

## Chapter 1

### Introduction

Decision making is an important life skill at all stages in life. More importantly, learning is a part of the decision-making process (Gregorc, 1982a; Sproles & Sproles, 1990). Appropriate decision making involves logical steps: determining the problem, considering multiple alternatives, and choosing the best alternative based on the particular situation (Deacon & Firebaugh, 1975; Garman, 2002; Goldsmith, 1996; Maynes, 1976; Rice & Tucker, 1986). Appropriate skills in decision making require abstract thinking (Baxter Magolda & Porterfield, 1988) which involves considering multiple alternatives. However, initially, students may enter college without prior educational training in decision making. And, they may not be able to think abstractly (Baxter Magolda & Porterfield, 1988). In fact, many students enter college as absolute thinkers (they believe there is only one right and one wrong answer) and their thinking becomes more abstract (they can consider more than one right or wrong answer) throughout college (Baxter Magolda, 1992). Further, what is going inside the mind is manifested in outside behaviors (Gregorc, 1982a).

The foundation for this study is based on research (Sproles & Sproles, 1990) that determined that learning styles of secondary vocational education students are related to their consumer decision-making styles. The goal of Sproles and Sproles (1990) was to provide a tool for educators and financial counselors to assist consumers in making better decisions in the marketplace. Since this study was published, other studies have used the Consumer Decision-Making Styles Inventory (Sproles & Kendall, 1986) to study other adult cultural populations (Canabal, 2002; Durvasula, Lysonski, & Andrews, 1993; Fan & Xiao, 1998; Fan, Xiao, & Yu, 1997; Hafstrom, Chae, & chung, 1992; Lysonski, Srini, & Zotos, 1996; Mitchell & Bates, 1998; Walsh, Mitchell, & Hennig-Thurau, 2001). However, no additional studies have further investigated the relationship between learning styles and consumer decision-making styles, especially with college students. More importantly, learning is a function of the decision-making process (Sproles & Sproles, 1990). Learning involves how people perceive and process information, also known as cognition (Farnham-Diggory, 1992). Onkivisit and Shaw (1994) indicated that consumer cognitive learning involves a process of personal problem solving to make decisions.

Students are consumers. Of particular interest to this study, students currently have more spending power than in previous generations and become consumers at a much earlier age. One reason for this is easy access to shopping. In addition, television and other media marketers use advertising to influence children's purchase decisions. Marketers target college students because they perceive them as potential loyal customers both currently and in the future (Feldman, 1999; Speer, 1998).

However, students are entering college without appropriate consumer decision-making skills. At the secondary level, personal finance education is implemented in fewer states than ever. As of 2002, 31 states had personal finance standards recommended in existing curricula, yet only 17 states actually mandate a personal finance course before high school graduation (National Council on Economic Education, 2003). Nationwide, educators and consumer advocates are concerned about college students' spending habits, easy access to credit cards, credit card debt, and lack financial knowledge (Braunstein & Welch, 2002; Danes & Hira, 1987; Hayhoe, Leach, & Turner, 1999; Kidwell & Turrisi, 2000; Norvilitis & Maria, 2002). Even college administrators are concerned about students' ability to make sound financial decisions (Kidwell & Turrisi, 2000). Recommendations for more research on students' consumer decision-making have been proposed (Kidwell & Turrisi, 2000).

College students spend an average of \$247 of discretionary income per month and typically purchase products related to leisure activities (Harris Interactive, 2004; Harris Interactive & Youth 360, 2002). However, they often spend more than they earn (Nick, 1997). Educators and consumer advocates recognize the need for more education to assist students in making better financial decisions (American Savings Education Council, 1999; Braunstein & Welch, 2002; Danes & Hira, 1987; Hayhoe, et al., 1999; Jump\$tart Coalition, 2002; Kidwell & Turrisi, 2000; Nick, 1997; Norvilitis & Maria, 2002), yet few studies have explored the relationship of learning styles to consumer decision-making styles.

The remainder of this chapter will cover the following main areas: theoretical basis for the study, statement of the problem, research question, methodology, definition of terms, delimitations, limitations, and a chapter summary.

## Theoretical Base

Learning is a continuous process. Knowledge learned from past experience is applied to new learning experiences (Dewey, 1933; Fan & Xiao, 1998; Kolb, 1984). The foundation for Kolb's theory lies in the Jungian Theory of Psychological Types (Jung, 1971), which indicates that individuals tend to be extraverted thinkers (feeling type) or introverted thinkers (thinking type), and John Dewey's theory of learning by experience (Dewey, 1933). Dewey also postulated that learning by experience is influenced by past experiences in similar situations. If the experience has not occurred before, confusion and doubt may occur. However, if an individual can consider other alternatives, based on prior experiences, and apply those alternatives to the new situation, reflective thinking occurs. To better illustrate, Dewey offered the following example:

A traveler whose end is the most beautiful path will look for other signs and will test suggestions for other signs and will test suggestions on another basis than if he wishes to discover the way to a given city. The nature of the problem fixed the end of thought, and the end controls the process of thinking. (Dewey, 1933, p. 5)

Additionally, Kolb referred to developmental psychologist Jean Piaget's Cognitive Development Theory that suggested that between the ages of 15 and 20, adolescents become more abstract thinkers and become better problem solvers (Santrock, 1998). However, this differs slightly from Baxter Magolda's Stages of Knowing with college students. Baxter Magolda postulated that college students enter college with absolute ways of thinking that only consider one right and one wrong answer, without the ability to think abstractly until later in their college career (Baxter Magolda, 1992).

### *Consumer Decision-Making Styles*

Prior to the original study by Sproles and Kendall (1986) on types of consumer decision-making styles, no other studies were found that investigated these specific styles. The Sproles and Kendall study focused on findings from empirical research and suggested that consumers generally enter the marketplace with a variety of decision-making styles that influence purchase decisions. The study identified eight decision-making styles: perfectionist, brand conscious, novelty-fashion conscious, recreational shopping/conscious, price-value conscious, impulsive, confused by overchoice, and habitual brand-loyal.

### *Learning Styles*

Many definitions exist to explain the meaning of learning styles. However, for the purposes of this study, learning styles will be defined as mind styles. Gregorc's (1982a) definition of mind styles is based on Mediation Ability Theory. This theory proposes that a person has two routes, or channels, for processing information, also known as mediation channels. One channel is perception (how we deal with the physical or concrete world) and the second channel is order (how our minds make sense of the information it receives). This process of perception and ordering is also called mediation abilities. Once the mind receives and processes the information, the physical behaviors observed are called styles.

Further explanation of the two mediation abilities is as follows. For perception, an individual will tend to either concentrate on perceiving the concrete world or the abstract world. If a person tends to focus on the concrete world, that person will focus more on the physical environment, dealing with what is seen, heard, smelled, and touched. If a person concentrates more on the abstract world, that person will focus on thoughts, ideas, and concepts.

For ordering, the mediation abilities are either sequential or random. For sequential, the person processes information in a very linear fashion and the chronological order of information is important. For random, the individual will be able to process information from many different points (non-linear) and then put it into order. Thus, Gregorc (1982a) has developed four possible combinations of these mediation channels called mind styles: Concrete Sequential, Abstract Sequential, Concrete Random, and Abstract Random. An individual tends to be dominant in one of these mind styles, although it is possible to be dominant in more than one style.

### *Ways of Knowing*

According to Baxter Magolda (1992), students enter college with specific stages of knowing or ways of knowing or thinking. As a student progresses through college, the student moves from a more absolute way of thinking (only one right and one wrong answer and multiple decision alternatives cannot be considered) to a more abstract way of thinking (can consider the context of the situation and consider multiple alternatives). Baxter Magolda's (1992) findings were based on years of epistemological research through interviews and the development of the Measure of Epistemological Reflection (Baxter Magolda & Porterfield, 1988) research instrument that could be used to determine a student's stage of knowing.

