influence the intermediate or mid-level information-seeking effort of a potential mutual fund investor in the investment decision-making process?
4. Does personality (as determined by the MBTI®) influence the advanced-level information-seeking effort of a potential mutual fund investor in the investment decision-making process? 4(b) Do any personality types consistently seek an above average level of information, and if so, which types make this level of information-seeking effort.
5. Is there a relationship between personality type and a preference for qualitative information?
6. Is there a relationship between personality type and a preference for quantitative information?

7. Is there a general preference for quantitative or qualitative information when potential investors seek information on a mutual fund?
8. Is there a relationship between the level of information sought by an investor before the decision is made and the stated satisfaction with said decision?
9. Is there a relationship between personality type and the stated satisfaction with the investment decision?

These nine questions along with a review of the relevant literature led to the research hypotheses.

Hypothesis One: Information-seeking effort for total information

1. H0 – In respect to the total information-seeking effort when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$.
There are no differences among the personality preferences.
2. H1 - In respect to the total information-seeking effort when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$.
There are differences among the personality preferences.

Hypothesis Two: Information-seeking effort for basic-level information

1. H0 – In respect to the information-seeking effort of basic information when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to the information-seeking effort of basic information when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Three: Information-seeking effort for intermediate-level information

1. H0 – In respect to the information-seeking effort of intermediate-level information when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to the information-seeking effort of intermediate-level information when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Four: Information-seeking effort for advanced-level information

1. H0 – In respect to the information-seeking effort of advanced-level information when it comes to making a decision to purchase a mutual fund, $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to the information-seeking effort of advanced-level information when it comes to making a decision to purchase a mutual fund, $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Five: Information-seeking effort for qualitative information

1. H0 – In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 1, 4, 8, 11, 12, 14), $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 1, 4, 8, 11, 12, 14), $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Six: Information-seeking effort for quantitative information

1. H0 – In respect to information-seeking effort when it comes to the level of importance placed on the quantitative questions (questions 2, 3, 5, 6, 7, 9, 10, 13, 15), $IS = ES = IN = EN = IT = ET = IF = EF$. There are no differences among the personality preferences.
2. H1 - In respect to information-seeking effort when it comes to the level of importance placed on the qualitative questions (questions 2, 3, 5, 6, 7, 9, 10, 13, 15), $IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF$. There are differences among the personality preferences.

Hypothesis Seven: Preference for qualitative or quantitative information

1. H0 – In respect to information-seeking effort when it comes to a preference for either qualitative or quantitative data among all personality types, $\mu_{Qual} = \mu_{Quan}$. There is no preference for either qualitative or quantitative information.

2. H1 - In respect to information-seeking effort when it comes to a preference for either qualitative or quantitative data among all personality types, $\mu_{Qual} \neq \mu_{Quan}$. There is a preference for either qualitative or quantitative information.

Hypothesis Eight: Relationship between information-seeking effort and satisfaction

1. H0 – In respect to the degree of satisfaction expressed, there is no relationship between satisfaction and the degree of information sought. $\rho = 0$.
2. H1 – In respect to the satisfaction expressed, there is a relationship between satisfaction and the degree of information sought. $\rho \neq 0$.

Hypothesis Nine: Relationship between personality type and satisfaction

1. H0 – In respect to satisfaction expressed with the purchase decision of a mutual fund, IS = ES = IN = EN = IT = ET = IF = EF. There are no differences among the personality preferences.
2. H1 - In respect to satisfaction expressed with the purchase decision of a mutual fund, IS \neq ES \neq IN \neq EN \neq IT \neq ET \neq IF \neq EF. There are differences among the personality preferences.

In order to test these nine hypotheses, a survey was designed that measured individual MBTI® preferences, as well as the effort exhibited by the potential investor in seeking information about a mutual fund. The MBTI® preference survey has been tested by numerous researchers, and there have been several findings that attest to its reliability and validity as a measurement for the described dichotomous constructs. However, there was no existing survey that measured information-seeking effort; therefore, a survey was developed. A pilot study was used to ascertain and improve the reliability of the information-seeking portion of the study; however, the reliability and validity of this instrument remains a threat to this research.

The final combination of the personality and information-seeking survey was administered on-line to 101 college juniors and seniors. Only those respondents who met certain criteria were analyzed, providing a final sample of 81 participants. The sample participants were compared to a nationally representative sample to determine the breakdown by type. It appeared (based on the national sample) that the sample used in this research was overrepresented by extraverts in the “extraversion” vs. “introversion” dichotomy. This finding may be due, in part, by the importance placed on the perception

of social behavior by college students, the fact that they are college students rather than the general public, the majors selected, or several other biasing factors.

Once the sample was analyzed, the null hypotheses for hypothesis two and hypothesis seven were rejected. In addition, while the null hypothesis for hypothesis nine failed to be rejected, a significant finding was made by re-labeling the personality data. All other hypotheses failed to be rejected by the statistical analysis of this study.

Conclusions

In analyzing the data of this study, several interesting patterns emerged. First and foremost, there appeared to be a strong relationship between the judging preference and perceiving preference when it came to the dependent variables of information-seeking effort and investor satisfaction utilized in this study.