## Statement of the Problem

The problem addressed in this study is that students enter college as consumers but may lack basic knowledge and skills to make appropriate consumer purchases and potentially avoid debt (Consumer Federation of America, 2003; Brobeck, 1991; Garman, 2002; Jump\$Start Coalition, 2002; Mandell, 2001; 1998; Nick, 1997). This study was conducted to determine whether a significant relationship existed among beginning college students' mind styles, their consumer-decision making styles, and their shopping habits.

## Significance of the Study

If a significant relationship exists between mind styles, consumer decision-making styles, and shopping habits, educators (especially those teaching in college and university orientation and first-year experience courses) might use mind styles as an educational tool to better understand how students perform academically in the classroom and to provide programming that addresses the specific needs of the different mind styles, consumer decision-making styles, and shopping habits of consumers. These tools could also be used simultaneously in programming to discuss consumer decision-making styles, make recommendations on how to make appropriate marketplace decisions, and discuss how to avoid debt. In non-academic settings, these tools could be used by financial counselors to help consumers better understand how and why they make certain consumer decisions and assist consumers in making more appropriate decisions in the marketplace.

Educators lack sufficient information about the relationship of learning styles and consumer decision-making styles, and more information needs to be available to them so that they may use this knowledge as a tool to assist consumers before financial difficulties arise from undesirable consumer decisions. To date, only one such study has been conducted using secondary family and consumer sciences students (Sproles & Sproles, 1990).

## Research Questions

The questions that guided this study were:

1. What are the demographic profile and self-reported shopping habits of beginning college students?
2. Is there a significant relationship between gender and self-reported shopping habits of beginning college students? If so, to what extent?

3. Is there a significant relationship between the perception of family income and self-reported shopping habits of beginning college students? If so, to what extent?
4. What is the frequency distribution of the Gregorc mind styles among beginning college students?
5. Is there a significant relationship between gender and the Gregorc mind styles frequency distributions among beginning college students? If so, to what extent?
6. Are there distinct consumer decision-making styles of beginning college students?
7. Is there a significant relationship between gender and the consumer decision-making style(s) of beginning college students? If so, to what extent?
8. Is there a significant relationship between the Gregorc mind style scores and consumer decision-making styles of beginning college students? If so, to what extent?

### Methodology

This study was based on the Sproles and Sproles (1990) study and used three instruments:

- The Gregorc Style Delineator (Gregorc, 1982b). Style Delineators are ordered directly from Dr. Anthony Gregorc, Gregorc Associates, Inc.
- The Consumer Styles Inventory (Sproles & Kendall, 1986). Permission was granted from the original researchers to use their instrument for this study.
- The Demographic Survey, which was developed by this researcher.

The original study (Sproles & Sproles, 1990) used an adaptation of Kolb's Learning Styles Inventory (Kolb, 1976) for secondary students. Kolb's inventory was originally targeted to adults only. Although the current mind styles instrument (Gregorc, 1982b) is slightly different from Kolb's instrument, Gregorc's model has been tested on other populations and has educational implications for the classroom for both the teacher and the learner (Gregorc, 2001). Although both of these instruments are similar in their rank ordering of word sets, self-scoring and self-reporting styles, the four mind style categories from the Gregorc Style Delineator are broader. A participant computes a separate score for each of the four separate mind styles. These four mind style scores represent characteristics within each mind style category that the individual possesses. The highest computed score is the participant's dominant style. It is possible to be dominant in multiple mind styles. Although Kolb's learning styles instrument (1976) requires the participant to compute scores for

four styles (similar in description to the Gregorc Style Delineator [Gregorc, 1982b]), only one dominant learning style is chosen from that instrument.

#### Definition of Terms

*Consumer Decision-Making Style:* Styles are defined as the way a consumer mentally (or cognitively) approaches marketplace choices (Sproles & Kendall, 1986). Through empirical research, Sproles and Kendall (1986) defined eight categories of decision-making styles:

1. *Perfectionist, High-Quality Conscious:* A consumer has specific ideas about best quality products and consistently looks for these qualities.
2. *Brand Conscious, Price Equals Quality:* A consumer associates quality with higher-priced, national brands.
3. *Novelty-Fashion Conscious:* A consumer gains pleasure for seeking out the newest, most modern, and exciting product.
4. *Recreational /Hedonistic Shopping Conscious:* A consumer gains pleasure from the shopping experience.
5. *Price Conscious, Value-for-Money:* A consumer consistently searches for sales, bargains, and lower-priced products.
6. *Impulsive, Careless:* A consumer does not plan shopping trips and is not concerned about the amount of money spent.
7. *Confused by Overchoice:* A consumer is confused and overwhelmed with too much product information and/or too many product choices.
8. *Habitual, Brand-Loyal:* A consumer tends to consistently stick with the same brand of product.

*Ways of Knowing:* Within higher education, research has explored how students make meaning of their college experiences and how they know what they know (Baxter Magolda, 1992). These ways of knowing focus on how college students acquire and use knowledge:

1. *Absolute:* Knowledge is certain and authority figures can influence decision making.
2. *Transitional:* Knowledge can now be uncertain and may struggle with decisions because of working out differences between certain and uncertain knowledge.
3. *Independent:* Authorities are no longer the main source of knowledge and decisions are more focused on removing negative aspects of decisions.

4. *Contextual*: Knowledge can still be uncertain and now students begin to understand that there may be multiple answers. Decisions may have multiple outcomes.

*Cognitive*: A consumer uses problem-solving skills to make the best decision for that particular situation (Onkvisit & Shaw, 1994).

*First-Year, First Semester*: Students enrolled full-time in a college or university for the first time.

*Mind Styles*: A mind style is comprised of how a person perceives and processes information through two mediation channels: perception and ordering. Within the two mediation channels, there are two ways a person perceives information and two ways the person orders the information.

- Perception involves how the person perceives stimuli. Stimuli can be concrete or physical perception through taste, smell, sight, and hearing. Stimuli also can be perceived through abstraction, which involves how the person thinks, feels, or develops concepts.
- Ordering involves the steps used to put information in order. Once the stimuli are perceived, the stimuli are either processed in a sequential manner (a very linear and orderly fashion) or a random manner (a very non-linear fashion in which a person can handle multiple forms of information and then put them into some kind of order).

Four possible mind styles exist:

- *Concrete Sequential (CS)*: Concrete Sequential learners relate well to what they can perceive through the concrete or physical world through the five senses. These learners tend to think in a very linear fashion in very logical steps and prefer to work independently. They have more difficulty considering multiple alternatives or solutions to questions or problems (Gregorc, 1982a).
- *Abstract Sequential (AS)*: Abstract Sequential learners can easily grasp abstract concepts. They enjoy a very structured classroom environment and prefer to work alone. These learners continuously consider multiple alternatives and are strong in problem-solving skills (Gregorc, 1982a).
- *Concrete Random (CR)*: Concrete Random learners can more easily appreciate unstructured learning environment. These learners want to explore alternatives to questions and/or problems and appreciate hands-on learning activities. These learners can adapt well to both working independently and in group work settings yet are less



receptive to receiving outside assistance, especially from the teacher (Gregorc, 1982a).

- *Abstract Random (AR)*: Abstract Random learners are very aware of what is happening externally. These learners prefer a very unstructured learning environment and do not respond well to a step-by-step, logical presentation. These learners tend to think with their emotions and prefer lots of group work, discussion, and time to reflect on the learning experience (Gregorc, 1982a).

*University 100*: The one-credit, freshman-year orientation course that is taught at Radford University each fall semester to assist students in their transition to college life. Courses are taught the first twelve weeks of the semester within the residence halls by one full-time faculty member and an undergraduate peer instructor. Each class has a mandatory class attendance policy. A separate University 100 course is taught for honors students in the residence hall that houses Honors Academy students.

*RU Connections*: Radford University residence halls that house only first-year, first semester students. Students living in these residence halls are required to enroll in University 100.

#### Delimitations

Only full-time, first-year, first semester students, living on-campus, 18 years of age and older, and enrolled in RU Connections University 100 courses at Radford University were targeted. Students under the age of 18 were allowed to participate, but their surveys were not used in this study, as further Institutional Review Board approval would have been required.

Sophomores, juniors, and seniors were not included since it is unknown if changes have occurred in their learning styles from their first year to their following academic years. Radford University first-year, first semester students were the sole focus of this study. The sample was limited to the numbers of students who were enrolled in RU Connections University 100 courses during Fall 2003. University 100 is a one-credit course that is taught in each residence hall's classroom during fall semester only of each academic year. The purpose of the course is to assist first-year, first semester students in their transition to the college environment and concentrate on skills to help them succeed academically, socially, and personally. The RU Connections program consists of residence halls that house just first-year, first semester residents. Students were chosen to live in these residence halls on a first-come, first-served basis, based on the receipt

date of the students' residence hall applications and room deposits. Participating instructors in the RU Connections program were recruited through the Radford University Office of New Student Programs.

### Limitations

A limitation of this study was that the subjects had to be in attendance at the first session of each participating University 100 class. Although a mandatory attendance policy was in effect for each class, participation was voluntary and limited to those who chose to participate.

Demographic characteristics of the subjects may not be similar to other institutions of higher education. The Radford University full-time undergraduate student population is 52% female and ethnic groups represent 10.46% of undergraduates enrolled full-time (Office of Institutional Research, Assessment, and Planning, 2004). Lack of generalizability to other college student populations within the United States should be considered as a possible limitation. Radford University students are accepted using specific admissions criteria and are not representative of all other institutions of higher education, except for those that may use similar admissions criteria at peer institutions, such as Appalachian State University, Central Missouri State University, and Central Washington State University (Office of Institutional Research, Assessment, and Planning, 2004). A complete listing of Radford University's peer institutions can be found at <http://www.radford.edu/~irpa/BenchmarkInstitutions.html>.

### Summary

Students may enter college without appropriate skills in consumer decision-making. Educators have recommended further investigation of students' consumer decision-making styles. As evidenced in the Sproles and Sproles (1990) study, consumer decision-making styles are related to the way a person thinks and learns. The purpose of this study was to investigate whether a relationship existed between beginning college students' mind styles, their consumer decision-making styles, and their shopping habits. The knowledge of these significant relationships would enable educators to use The Gregorc Style Delineator as a tool to better understand how students learn in the classroom and provide suggestions on how to make better consumer decisions, especially as they relate to college students' shopping habits. Use of these tools could also promote discussions of how to avoid consumer debt.

## Chapter 2

### Literature Review

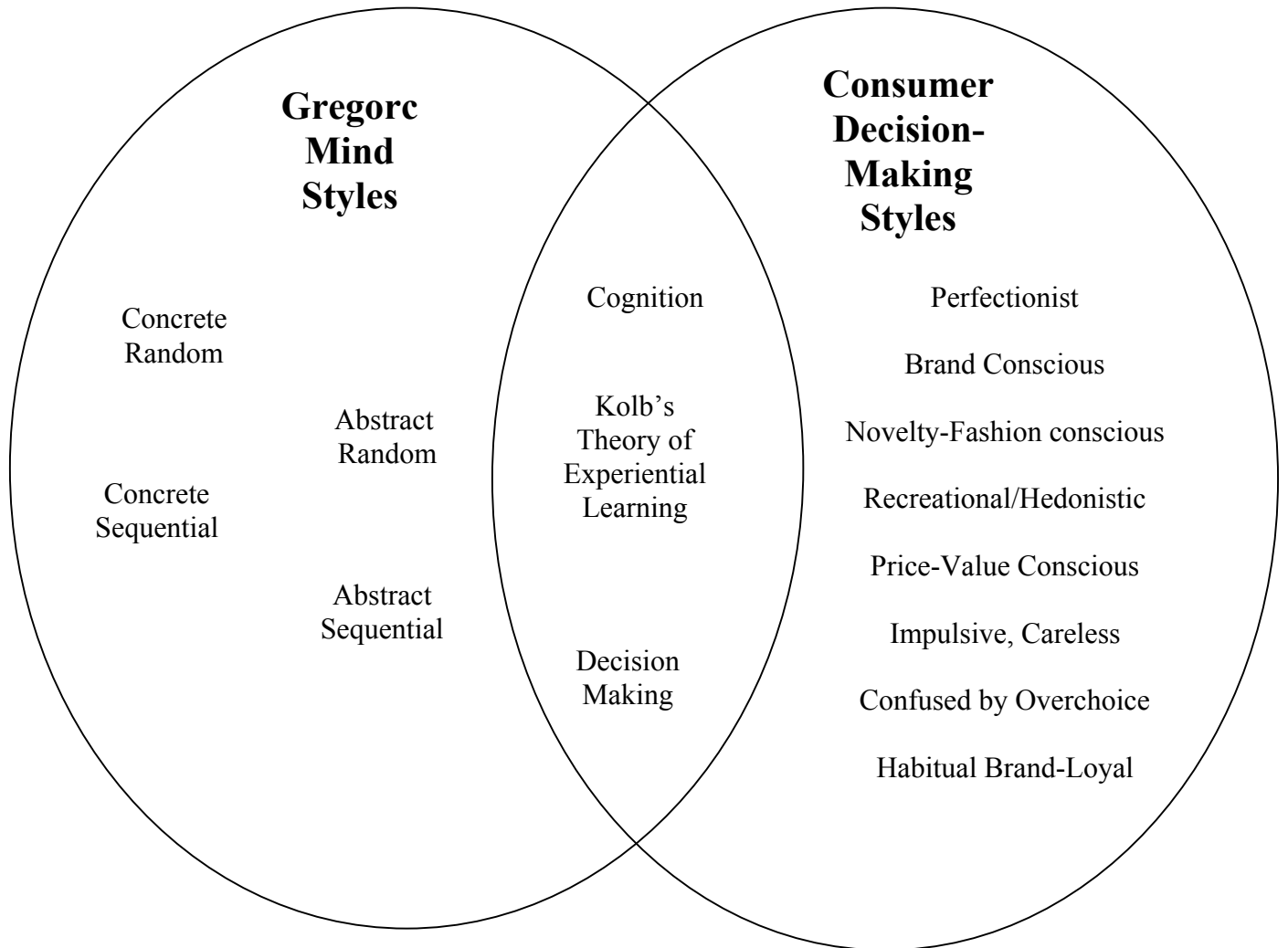
This study focused on whether beginning college students' mind styles are related to their consumer decision-making styles. A review of the literature describes specific characteristics of both learning style and consumer decision-making style and the need to continue research in this area. This chapter begins with the acknowledgment that prior research has shown that students may enter college with a specific stage of knowing—how they think and how they know what they know. In addition to their way of thinking, they will have a predominant mind style that impacts how they think and they will have specific characteristics that guide how they make purchase decisions in the marketplace. This chapter will cover a review of literature in the following major areas: financial knowledge of teens and college students, shopping habits of college students, learning styles, mind styles, studies using the Gregorc Style Delineator<sup>®</sup>, other learning styles instruments, the Consumer Styles Inventory and consumer decision making, and studies using the Consumer Styles Inventory.