Information-seeking for basic information. The first statistically significant finding was in that of hypothesis two. A one-way analysis of variance revealed that the mean scores of those with an introverted thinking function were significantly lower than several of the other dominant functions (according to Fisher's LSD) when it came to labeling the importance of mutual fund characteristics, and making an effort to seek basic-level information. Upon further analysis, a stronger pattern was revealed. Based on the research findings, individuals with a judging preference labeled the basic information, generally provided in mutual fund disclosure, as more important (and thus stated that they would make an effort to seek it out) than did those with a perceiving preference (where the dominant preference types of Introverted Thinkers were grouped).

As was revealed in the literature review, those with a judging preference tend to be more studious, focusing on fact retention and methodical study (Elliott & Sapp, 1988). On the opposite spectrum of the dichotomy are those with a perceiving preference. The literature review found that those with the perceiving preference tended to be more tactile (hands-on) learners (Fourqurean et al., 1990). In conclusion, it appears that MBTI® personality preferences have a correlation and possibly impact the information seeking efforts of potential investors. However, there does not appear to be any one personality type that consistently seeks an above-average amount of information. Those with a judging preference seek more basic-level information than those with a perceiving type,

but this would not be considered “above-average” in relation to the other personality types.

Given the descriptions of the learning habits of those with preferences for judging and perceiving, the findings of this study are in-line and consistent with other findings. Based on the findings of previous research, this study supports the idea that those with a judging preference may have been more methodical when it came to seeking basic information on the mutual fund, while those with the perceiving preference may have preferred to obtain some information, but in the end, decided that they would learn best by purchasing the fund and learn tactilely from the experience.

Information-seeking for intermediate and advanced-level information. It is also interesting that this pattern did not follow for the intermediate-level and advanced-level information. For these variables, a similar non-linear S-shaped pattern was observed between the functions; however, none of the findings proved to be statistically significant. It could be assumed that the more complicated information had a different impact on the personality types from the basic information. While the basic information was more than likely easily understood by everyone, the intermediate-level and advanced-level information may have used terms and methodologies that were foreign and possibly unclear to many of the respondents. Therefore, this uncertainty may have caused the participant to become uncomfortable, and rely on an auxiliary type function reserved for “emergencies”.

Preferences. When the Myers-Briggs speaks of preferences, they are just that. While a participant may prefer to use his or her preference, in many cases, stress, uncertainty, etc. will move a participant away from his or her preference. It is possible that this uncertainty caused the participants to label information as important, even though they may not have entirely understood it. It is also possible that these students, because of their education, labeled information as important because they recognized it was “advanced” and felt that the “right” answer was to label the higher-level information as important, especially if they didn’t fully understand it.

While the findings were not statistically significant, it can be seen in Table 5.1 that it appeared that those participants whose dominant functions were in either the “Sensing” or “Feeling” types labeled information as more important (and thus would plan

to seek it) if they also had a dominant “Introverted” function over the “Extraverted” function. Conversely, if the dominant functions were either “Intuition” or “Thinking”, then the participants labeled information as more important (and thus would plan to seek it) if they also had a dominant “Extraverted” function over the “Introverted” function. These findings also provide insight into the average amount of information that a potential investor will seek before making a mutual fund investment, as all the mean scores are relatively high.

Table 5.1 – Mean scores of information importance by type

	IS (J)	ES (P)	IN (J)	EN (P)	IT (P)	ET (J)	IF (P)	EF (J)
Basic Level Means	4.62	4.45	4.76	4.43	4.04	4.73	4.52	4.75
Intermediate Level Means	3.93	3.83	3.88	4.07	4.12	4.15	4.16	4.03
Advanced Level Means	4.20	4.00	3.92	3.94	4.08	4.15	4.28	3.97

- 5 = Very important
- 4 = Somewhat important
- 3 = Don't need now if available later
- 2 = Wouldn't care
- 1 = Would only confuse

Qualitative vs. quantitative information. Also interesting, and a statistically significant finding, was the result of hypothesis seven. In this hypothesis, the qualitative mutual fund descriptions were compared to the mutual fund descriptions of a quantitative nature. The findings indicate that the sample participants considered the quantitative descriptions to be more important, and would make a greater effort to seek them, than the qualitative descriptions. Therefore, if space and time were limited, it appears that potential investors would place more importance on quantitative information when it comes to a mutual fund purchase; however, in practicality, the mean scores of both quantitative and qualitative information were high, and thus important to potential investors. The sample participants' majors also likely influence this finding, as most were enrolled in business, consumer studies, and economics. The student who chooses to pursue these degrees may likely have a natural predilection for quantitative facts due to the nature of their work and experiences.

Satisfaction. The third statistically significant finding was in hypothesis nine. When the original hypothesis was tested, the null hypothesis that the different dominant personality preferences were equal when it came to satisfaction expressed in regard to the investment decision failed to be rejected at $p = 0.05$. However, the means-plot displayed a pattern that matched the plot of means for the judging vs. perceiving preferences and their basic-level information-seeking effort. This motivated further analysis.

When the same hypothesis was tested, but utilizing the judging vs. perceiving dichotomy as opposed to the dominant preference, a significant p-value was obtained. Participants with a judging preference stated a significantly higher degree of satisfaction than those with a perceiving preference. Therefore, while it may be in the inherent nature of judges to be more highly satisfied with decisions than perceivers, it may also be concluded that their efforts to obtain more basic-level information about an investment correlates with the degree of satisfaction they experience. It may also be that the methodical, structured nature of current mutual fund disclosure lends itself to the information-seeking style of judges, thus increasing the level of satisfaction with the initial decision.

At the opposite end of the dichotomy, it is possible that perceivers have a preference for seeking some information, but then purchasing the mutual fund and learning tactilely through experience, whether or not the mutual fund fits their needs. By nature, this would leave perceivers feeling less certain about the soundness of the decision until after the mutual fund had been purchased. Therefore, it stands to reason that perceivers would be less certain as to their stated level of satisfaction.

Implications

These findings should assist those who wish to improve mutual fund disclosure. The first conclusion is that an individual's information collecting preference may not be utilized when the information becomes complicated. The findings of this study indicate that when an individual is collecting information to use in an investment decision, that he or she seems to be guided by their preference for judging or perceiving when the information is basic and easily understood. However, this is not the case when the information becomes more complicated and possibly confusing. In order to rectify this issue, and allow for potential investors to remain in their preference, where they are likely

comfortable, and have the most experience, it is necessary to either A) better educate the investing public on personal financial planning, and investments so that potential investors understand how different investment vehicles work, what investment vehicles to select, and the pros and cons of each, B) use language that is easily understood to describe investments in point-of-sale information, or C) a combination of both these options.

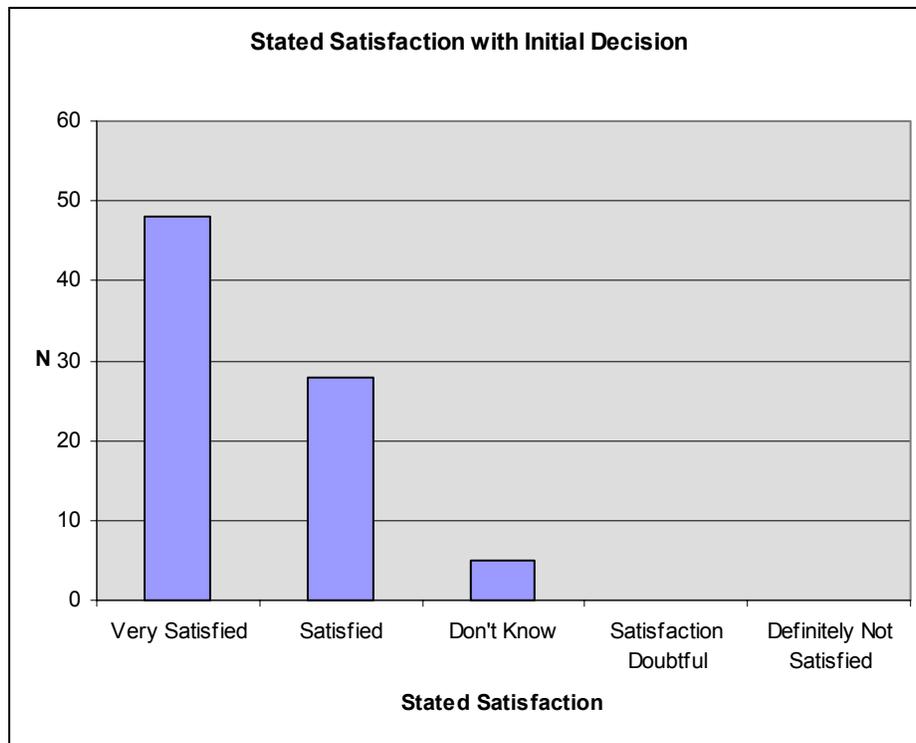
Government and investment industry. These options are no great revelation to the SEC and the investment industry, but they do provide further evidence that the efforts being made to simplify disclosure and to educate the investing public are warranted, and should be continued. Regulators and makers of investment industry policies may use the findings of this study to continue to improve financial literacy programs across America, and possibly increase the level of financial planning curriculum offered in school systems. In addition, this study shows that information disclosure is important to potential investors, thus warranting the continued research and development necessary to improve point-of-sale mutual fund information, and possibly improving the terminology used in the documentation.

Financial planning industry. The findings of this study may also assist the financial planning industry. Many financial planners and advisors already use some form of personality assessment (MBTI®, DiSC, Social Styles Inventory, etc.) to help them address client needs in the most efficient manner possible. The findings of this study should provide more data to assist in these efforts. If planners are able to ascertain a client's judging vs. perceiving preference, this information may assist planners in understanding the basic-level information needs of each client; as well as, the expected level of satisfaction the clients will express about their initial investment decisions.

Access to higher-level information. It is important for business, government, consumers, and the educational system to note that investors do desire to have access to higher-level information. While there appeared to be no significant or discernable preference correlation, the mean differences between the advanced, intermediate, and basic-level information were negligible.