The major areas to be studied are shown in Figure 1, indicating both differences and similarities. The similar areas are denoted within the overlapping areas. For instance, both mind styles and consumer decision-making styles are cognitive in nature. Cognition involves the mind's method of taking in, processing, and learning information. Kolb's Experiential Learning Theory (1984) is referenced in both areas, since this theory focuses on how people learn, how past experience influences how they learn, and how knowledge is formed (Woolfolk, 2001). Decision-making encompasses both areas since it is part of the cognitive learning process, which is influenced by past experiences (Kolb's Experiential Learning Theory) and impacts how people think and solve problems (Baxter Magolda, 1992; Messick, 1976).

### Teens' Financial Knowledge

Numerous national surveys have documented the lack of financial knowledge among young adults. In particular, the Jump\$tart Coalition (Mandell, 1998) administered a survey to high school seniors to test their basic financial skills. Of those who participated in 1997, an average of 57.3% of students answered the questions correctly. The categories included

Figure 1. Diagram of Variable Relationships



questions on income, money management, savings/investing, and spending/credit. The Jump\$Start Coalition administers this test every two years to determine whether students are improving in their knowledge of personal finance topics. In 2000, Mandell found that correct answers dropped to 51.9%. The most recent survey by the Jump\$Start Coalition (2002) found that the percentage of correct answers had decreased to 50.2%. The categories of lowest scores were money management (46.8% answered correctly) and savings/investment (45.3% answered correctly). Mandell (1998) also reported that few college students take personal finance courses.

Brobeck (1991) reported results of a national test conducted by American Express and co-sponsored the Consumer Federation of America that investigated high school students' knowledge of consumer education topics. The study found that high school students were unprepared to make purchasing decisions upon graduation from high school. Only 42% of the teens answered the questions correctly and, since it was a multiple-choice test with four choices for each item, statistically at least 25% of the questions could be answered correctly just by guessing. The categories of this test included consumer credit, checking/savings, automobile insurance, housing rentals, food purchases, and automobile purchases. More recently, the Consumer Federation of America (2003) conducted a survey that suggested young adults (ages 18 and 24) did not believe they had appropriate knowledge in financial decision making. Specifically, 62% felt they had fair or poor knowledge of credit reports. This also supports the findings of Mandell (1998), the American Savings Education Council (1999), and the Jump\$Start Coalition (2002).

Researchers (Braunstein & Welch, 2002; Garman, 2002; Greenspan, 2002; Hogarth, Beverly, & Hilgert, 2003) have acknowledged that the marketplace is more complex than ever and the continued fast pace of technology suggests a need for continued resource management for all ages, especially young adults. Hogarth et al. (2003) confirmed other studies that found American households do not necessarily follow recommended financial practices and they learn most from others' experiences.

### College Students' Financial Knowledge

During beginning students' first year of college, many of them may be living away from home for the first time. With this newfound independence, they may need to make decisions about purchases that they may have never made before (Speer, 1998). This transitional period

may also include first-time decisions of acquiring credit cards or purchasing a car. Nick (1997) conducted a qualitative study of money management behaviors of traditional-aged freshmen, compared to college sophomores, and found that both groups usually spent more than they earned and rarely budgeted on a monthly basis. The data also suggested that students need basic financial education and educational institutions should provide it. The American Savings Council (1999) found that only 20% of students (both high school and college) used a regular monthly budget.

Numerous studies have recognized the challenges that college students face when trying to manage credit cards. Their families may be unaware that their child is acquiring credit and possibly incurring large sums of debt (Hayhoe, Leach, Turner, Bruin, & Lawrence, 2000; Henry, Weber, & Yarbrough, 2001; Norvilitis & Maria, 2002; Warwick & Mansfield, 2000), yet marketers actively target college students, as these students are perceived as having more spending power, both currently and in the future, and generally earn more money than adults without a college education (Feldman, 1999; Speer, 1998).

The American Savings Education Council (1999), the Employee Benefit Research Institute, and Mathew Greenwald and Associates jointly administered a self-reporting survey to students, ages 16-22, and reported that only 21% had taken a course in personal finance and two-thirds felt they should learn more about the basics of money management. Although the two-thirds reported a need for more financial knowledge, 65% reported having personal finance courses available to them but they had never enrolled in one of these courses. And, college students were more apt to have a personal finance course available to them than high school students (67% versus 57%, respectively). The study also investigated whether being enrolled in a personal finance or similar consumer education course made a difference in how they managed their money. However, only 41% of students enrolled in personal finance courses actually changed their money management behaviors. This survey did not examine possible explanations for this small percentage since it was a self-reporting survey, but these numbers raise questions as to how consumer and personal finance education courses could positively impact students. However, these findings further support findings of Mandell (1998), the JumpStart Coalition (2002), and Brobeck (1991).

Studies have also documented where students actually learn how to make consumer and financial decisions. The National Consumers League (2002) facilitated a national survey that

found that 67% of teens obtain information on financial matters (such as credit) from their parents, however, the average American family carries a credit card balance of \$9,000. This study suggested that parents might not be the best resources for obtaining such information. The American Savings Education Council (1999) supported this finding with their study that found 94% of students (ages 16-22) relied on parents as resources for financial information. On the other hand, other studies (Harris Interactive, 2004) have suggested that children and youth influence their parents' and others' decision making on consumer purchases, such as clothing, food, and family vacations and are considered cultural trend-setters, thus making them even more desirable targets for marketers. In contrast, McNeal and Yeh (1993) found that specific family income levels may have little influence in the way families teach consumer behavior patterns to their children.

### Shopping Habits of College Students

The American Savings Education Council (1999) found that students typically pay for certain consumer-related items by themselves once they enter college. These items include entertainment-related expenses, clothing, cars and related expenses, vacations and trips with friends, and school supplies. These expense categories remained fairly consistent over time. In the 1980s (Levine, 1988), clothing, health and beauty aids were reported as the top consumer purchases with college students' disposable income (expenses that do not include school-related expenses, such as tuition and room and board). It was estimated that students averaged \$140 monthly for this type of spending. Nick's (1997) study found that freshmen spend large amounts of disposable income on food items (especially eating off-campus), phone bills, and other miscellaneous items, such as those related to their new living environment. Prior to college, adolescents also have discretionary income that is often spent on clothes, movies, sports events, and live entertainment, and these adolescents often begin making independent consumer decisions early in childhood with money given to them as gifts from parents, as allowances for work done at home, and/or as gifts from family and friends outside the home (McNeal, 1990).

More recently, studies have suggested that college students are spending greater amounts of disposable income on similar expense categories (Harris Interactive & Youth 360, 2002). This online study found that students' disposable income had increased to \$287 per month. The top categories included beverages and food items, travel, purchasing videos, music CDs, and

reading materials (not related to school). This study also suggested that owning a car is important to college students, with 80% of respondents indicating they owned a car (either individually or with a relative).

Previous studies have studied credit card usage among college students and significant relationships were found between gender and shopping habits (Hayhoe et al., 2000) and that females tended to purchase clothing with credit cards more often than males. The study also found that males tended to purchase electronics, entertainment items, and food away from home more often with credit cards than females. Dittmar, Beattie, and Friese (1995) found similar results and further suggested that females tended to purchase items that related to their emotions and males tended to purchase items related to their self-identity.

### Learning Styles

Numerous definitions exist to describe learning styles. Learning style, “from a phenomenological viewpoint, consists of distinctive and observable behaviors that provide clues about the mediation abilities of individuals. In operational terms, people through their characteristic sets of behavior ‘tell’ us how their minds relate to the world and, therefore, how they learn” (Gregorc, 1979, p. 19). Each person’s learning style is unique and involves how the mind takes in and holds on to information (Dunn, 1984). According to Dunn, Denig, and Lovelace (2001) learning styles also represent a more holistic view of a person’s skill acquisition of perception, thinking, learning, adapting, solving problems, and applying these skills to new situations and experiences.