In addition, 94% of the 81 respondents stated a satisfaction level of “satisfied” or “very satisfied”. Therefore, access to the information provided did seem to have an impact on improving an investor’s stated satisfaction (See Chart 5.1). While no survey question asked how satisfied the potential investor would feel had he/she had no access to information, the stated level of satisfaction would likely have been significantly lower. Also, while the mean score for quantitative information was higher than that for qualitative information, no MBTI® types appeared to show any correlation to a preference for quantitative or qualitative information. Therefore, while quantitative information was statistically more important than qualitative information, based on the mean responses (and limitations of the study), both types of information were important to all personality preferences.

Chart 5.1 – Stated satisfaction levels with initial investment decision



Recommendations

Based on the results and conclusions of the study, recommendations are offered for further research and for those who strive to educate the investing public by improving information disclosure to potential investors.

Recommendations for further research

It is possible that greater statistical significance and more distinct patterns could be identified using a similar research approach with a larger sample. The sample used for this study was arguably irreparably damaged by the events that transpired at Virginia Tech during the survey period. However, even with the smaller than desired sample, patterns were evident and some were found to be significant. Therefore, a large sample may provide more concrete findings.

In addition, due to the overrepresentation of extraverts by college students, post graduates and non-college students may provide a more diverse pool of those who describe themselves as “introverted”. However, the longer a potential participant has worked in a full-time job, the more likely that the participant will have been arguably biased by purchasing a mutual fund (either within a 401(k), IRA, Taxable account, etc.) via company benefit plans or personal investments.

The option of an experimental design may also improve results. An experimental design that actually incorporated the participant’s use of a prospectus was beyond the capability of this research, but may prove interesting as it involves the actual time commitment and effort of seeking information as opposed to choosing an option that states that they would seek the information.

If an experimental design is not used, further efforts should be made to increase the reliability and validity of the information-seeking assessment. Only a small pilot study was conducted to assess the reliability and validity of this instrument before it was used. Item selection could be tested to increase the content validity, and possibly improve the interpretability of the results for the intermediate-level and advanced-level information. While no instrument currently exists to test investment information-seeking effort, other instruments may be located to test the concurrent validity of the information-seeking survey.

Lastly, this research design was not capable of assessing causality. Research should be designed in such a way which could establish a causal relationship between personality and information-seeking effort. For this effort, it may be necessary to use the continuous data provided by the completion of Form M of the MBTI®. These data could be used to then find an equation that would predict information-seeking effort from the MBTI® scores.

Recommendations for educators, regulators, and policy-makers

The results of this study reinforce what many in the public sector and academia already suspect. Investors have a desire to research and understand their prospective mutual fund investments. The high mean scores exemplified in this study make this point relatively clear. However, having made this observation, it appears that certain types (those with a judging preference) may make a greater effort than other types (those with a perceiving preference) to seek information before making an investment decision. It is also possible that judges may be more insistent upon having information from their financial advisor, employer, etc. before deciding on a mutual fund. According to the results of this study; however, those same “judging” types will also likely be more satisfied with their initial decisions. Since national representative statistics place the American population at an approximate 50/50 split between judges and perceivers, it might not be infeasible to cater to both groups with one standardized point-of-sale disclosure document, since the differences in information-seeking preferences appear to be relatively minimal overall.

These findings reinforce the continued effort to develop documents similar to that of the “Profile Plus” which has been recommended by the NASD. A web document like the “Profile Plus” provides options for those who wish to seek additional information (“judgers” for the purposes of this study) with the ability to engage in this activity with minimal effort. At the same time, there are those who may not wish to apply the same level of effort in their information-seeking, but who still wish to seek the information that they deem important (“perceivers” for the purposes of this study). A document like the “Profile Plus” provides both groups with the options they desire while minimizing the risk of information overload.

In addition, the findings of this research do not find the current point-of-sale document, the prospectus, as an infeasible information tool. The findings indicate a strong desire by participants to seek information, be it basic or complicated. The prospectus provides this. However, the findings do indicate that complicated information may cause potential investors to become uncomfortable, and thus force them to use information-collecting techniques that do not fall within their personal preference. It is suggested by the findings of this study that if the information provided within prospectuses could be simplified, more potential investors would remain within their preference while collecting investment information, and possibly find it more useful in their decision-making process.

In a related point, investor education would also likely add to the value received from point-of-sale disclosure. In particular, the more complicated characteristics of investments may cause potential investors to feel stressed. Education on these topics would help to alleviate this stress and possibly add to the efficacy of investors in making their investment decisions. With this increased confidence and understanding, it is very possible that better choices could be cognized, thus increasing the likelihood of satisfaction with the decision, both before and after the purchase. In summation, the findings of this study reinforce the continuing effort to improve investor education in America.

Summary

In this chapter, a summary of the study was provided. Several conclusions were made from the research results. These conclusions include:

1. Potential investors with a judging preference seek more basic information about a mutual fund than those with a perceiving preference.
2. Potential investors with a judging preference state a greater level of satisfaction with their investment decision than do those with a perceiving preference.
3. The amount of information that investors desire to seek before making an investment decision is relatively high.
4. Based on the non-significant patterns of the research findings, investors appear to be more comfortable seeking information they can easily understand, though they still desire to make an effort to seek more complicated information.

Based on these findings and conclusions, it is recommended that point-of-sale disclosure information provide options for potential investors to seek as much information as they would like, but in a format that is easily navigable and easy to understand. It is also recommended that steps continue to be made to improve investor education. To reinforce these conclusions, there are several recommendations for additional research.

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Dissertation Survey

Please allow at least 30 minutes to complete this survey. If at any point, you wish to stop and continue later, you may do so. However, please answer every question before submitting your results.

Demographic Information

Have you heard of a mutual fund, and are you aware it is an investment?

Have you personally ever purchased a mutual fund before?

What is your age?

What is your gender?

Are you a student? If so, where?

What is your major?

Optional: If you would like to receive your Myers-Briggs results, please provide your mailbox number, and an official report form will be sent to you.

Directions for Section 1 of the survey.

Assume you have just started a new job. As a benefit to your job, your employer will save an extra \$5,000 a year into a mutual fund for you. If you do not save the \$5,000 into a mutual fund, you do not receive the benefit. You won't be able to access or spend this investment until after you retire or leave your job.

Assume there are three mutual funds from which to choose and you have access to three booklets (or prospectuses) that describe each fund in great detail. You can only choose one fund to save the entire \$5,000. There is no one available to help you. You must get the information you need to make your decision on your own using the prospectuses.

How much information will you look up about each fund before arriving at a decision?

Please be as honest as possible. There are no "right" or "wrong" answers.

SECTION 1

On which of the following mutual fund characteristics would you seek information?

1. An overview of the mutual fund (i.e. the fund's investment style and goals). This includes information on the types of stocks or bonds in which the fund invests your money.
 - A) I think this is very important, and I would definitely look it up in the prospectus.
 - B) I think this is somewhat important, and I would probably look it up in the prospectus.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this. I would not look it up in the prospectus.
 - E) This information would only confuse me. I do not wish to know it.

2. An overview of the mutual fund's fees (in both a percentage and dollar amount).
 - A) I think this is very important, and I would definitely look it up in the prospectus.
 - B) I think this is somewhat important, and I would probably look it up in the prospectus.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this. I would not look it up in the prospectus.
 - E) This information would only confuse me. I do not wish to know it.

3. An overview of the fund's distributions (including dividends or other income).
 - A) I think this is very important, and I would definitely look it up in the prospectus.
 - B) I think this is somewhat important, and I would probably look it up in the prospectus.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this. I would not look it up in the prospectus.
 - E) This information would only confuse me. I do not wish to know it.

4. An overview of the fund's holdings (what percentage of the fund's money is invested in different sectors of the economy). Would also list the ten largest holdings by company or agency name.

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

5. An overview of the fund's performance to date (would include the 1-year return, 3-year return, year to date return, etc).

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

6. Information on the risk attributes of the fund (statistical information on the fund's performance in relation to a benchmark).

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

7. Information on the fund's turnover (how often stocks and bonds are bought and sold within the fund).

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

8. Information on the fund's investment advisor (history of the firm, including the specific names and histories of the advisors).

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

9. A history of the fund's share price, including net investment income, and net unrealized gains/losses described with ratios.

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

10. The minimum amount of money needed to invest in the fund (some funds require that you invest at least a certain dollar amount).

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

11. The process you would use to redeem your shares (sell your mutual fund and get your money back).

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

12. Contact information for the company (website, phone numbers, etc.).

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

13. In addition to an overview of the fees, a specific breakdown of the fees into: sales charges, purchase fees, redemption fees, management expenses, 12b-1 fees, etc.).

- A) I think this is very important, and I would definitely look it up in the prospectus.
- B) I think this is somewhat important, and I would probably look it up in the prospectus.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this. I would not look it up in the prospectus.
- E) This information would only confuse me. I do not wish to know it.

14. Basic tax points (information on the taxability of the fund and the steps the fund company will take to inform you of your taxes due).
- A) I think this is very important, and I would definitely look it up in the prospectus.
 - B) I think this is somewhat important, and I would probably look it up in the prospectus.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this. I would not look it up in the prospectus.
 - E) This information would only confuse me. I do not wish to know it.
15. A history of the specific (per share) dividend declared.
- A) I think this is very important, and I would definitely look it up in the prospectus.
 - B) I think this is somewhat important, and I would probably look it up in the prospectus.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this. I would not look it up in the prospectus.
 - E) This information would only confuse me. I do not wish to know it.
16. Assuming that you obtain a satisfactory answer to all of the items that you labeled as "very important" or "somewhat important", how satisfied do you think you would be with your initial mutual fund purchase?
- A. Very satisfied
 - B. Somewhat satisfied
 - C. I don't know
 - D. I doubt I would be satisfied
 - E. I'm sure that I would not be satisfied

Directions for Section 1 of the survey.

Assume you have just inherited \$5,000 from a long lost family member, and while you would like to spend the money, you have decided that you will be responsible and invest the money in a mutual fund for some long-term goal (new home, new car, etc.).

Assume that there are only three mutual funds from which to choose - Fund A (Stock Fund), Fund B (Stock/Bond Fund), and Fund C (Money Market Fund).