#### *Cognitive Nature of Learning Styles*

Learning styles were previously defined as how we perceive and process information. This also means that learning is cognitive. Because learning is cognitive, it is a complicated process that is connected with other aspects of learning (Crow & Crow, 1965) and also involves the way people interact with their environment (Bettman, 1979). Additionally, “Active learning is important. In cognitive approaches, learning is generally viewed as being a process of active interaction with the environment, not a passive stamping-in of stimulus-response connections” (Bettman, 1979, p. 271). Learning also occurs when a specific behavior changes or a goal is reached (Blum, 1977).



The field of cognitive psychology refers to this as information processing (Farnham-Diggory, 1992). “Cognitive learning theorists focus on the human mind’s active attempts to make sense of the world. In the cognitive view, knowledge is learned, and changes in knowledge make changes in behavior possible” (Woolfolk, 2001, p. 271). Similar to Kolb’s Theory of Experiential Learning (1984), cognitive psychology also acknowledges the learner’s prior experience as impacting their current learning experiences. As a result, knowledge is formed. A relationship exists between our prior knowledge and what we are willing to learning in the present and future (Woolfolk, 2001).

People have individual styles of information organization and learning, known as cognitive styles. A cognitive style is defined as consistent patterns in how a person perceives stimuli, processes it, and solves problems (Messick, 1976). Cognitive styles are also influenced by an individual’s personality (Messick, 1976). Harrison, Andrews, and Saklofske (2003) also acknowledged the individual characteristics of each person and further suggested that these styles impact whether a person is introverted versus extraverted, abstract versus concrete, realistic versus artistic, reflective versus impulsive, and dependent versus independent. These characteristics, in turn, influence a person’s style of learning.

#### *Cognitive Research within Higher Education*

Although the focus of this study is beginning college students’ mind styles and consumer decision-making styles, a review of other research related to cognitive learning is included here. Within higher education, research has explored how students make meaning of their college experiences and how they know what they know (Baxter Magolda, 1992). These ways of knowing focus on how college students acquire and use knowledge. Baxter Magolda’s research is an expansion of Perry’s (1970; 1981) scheme of college student development, beginning with duality (or absolute right versus wrong) to multiplicity (more abstract thinking). Based on qualitative research methods, Baxter Magolda’s research is cognitive in nature and emphasizes the various stages of knowing and how they may change throughout the student’s college career. Additionally, Baxter Magolda’s research found that patterns emerge in decision-making based on these stages of knowing (Baxter Magolda, 1992). Following are short descriptions of these ways of knowing.

1. *Absolute*: Knowledge is certain and authority figures influence decision making.
2. *Transitional*: Knowledge can now be uncertain and students may struggle with decisions because of working out differences between certain and uncertain knowledge.
3. *Independent*: Authorities are no longer the main source of knowledge, and decisions are more focused on removing negative aspects of decisions.
4. *Contextual*: Knowledge can still be uncertain and students now begin to understand that there may be multiple answers. Decisions may have multiple outcomes.

King and Kitchener (1994) focused on the concreteness of college students' development, beginning as college freshmen and moving towards a more abstract way of thinking and reasoning. King and Kitchener's model is referred to as reflective judgment. Students move through various stages of this reflective judgment. King and Kitchener postulated that a student's age might play a valuable role in the growth of reflective thinking and suggested that further research was needed to compare the influence of life experiences on stages of reflective thinking and judgment.

Cognitive development involves reasoning. Reasoning patterns become more complex as one ages. Not everyone reaches the highest levels of cognitive development because some may remain at different stages of development. These stages of development may be impacted by an environment that does not foster them (King & Kitchener, 1994). According to Kolb's Theory of Experiential Learning (1984), we learn by experience. We construct our own knowledge by entering new learning experiences with prior learning and possible ideas about the topic at-hand. Learning is essentially a re-learning process and takes place continuously. Knowledge is formed by linking what is learned from social and personal situations. This linkage of knowledge comprises the learning process (Kolb, 1984).

#### *Cognitive Nature of Decision Making*

Gregorc (1982a) determined that different mind styles exist and learners possess different perception and ordering abilities. Although cognitive learning is accepted as researchable in consumer affairs realms, very few researchers comprehend its complexity (Jacoby & Chestnut, 1978). Being interdisciplinary in nature, the arena of learning and cognitive decision-making covers a broad range of disciplines, including psychology, sociology, economics, and consumer policy (Sproles, 1983).

## Mind Styles

Based on eleven years of exhaustive phenomenological research related to cognitive learning, Dr. Anthony Gregorc theorized that individuals have specific mind styles that guide how they perceive stimuli and process information. These mind styles consist of mediation channels (or tracks) and can move in two specific directions—perception and ordering. Gregorc's research also employed Kolb's Theory of Experiential Learning and Jung's Theory of Personalities (Gregorc, 1982a). Jung's Theory of Personalities is based on the existence of introverted versus extroverted psychological types of personalities. Adults tend to be dominant in one or the other. The role of each person's personality type includes thinking, feeling, sensation, and intuition (Jung, 1971). Following is an explanation of the dimensions of mind styles:

### *The Concrete Sequential Learner (CS)*

Concrete Sequential learners relate well to what they can perceive through the concrete or physical world through the five senses. Order is very important and these learners tend to think in a very linear fashion in very logical steps. In the classroom, these learners prefer to work independently, enjoy hands-on learning experiences, are easily distracted, and want very structured lectures with logical steps that are easy to follow. Answers to questions usually only have one correct or incorrect answer and these learners have more difficulty considering multiple alternatives or solutions to questions or problems (Gregorc, 1982a).

### *The Abstract Sequential Learner (AS)*

Abstract Sequential learners can easily grasp abstract concepts and can easily understand the main ideas from a classroom presentation. They also enjoy a very structured classroom environment and prefer to work alone. These learners are sometimes criticized for appearing to be distracted but are actually continuously considering multiple alternatives and always thinking ahead and are strong in problem-solving skills (Gregorc, 1982a).

### *The Concrete Random Learner (CR)*

Concrete Random learners can more easily appreciate unstructured learning and life situations and are not easily intimidated by a lack of rules and regulations. However, these learners want to explore alternatives to questions and/or problems and appreciate hands-on learning activities. These learners can adapt well to both working independently and group work settings yet are less receptive to receiving outside assistance, especially from the teacher. These

learners also appreciate the trial and error approach to considering alternatives and solutions. These learners can visualize the end product well and see the big picture more so than concrete sequential or abstract sequential learners (Gregorc, 1982a).

#### *The Abstract Random Learner (AR)*

Abstract Random learners are very aware of what is happening externally. These learners prefer a very unstructured learning environment and do not respond well to a step-by-step, logical presentation. These learners tend to think with their emotions and prefer lots of group work, discussion, and time to reflect on the learning experience. These learners like presentations with lots of varied types of media. These learners are also not easily distracted by noise and prefer not to work independently (Gregorc, 1982a).

#### Critique of the Gregorc Style Delineator□

Most learning style inventories are self-reported, lending themselves to speculation and criticism from other researchers and theorists about whether students can accurately report their learning styles or preferences. However, while it is reported that some students may not report their learning styles accurately, most usually do (Dunn, 1984). Additionally, no information was found to support or reject whether Gregorc's Style Delineator□ is biased towards any particular ethnic population. Few studies have been published using Gregorc's Style Delineator□ instrument, other than studies to investigate the learning styles of instructors (Terry, 2002), however, reliability and validity of the Gregorc Style Delineator□ was verified through eleven years of phenomenological research by Gregorc (1982a), which involved interviews, observation, and administration of the Gregorc Style Delineator□.