Assume that you have three booklets that describe each fund in complete detail and that you can only choose one fund to invest the entire \$5,000. How much information will you look up about each fund before arriving at a decision?

Please be as honest as possible. There are no "right" or "wrong" answers.

1. An overview of the mutual fund (i.e. the fund's investment style and goals). This includes information on the types of stocks or bonds in which the fund invests your money.

- A) I think this is important to know.
- B) I think this is somewhat important to know.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this.
- E) This information would only confuse me, so I do not wish to know it.

2. An overview of the mutual fund's fees (in both a percentage and dollar amount).

- A) I think this is important to know.
- B) I think this is somewhat important to know.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this.
- E) This information would only confuse me, so I do not wish to know it.

3. An overview of the fund's distributions (including dividends or other income).

- A) I think this is important to know.
- B) I think this is somewhat important to know.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this.
- E) This information would only confuse me, so I do not wish to know it.

4. An overview of the fund's holdings and a list the ten largest holdings by company or agency name.
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.
5. An overview of the fund's performance to date (would include the 1-year return, 3-year return, year to date return, etc).
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.
6. Information on the risk attributes of the fund (statistical information on the fund's performance in relation to a benchmark).
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.
7. Information on the fund's turnover.
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.

8. Information on the fund's investment advisor (history of the firm, including the specific names and histories of the advisors).
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.
9. A history of the fund's share price, including net investment income, and net unrealized gains/losses described with ratios.
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.
10. The minimum amount of money needed to invest in the fund (some funds require that you invest at least a certain dollar amount).
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.
11. The process you would use to redeem your shares.
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.
12. Contact information for the company (website, phone numbers, etc.).
- A) I think this is important to know.
 - B) I think this is somewhat important to know.
 - C) I don't need this information to make a purchase, as long as I can look it up later.
 - D) I wouldn't care about this.
 - E) This information would only confuse me, so I do not wish to know it.

13. In addition to an overview of the fees, a specific breakdown of the fees into: sales charges, purchase fees, redemption fees, management expenses, 12b-1 fees, etc.).

- A) I think this is important to know.
- B) I think this is somewhat important to know.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this.
- E) This information would only confuse me, so I do not wish to know it.

14. Basic tax points (information on the taxability of the fund and the steps the fund company will take to inform you of your taxes due).

- A) I think this is important to know.
- B) I think this is somewhat important to know.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this.
- E) This information would only confuse me, so I do not wish to know it.

15. A history of the specific (per share) dividend declared.

- A) I think this is important to know.
- B) I think this is somewhat important to know.
- C) I don't need this information to make a purchase, as long as I can look it up later.
- D) I wouldn't care about this.
- E) This information would only confuse me, so I do not wish to know it.

16. Assuming that you obtain a satisfactory answer to all of the items that you labeled as "very important" or "somewhat important", how satisfied do you think you would be with your initial mutual fund purchase?

- A. Very satisfied
- B. Somewhat satisfied
- C. I don't know
- D. I doubt I would be satisfied
- E. I'm sure that I would not be satisfied

Appendix B continued - Pilot study tables

Table B.1 – Pilot study Chronbach’s Alpha

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)	
Reliability Coefficients	
N of Cases =	18.0
	N of Items = 15
Alpha =	.5578

Table B.2 – Pilot study correlations

Correlation Matrix					
	Q1	Q2	Q3	Q4	Q5
Q1	1.0000				
Q2	.2626	1.0000			
Q3	.0000	-.1875	1.0000		
Q4	.4253	.1620	-.3037	1.0000	
Q5	.2321	-.1768	-.0884	-.1145	1.0000
Q6	-.0209	-.0794	.1191	.0161	-.1966
Q7	.4866	.1853	-.4864	.6715	.3603
Q8	.2116	-.1007	.5439	.0718	.1140
Q9	.4605	.0719	-.3450	.1793	.6505
Q10	.0461	-.2193	.6578	-.4190	.0620
Q11	-.6025	.2868	.0860	-.2044	-.0811
Q12	.0943	.1572	.3368	-.0073	.3175
Q13	-.0426	-.1621	.4375	-.1680	.1146
Q14	.1945	-.3119	.5263	-.1357	.1378
Q15	-.1106	-.1296	-.2431	.1680	-.1833
	Q6	Q7	Q8	Q9	Q10
Q6	1.0000				
Q7	.0184	1.0000			
Q8	.2816	.0821	1.0000		
Q9	-.3448	.4927	-.1297	1.0000	
Q10	.1742	-.4794	.1414	-.1462	1.0000
Q11	.0182	-.1382	-.1849	-.1649	.1408
Q12	.2925	.2163	.3546	.0258	.0630
Q13	.1287	-.2462	.0575	.0932	.3297
Q14	.3871	-.1553	.1445	-.0426	.6223
Q15	.3810	.0841	-.2925	.1416	-.0227

	Q11	Q12	Q13	Q14	Q15
Q11	1.0000				
Q12	.2884	1.0000			
Q13	.1710	.2561	1.0000		
Q14	-.0089	.2031	.6873	1.0000	
Q15	.2305	-.0990	.0966	.1769	1.0000