Because the Delineator□ uses a system of rank-ordering word sets and computation of scores across rows of these sets, Joniak and Saksen (1988) criticized Gregorc's instrument as potentially enabling subjects to rank the word sets either erroneously or on-purpose across the rows, possibly resulting in less-than-accurate scores.

#### Studies Using the Gregorc Style Delineator□

A research study (O'Brien, 1991) using the Gregorc Style Delineator□ was administered in a campus study of 236 students enrolled in a Foundations of Education course and employed multivariate analysis of variance. The findings of this study suggested that there were specific

gender differences between styles and between academic level and majors. The study suggested that the Delineator might be useful in academic and career advising, however, Gregorc (2001) did not promote the use of the instrument for these purposes. He felt it should be used solely for self-assessment. Gregorc (1984) also suggested that mind styles remain the same over time. In contrast, Kolb's (1976) research focused on the Learning Styles Inventory using a sample of Boston University and MIT students and suggested that people think more abstractly and reflectively as they get older, which was also supported by Baxter Magolda's (1992) research. Dunn and Griggs (2000) also suggested that learning styles may change over time.

### Other Learning Styles Instruments

Following is a review of the learning styles instrument used in the Sproles and Sproles' (1990) study and other similar instruments.

#### *Secondary Learning Styles Inventory*

The original learning styles instrument used in Sproles and Sproles' (1990) study was an adaptation of Kolb's Learning Styles Inventory (1976), which was based on Kolb's Theory of Experiential Learning. Kolb's original inventory was developed for adults only and Kendall and Sproles (1986) adapted the instrument for high school students. The adapted instrument, called the Secondary Learning Styles Inventory, included six categories of learning styles rather than the four categories from Kolb (1976). To validate the Kendall and Sproles (1986) instrument, Sproles, Cox, and Sproles (1987) replicated the study with a similar sample and their findings supported the adaptation. Following are descriptions of the learner style categories of this instrument as proposed by Sproles et al. (1987):

1. *Serious, Analytical Learner*. This learner can easily think in abstract terms, is serious about learning, and enjoys working on more difficult assignments. This type of learner's characteristics are similar to Gregorc's (1982a) definition of the Abstract Sequential mind style.
2. *Active, Practical Learner*. This learner prefers hands-on and practical learning experiences, prefers to take a more active role in learning, and wants to experiment with new assignments to see what happens. This type of learner's characteristics is similar to Gregorc's (1982a) definition of the

- Concrete Random mind style. Concrete Random enjoys experimentation and creative approach to learning.
3. *Observation-Centered Learner*. This learner prefers hands-on learning experiences where the learner sees how to do the activity and then performs the activities. This type of learner's characteristics is similar to Gregorc's (1982a) definition of the Concrete Sequential and Concrete Random mind styles.
  4. *Passive, Accepting Learner*. This learner prefers to not be actively involved in the learning environment but can better learn by observing what is actually happening in the learning environment and tend to be more reflective and process new concepts from their learning. This learner's characteristics has some similarities to Gregorc's (1982a) definition of the Abstract Random mind style, such as the need to reflect and being more attuned to what is happening around them. However, the Abstract Random mind style prefers a more active approach to learning than the passive, accepting learning environment by participating in discussions and working in groups rather than just observation.
  5. *Concrete, Detailed, Fact-Oriented Learner*. This learner appreciates lots of details provided in the learning environment. This learner's characteristics share similar characteristics to Gregorc's (1982a) Concrete Sequential mind style. Learners with Concrete Sequential mind styles expect lots of details, and structured steps in the learning environment.
  6. *Non-Adaptive, Struggling Learner*. This learner is uncomfortable in the learning environment and considers it too challenging. This learner's characteristics are not similar to any of the Gregorc (1982a) mind styles.

Both the Gregorc Style Delineator<sup>2</sup> and the Kendall and Sproles Secondary Learning Styles Inventory (Kendall & Sproles, 1986) are based on Kolb's Experiential Learning Theory (Kolb, 1984). However, the Gregorc Style Delineator<sup>2</sup> will be used for this study to emphasize the ease of self-scoring in an educational setting. The Gregorc Style Delineator<sup>2</sup> also provides more detailed information for each mind style for participants to use as a self-reflective tool.

### *Dunn and Dunn Learning Styles Inventory*

Various learning styles instruments were reviewed for this study. The original study by Sproles and Sproles (1990) focused on Kolb's Theory of Experiential Learning. The Dunn, Dunn, and Price model (1979) focused on additional categories that affect learning, including a person's external environment, emotions, sociological and psychological characteristics, and global thinking. The following categories encompass the Dunn et al. (1979) model: environmental (prefer noisy or quiet study environment), emotional (internal versus external motivation and reaction to structure), sociological (alone or in groups), physiological (sight, smell, hearing, hands-on), global (analytic versus global thinking) (Dunn, 1984; Dunn & Stevenson, 1997). Although much research has been conducted using the Dunn et al. (1979) model, the Gregorc Style Delineator (1982b) seems most appropriate for this study since it is a learning styles instrument that allows self-scoring and immediate feedback and it fits closely with how information is processed and put into order.

### *The Consumer Styles Inventory and Consumer Decision Making*

Based on empirical research, Sproles and Kendall (1986) designed the Consumer Styles Inventory to determine consumers' styles of decision-making in the marketplace. The eight consumer decision-making styles consist of subscales or characteristics that define how the consumer makes decisions based on cognitive and personality characteristics (Sproles & Kendall, 1986). Prior to the development of the Consumer Styles Inventory, no previous inventories were available to researchers and educators (Sproles & Kendall, 1986). This Styles Inventory was originally tested on secondary home economics students, most of whom were female (Sproles & Kendall, 1986) and female college students enrolled in the courses offered in the University of Arizona's School of Family and Consumer Resources (Sproles, 1985). Although the age groups differed, similar results were found between the two groups. The researchers suggested that because these two populations had similar results, the categories of the Consumer Styles Inventory could be reasonably generalized across populations.

Others have defined decision-making, in general, as a way to describe individuals and their behaviors (Arroba, 1977). This definition can be compared to Sproles and Sproles' (1990) study and suggests that multiple consumer characteristics within decision-making may be correlated to different learning styles. Sproles and Sproles (1990) further suggested that people

may have more than one style of decision-making and it may change depending on the situation. A consumer decision-making style is also defined as the way a person reacts overall to a purchase decision and it focuses more on the way a decision is made rather than on the actual person making the decision (Arroba, 1977; Thorelli, Becker, & Engledow, 1975). The actual purchase process is considered part of decision-making and is influenced by psychological and physiological aspects.

Consumers process information and interact with their preferred environment and then make a decision based on available alternatives (Bettman, 1979). Deacon and Firebaugh (1975) agreed with Bettman that a consumer should consider alternatives before making a purchase decision. However, Baxter Magolda (1992) implied that the style of decision making may be influenced by the person's stage of knowing.

Sproles and Kendall (1986) identified three categories of consumer decision-making, based on empirical research and literature review. Their research resulted in three proposed categories of characteristics: psychographic/lifestyle, consumer typology, and consumer characteristics. These categories will be presented in more detail later in this chapter.

Sproles and Kendall's (1986) literature review described multiple studies that supported their categories of consumer characteristics, and a current review of literature found no additional studies to further broaden the knowledge base of these original, proposed characteristics. Because the Consumer Styles Inventory (CSI) has been tested with multiple cultures with similar results (although some modifications were employed to better describe their population), we can conclude that the CSI is valid. However, to date, no further studies have been conducted with college students in the U.S. Within the realm of consumer-related research, consumer behavior is consistently studied. And although this research has acknowledged that consumers purchase goods and services based on certain decision-making styles, specific studies to evaluate these specific decision-making styles were few prior to the Sproles and Kendall (1986) study.

In fact, Sproles (1985) conducted an exploratory study to develop a conceptual framework for consumer decision-making styles, and Sproles and Kendall (1986) then developed the Consumer Styles Inventory. Even Kolb (1981) acknowledged that a person's learning style impacts both their academic and personal lives. It affects decision-making, analytical skills, attitudes, and even creativity, which prompted the Sproles and Sproles (1990) study to



investigate the relationship between learning styles and consumer decision-making. Gregorc (2001) also postulated that mind styles impact a person's purchase decisions and the type of value placed upon the items they own.

### *Psychographics/Lifestyle Variables*

Psychographics is often used to describe consumers' personalities in terms of their personal characteristics, such as interests, opinions, and activities. Psychographics is also used to study consumer behavior as it relates to a consumer's lifestyle (Onkvisit & Shaw, 1994; Sproles, 1979). Jacoby (1976) suggested that psychographics should not concentrate solely on personality traits but is best described as how a consumer obtains, uses, and discards goods. Some characteristics are closely related to consumer choices; others describe general lifestyle activities or interests (Garman, 2002; Lastovicka, 1982; Wells, 1974). Lifestyle is described as an individual's recurrent way of performing activities (Sproles, 1979) and these ways are influenced by basic psychological and social characteristics. These aspects can also link a person's lifestyle to his/her performance as a consumer.

The terms lifestyle and psychographics have sometimes been substituted for one another. However, these terms actually have different meanings. Psychographics relates more to personality traits, while lifestyle tends to refer to cultural patterns and values that influence consumer purchases. The demographic variables most used are age and gender (Wells, 1974). Even marketers have tapped into the psychographic/lifestyles approach to consumer behavior and have geared marketing strategies to this approach. More importantly, psychographics is another term for demographics. Demographic characteristics can influence how consumers purchase products and services (Wells, 1974). Onkvisit and Shaw (1994) suggested that lifestyle characteristics may influence purchases and is unique to each person's choice of products. Lifestyle is comprised of psychological and personality traits that may influence product purchases and can be influenced by demographic variables such as age, social class, organizational memberships, and types of products owned, just to name a few (Garman, 2002; Wells, 1974) and can represent the attitudes and values of one or more people (Garman, 2002). Other supporting research has referred to these types of variables as social structural variables (Kamaruddin & Mokhlis, 2003).

### *Specific Studies Related to Selected Psychographic/Lifestyle Variables*

*Gender.* The Gregorc Style Delineator<sup>®</sup> was administered in a campus study of 236 students enrolled in a Foundations of Education courses and the data were analyzed using multivariate analysis of variance. The results suggested a difference in male and female mind styles. The study also suggested that there were differences in mind styles of students enrolled in different majors. In other words, certain mind styles were more prevalent in certain majors (O'Brien, 1991). Kolb (1976) also found that men and women responded differently to his Learning Styles Inventory.

*Ethnicity/culture.* Some studies suggest that learning styles are affected by cultural differences. According to Dewey (1933) and Kolb (1984), students learn by experience. In the most recent study using the Sproles and Kendall Consumer Decision-Making Inventory, Kamaruddin and Mokhlis (2003) found associations between social structural variables (as defined by Kamaruddin and Mokhlis), which were defined as social class, gender, ethnicity, residence, and religion. The study also investigated the impact of in-school consumer education and the frequency of interaction between peers and parents. This study was conducted with 1080 high school students in Malaysia.

Within this student sample, Chinese students represented 46% of the sample, Malays represented 43.1% of the sample, and Indians represented 9.7% of the sample (Kamaruddin & Mokhlis, 2003). They found subjects from families who were considered upper income status were less likely to favor consumer education courses than subjects in lower income families (social class). Males tended to be more brand-conscious than females, and females were more recreational shoppers than males (gender). Chinese and Indian subjects were less likely to be recreational/hedonistic than the Malays (ethnicity). Suburban subjects were more brand conscious and novelty/fashion conscious than rural subjects (residence). And, Muslim subjects were more likely to be influenced by their peers and be receptive to consumer education than non-Muslim subjects (religion).

The study (Kamaruddin & Mokhlis, 2003) also found that peers strongly influenced the Impulsive and Confused by Overchoice consumer decision-making styles. Printed media and television commercials were important influences on the brand conscious, novelty/fashion conscious, recreational/hedonistic, and brand-loyal decision-making styles.

### *Consumer Typology*

Typology refers to the study of how consumers decide on shopping locations, product preferences, and store/product loyalty (Darden & Ashton, 1975). Typology suggests that these kinds of choices are influenced by an individual's lifestyle. Consumer typology usually refers to describing general kinds of consumers (Darden & Ashton, 1975; Moschis, 1976; Stephenson & Willett, 1969; Stone, 1954). Stone (1954) investigated consumers' reactions to the opening of a large chain store in Chicago's northwest side. The researcher interviewed 150 adult female residents. The results indicated that consumers had personal preferences on where they shopped (Stone, 1954) and the researcher hypothesized that location of where consumers lived also influenced their personal preferences of where they shopped. Westbrook and Black (1985) supported Darden and Ashton (1975) by suggesting that shopper typology was influenced by certain shopping motivations and their literature review suggested consumers tend to fit into specific groups based on specific store preferences.

### *Consumer Characteristics*

Consumer characteristics, as employed by Sproles (1985) are defined as consumer decision-making styles based on cognitive and affective influences. Sproles' exploratory study provided the foundation and conceptual framework for the Consumer Styles Inventory. This study was conducted with 111 female undergraduate female students enrolled two family and consumer sciences courses at the University of Arizona. The results of this study established consumer decision-making style traits that would later be referred to in the Sproles and Kendall (1986) study as mental characteristics. Sproles' (1985) original definition of decision-making style was a total of the individual's traits. Sproles and Kendall (1986) defined eight consumer decision-making styles based on these traits.

### Consumer Decision-Making Styles

Deacon and Firebaugh (1975) proposed a model of decision making that is considered the most appropriate method for approaching all decisions, and others have supported this model (Garman, 2002; Goldsmith, 1996; Rice & Tucker, 1986). Sproles and Kendall (1986) further proposed that consumers approach the marketplace with specific styles of consumer decision making. Through empirical research, Sproles and Kendall (1986) defined eight categories of decision-making styles:

1. *Perfectionist, High-Quality Conscious*. A consumer has specific ideas about best quality products and consistently looks these qualities.
2. *Brand Conscious, Price Equals Quality*. A consumer associates quality with higher-priced, national brands.
3. *Novelty-Fashion Conscious*. A consumer gains pleasure for seeking out the newest, most modern, and exciting product.
4. *Recreational Shopping/Hedonistic Shopping Conscious*. A consumer gains pleasure from the shopping experience.
5. *Price Conscious, Value-for-Money*. A consumer consistently searches for sales, bargains, and lower-priced products.
6. *Impulsive, Careless*. A consumer does not plan what they shop for and is not concerned about the amount of money spent.
7. *Confused by Overchoice*. A consumer is confused and overwhelmed with too much product information and/or too many product choices.
8. *Habitual, Brand-Loyal*. A consumer tends to consistently stick with the same brand of product.

*Studies Related to the Sproles and Kendall Consumer Decision-Making Styles*

Additional research has confirmed specific categories of the Consumer Styles Inventory. Those studies are described below.

*Recreational shopping conscious*. For some consumers, shopping is entertaining, without much thought to whether they are getting the best value or best price. These consumers also use shopping as a means of social networking and access to an enjoyable environment (Maynes, 1976).