Table B.3 – Pilot study Chronbach’s Alpha revision

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)				
Item-total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
Q1	31.8333	19.6765	.1364	.7300
Q3	32.2778	15.3889	.5873	.6567
Q6	32.0000	17.4118	.2770	.7194
Q8	33.0556	16.5261	.4006	.6947
Q10	31.5556	18.6144	.4963	.6962
Q12	32.3889	16.7222	.4439	.6866
Q13	32.8333	14.8529	.4569	.6865
Q14	32.6667	14.3529	.6838	.6323
Q5	31.6111	19.5458	.1293	.7326
Reliability Coefficients				
N of Cases =	18.0		N of Items =	9
Alpha =	.7201			

Table B.4 – Pilot study question means and variances

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	18	3	5	4.44	.616
Q2	18	4	5	4.89	.323
Q3	18	1	5	4.00	.970
Q4	18	2	5	3.94	.998
Q5	18	3	5	4.67	.686
Q6	18	1	5	4.28	1.018
Q7	18	2	4	2.94	.873
Q8	18	1	5	3.22	1.003
Q9	18	1	5	3.28	1.406
Q10	18	4	5	4.72	.461
Q11	18	3	5	4.56	.705
Q12	18	3	5	3.89	.900
Q13	18	1	5	3.44	1.247
Q14	18	1	5	3.61	1.037
Q15	18	1	5	3.56	1.247
Valid N (listwise)	18				

Appendix C – Correspondence to selected course instructors

Dear Professor,

I am currently pursuing my Ph.D. at Virginia Tech, and I was hoping that you might assist me with my dissertation research study. I am investigating the impact that personality has on the information-seeking efforts of potential investors, and I have developed an on-line survey as my research instrument. The survey consists of some general demographic information, several information-seeking questions regarding mutual funds, and the Myers-Briggs Type Indicator® (MBTI®).

Would you mind asking the students in your {class name} class to complete my survey? It should only take them between 20-30 minutes of their time. If any of your students would like an official MBTI® report form on their personality type, I would be happy to send them one provided they list their mailbox number in the space provided.

I would be extremely grateful for your help, and I'd like to have those students who wish to participate complete the survey by {date}.

The survey link is {survey link}.

Thank you very much for your consideration and time.

Sincerely,

C. Mike Smith

Appendix D – Analysis of data

Table D.1 – Correlation matrix of information-seeking questions

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	Q1	Q2	Q3	Q4	Q5
Q1	1.0000				
Q2	.3065	1.0000			
Q3	.1933	.3120	1.0000		
Q4	.1334	.0439	.2399	1.0000	
Q5	.2576	.2867	-.0129	.3750	1.0000
Q6	.0074	.0912	.1172	.2572	.3132
Q7	.0663	.1251	.0086	.1640	.3018
Q8	.1261	.2242	.1174	-.0182	.0243
Q9	.2449	.0952	.2343	.2489	.2633
Q10	.3329	.3374	.0162	.0089	.2756
Q11	.2589	.2054	.0663	.0954	.2204
Q12	.1663	.3755	.1479	.1830	.1903
Q13	-.0322	.1465	.0467	.1954	.0955
Q14	.1263	.1586	.0870	.0826	.2806
Q15	.0987	-.0179	-.0225	.1471	.4166

	Q6	Q7	Q8	Q9	Q10
Q6	1.0000				
Q7	.4018	1.0000			
Q8	.3154	.3777	1.0000		
Q9	.2939	.3145	.1827	1.0000	
Q10	.0741	.1770	.0668	.3096	1.0000
Q11	.1384	.0626	.0892	.2810	.3631
Q12	.3131	.2255	.3973	.0778	.3412
Q13	.2842	.2172	.1777	.2085	.0781
Q14	.2217	.2344	.2472	.1207	.2973
Q15	.3312	.4245	.1799	.2920	.0676

	Q11	Q12	Q13	Q14	Q15
Q11	1.0000				
Q12	.2291	1.0000			
Q13	.0171	.2521	1.0000		
Q14	.0946	.2120	.5561	1.0000	
Q15	.0056	.1135	.2790	.3586	1.0000

Table D.2 – Alpha scores for information-seeking questions if item deleted

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)				
Item-total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
Q1	58.3827	36.3142	.2988	.7706
Q2	58.3457	36.0040	.3716	.7669
Q3	58.6049	36.1920	.1949	.7789
Q4	58.8889	35.2250	.2998	.7706
Q5	58.5062	34.0781	.4584	.7583
Q6	58.5679	34.0985	.4839	.7568
Q7	59.0988	32.8651	.4667	.7560
Q8	59.3704	33.3111	.3678	.7663
Q9	58.8642	34.1188	.4493	.7589
Q10	58.5185	34.8528	.3669	.7653
Q11	58.6173	35.7642	.2737	.7723
Q12	59.1481	32.7028	.4601	.7566
Q13	59.1481	32.8778	.3858	.7649
Q14	59.0370	32.5861	.4705	.7555
Q15	59.2469	33.0883	.4030	.7625

Table D.3 – Cronbach's alpha for information-seeking questions

Reliability Coefficients	
N of Cases =	81.0
	N of Items = 15
Alpha =	.7764

Table D.4 - Means and variances of information-seeking effort responses

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	81	3	5	4.64	.577
Q2	81	2	5	4.68	.544
Q3	81	1	5	4.42	.804
Q4	81	2	5	4.14	.802
Q5	81	2	5	4.52	.760
Q6	81	1	5	4.46	.725
Q7	81	2	5	3.93	.932
Q8	81	1	5	3.65	1.027
Q9	81	2	5	4.16	.766
Q10	81	2	5	4.51	.760
Q11	81	2	5	4.41	.738
Q12	81	2	5	3.88	.967
Q13	81	1	5	3.88	1.065
Q14	81	1	5	3.99	.968
Q15	81	1	5	3.78	1.000
Valid N (listwise)	81				

Appendix E – Results and statistics

Table E.1 - Gender of participants

GENDER

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid male	49	60.5	60.5	60.5
female	32	39.5	39.5	100.0
Total	81	100.0	100.0	

Table E.2 – Age of participants

AGE

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18	1	1.2	1.2	1.2
19	5	6.2	6.2	7.4
20	18	22.2	22.2	29.6
21	30	37.0	37.0	66.7
22	16	19.8	19.8	86.4
23	5	6.2	6.2	92.6
24	2	2.5	2.5	95.1
28	2	2.5	2.5	97.5
29	1	1.2	1.2	98.8
30	1	1.2	1.2	100.0
Total	81	100.0	100.0	

Table E.3 - School of participants

SCHOOL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RC	61	75.3	75.3	75.3
	VT	20	24.7	24.7	100.0
	Total	81	100.0	100.0	

Table E.4 – Major of participants

MAJOR

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	business	49	60.5	60.5	60.5
	consumer studies	17	21.0	21.0	81.5
	economics	7	8.6	8.6	90.1
	history	3	3.7	3.7	93.8
	english	1	1.2	1.2	95.1
	criminal justice	1	1.2	1.2	96.3
	athletic training	1	1.2	1.2	97.5
	religion	1	1.2	1.2	98.8
	psychology	1	1.2	1.2	100.0
	Total	81	100.0	100.0	

Table E.5 - Test on proportion of the sixteen types of the study's sample with the national sample

Type	National Sample Percentages	Study Sample Percentages	Test Statistic
ISTJ	11.6%	7.4%	-1.13
ISFJ	13.8%	7.4%	-1.63
INFJ	1.5%	1.2%	-0.16
INTJ	2.1%	4.9%	1.81
ISTP	5.4%	3.7%	-0.64
ISFP	8.8%	1.2%	-2.36 *
INFP	4.4%	4.9%	0.22
INTP	3.3%	2.5%	-0.38
ESTP	4.3%	9.9%	2.46 *
ESFP	8.5%	11.1%	0.81
ENFP	8.1%	11.1%	0.97
ENTP	3.2%	6.2%	1.51
ESTJ	8.7%	8.6%	0.02
ESFJ	12.3%	8.6%	-0.96
ENFJ	2.5%	6.2%	2.14 *
ENTJ	1.8%	4.9%	2.12 *

* Value significant at $p = 0.05$

Table E.6 – Test on proportion of the eight style pairings of the study’s sample with the national sample

Type	National Sample Percentages	Study Sample Percentages	Test Statistic
IS	39.5%	19.8%	-3.55 *
ES	33.8%	38.3%	0.78
IN	11.2%	13.6%	0.65
EN	15.5%	28.4%	3.15 *
IT	22.3%	18.5%	-0.75
ET	17.9%	29.6%	2.69 *
IF	28.4%	14.8%	-2.65 *
EF	31.3%	37.0%	1.03

* Value significant at $p = 0.05$

Vita

Born on October 17, 1974 in Salem, Virginia, Charles Michael Smith attended public schools in Vinton, Virginia. Following graduation from William Byrd High School, he attended Roanoke College for four years, graduating in 1997 with a Bachelor of Business Administration. Mr. Smith then attended graduate school for two years, graduating in 1999 with a Master of Business Administration from Virginia Tech.

After graduate school, Mr. Smith worked as a Personal Financial Advisor and subsequently a Financial Planning Analyst for American Express Financial Advisors in Roanoke, Virginia. During this time, Mr. Smith obtained the NASD Series 7 license, NASD Series 66 license, and state insurance licenses. After two years at American Express, Mr. Smith relocated to Richmond, Virginia to accept the position of Director, Advanced Plan Design for BCG Companies. While in Richmond, Mr. Smith obtained a Chartered Financial Consultant (ChFC®) designation and passed the Certified Financial Planner™ exam to become a CFP® licensee.

Three years later, in 2004, Mr. Smith left Richmond to return to Virginia Tech to enroll in the Ph.D. program. While pursuing his degree in Resource Management, Mr. Smith worked as a Graduate Teaching Assistant at Virginia Tech, assisting with extension publications and undergraduate teaching. In addition, Mr. Smith worked part-time as a Lecturer in the Business Department at Roanoke College.

In 2006, Mr. Smith accepted the full-time position of Visiting Assistant Professor at Roanoke College, as well as the Director, Center for Leadership and Entrepreneurial Innovation which sponsors the Roanoke College Innovation Challenge.