*Price-value conscious*. Price is used as criteria for perceived quality of a product according to Jacoby's (1976) review of other research that examines this relationship. Price is also used when other information is unavailable.

*Habitual, brand-loyal*. Stephenson and Willett's (1969) study of 370 households focused on consumers' shopping styles and how often they shopped at the same retailers. This study investigated store loyalty, shoppers' habits, sensitivity to pricing, and contentment with the shopping experience. The authors also studied how convenience of transactions impacted whether consumers continued to shop at a store in the future. Stephenson and Willett (1969)

found that having store charge accounts influenced the shopper's likelihood to shop there on a regular basis. Marketers want repeated purchases of their products, not those of their competitors, thus, habitual brand-loyal customers are sought. The definition of brand loyalty (and habit buying) also includes a result of decision making that involves a tendency to commit to the same product brand repeatedly (Garman, 2002; Miller & Stafford, 2001; Jacoby & Chestnut, 1978).

### Studies Using the Consumer Styles Inventory

Although the original Consumer Styles Inventory (CSI) gleaned similar results using secondary students (Sproles & Kendall, 1986; Sproles, 1985), other studies, mostly with college students, have challenged their findings, based on cultural differences. Results of these studies (Canabal, 2002; Fan & Xiao, 1998) showed similarities in the top consumer decision-making styles, such as Habitual, Brand Conscious. However, Indian consumers struggled more with Overwhelmed by Overchoice than other populations (Canabal, 2002; Fan & Xiao, 1998; Hafstrom, Chae, & Chung, 1992). Further studies were suggested to investigate other international differences, such as macroeconomic conditions (Canabal, 2002) and purchasing power and consumers' maturity in understanding the marketplace (Fan & Xiao, 1998; Fan, Xiao, & Xu, 1997).

#### *China*

Also using college students for their target sample, Fan and Xiao (1998) administered the Sproles and Kendall (1986) Consumer Styles Inventory to see if the consumer decision-making styles were generalizable to Chinese consumers. Based on this study's factor loadings, their findings suggested that the decision-making styles of Impulsive/Careless and Habitual/Brand Loyal were not characteristic of the Chinese sample.

#### *Germany*

In Germany, the CSI was administered to adult male and female non-student shoppers, ages 18 and above. Six factors of the original eight included in the CSI were confirmed: Brand Consciousness, Perfectionism, Recreational/Hedonistic, Confused by Overchoice, Impulsiveness, and Novelty-Fashion Consciousness. "Variety seeking was novel to Germany and replaced brand royalty and price-value consciousness factors found in previous countries" (Walsh, Mitchell, & Hennig-Thurau, 2001, p. 73). Table 1 provides an additional comparison of studies that have administered the Consumer Styles Inventory to multiple ethnic samples.

Table 1

*Comparison of Studies that used the Consumer Styles Inventory*

| India (Canabal, 2002),<br>college students | China (Fan & Xiao,<br>1998), college<br>students | Korea (Hafstrom et<br>al., 1992) college<br>students | United States<br>(Sproles & Sproles,<br>1990), secondary<br>students |
|--|--|--|--|
| Brand Conscious                            | Brand Conscious                                  | Brand Conscious                                      | Brand Conscious  |
| High Quality<br>Conscious                  | Time Conscious                                   | Perfectionist  | Perfectionist  |
| Perfectionist                              | Quality Conscious                                | Recreational/Shopping<br>Conscious                   | Novelty/Fashion<br>Conscious   |
| Confused by<br>Overchoice                  | Price Conscious                                  | Confused by<br>Overchoice                            | Recreational/Shopping<br>conscious                                   |
| Impulsive Brand<br>Indifferent             | Information<br>Utilization                       | Time/Energy<br>Conserving                            | Price/Value Conscious  |
| Time Conscious                             |  | Impulsive  | Impulsive  |
| Recreational<br>Shopper/Value<br>Conscious |  | <i>Habitual Brand-Loyal</i>                          | Confused by<br>Overchoice  |
| Price/Value conscious                      |  | <i>Price-Value<br/>Conscious</i>                     | Habitual Brand-Loyal   |
| <i>Dissatisfied/Careless</i>               |  |  |  |

*Note:* Factors appear in the order presented by the authors of these studies. Italicized factors indicate Cronbach's alpha levels below .4. Factors unable to load were omitted. From "Decision-Making Styles of Young South Indian Consumers: An Exploratory Study," by Maria E. Canabal, 2002, *College Student Journal*, 36, p. 19. Adapted with permission from the author.

Table 1 also reflects some different consumer decision-making styles from the Sproles and Kendall (1986) Consumer Styles Inventory. These different styles emerged in some of the individual studies based on cultural differences and were interpretations of the researchers' findings for these studies.

#### *Korea*

Hafstrom et al. (1992) found similar factor loadings, to the United States study (Sproles & Kendall, 1986). However, the Consumer Styles Inventory was modified to include a new consumer decision-making style, Time-Energy Conserving. This characteristic included parts of the brand conscious and habitual brand-loyal characteristics of Sproles and Kendall's (1986) original study. The only characteristic not confirmed in the Korean study was novelty-fashion conscious.

#### *India*

A multi-country study by Lysonski, Srini, and Zotos (1996) questioned the applicability of the CSI to other ethnic samples, however, Cannabal (2002) suggested that the Consumer Styles Inventory had more applicability across cultures. Using college students as the target sample, Canabal (2002) also adapted the conceptual framework to reflect the German (Hafstrom et al., 1992) study and factor analysis to determine applicability of the Consumer Styles Inventory. The findings suggested Indian consumers' impulsiveness was more related to indifference to brands rather than carelessness of decision-making. In fact, this study also added a new category, "dissatisfied/careless," to reflect this finding.

#### *Malaysia*

Kamaruddin and Mokhlis (2003) used social structural variables to determine their influence on consumer decision-making styles. The authors suggested that social class, gender, ethnicity, residence, and religion (social structural variables as defined by Kamaruddin and Mokhlis) were related to consumer decision-making. Consumer characteristics were believed to influence decision-making due to their cognitive and affective (attitudinal) components. Adolescents in secondary schools were administered the Consumer Styles Inventory (Sproles & Kendall, 1986). Using multiple regression analysis, relationships of social structural variables to decision-making styles were tested. Results revealed differences in decision-making styles between males and females. Males tended to be more brand-conscious and females tended to be

more recreational shoppers. Adolescents in urban areas tended to be more brand-conscious and novelty-conscious than rural adolescents.

#### *New Zealand*

Using factor analysis, a study conducted by Durvasula, Lysonski, and Andrews (1993) with New Zealand college students produced similar factor loadings to the Sproles and Kendall (1986) study using secondary students in the United States.

#### *United Kingdom*

Using factor analysis, Mitchell and Bates (1998) administered the Consumer Styles Inventory to undergraduate students in the United Kingdom and expanded the categories of consumer decision-making styles from eight (Sproles & Kendall, 1986) to ten. The two new categories introduced Time-Energy Conserving (Hafstrom et al., 1992) and Store Loyalty. These new categories re-combined some statements from Sproles and Kendall's (1986) other consumer decision-making styles, such as Impulsiveness, Perfectionist, and Brand Loyalty.

#### *Multi-Country*

A study was conducted (Lysonski et al., 1996) with undergraduate business students in four countries to investigate the applicability of the Consumer Styles Inventory in other countries. The countries represented in the sample were the United States, New Zealand, India, and Greece. The results of factor analysis were quite similar to Sproles and Kendall (1986). However, this study confirmed seven of the eight Sproles and Kendall decision-making styles, which excluded Price Conscious, Value for Money. This study also suggested decision-making styles from the Consumer Styles Inventory might be influenced by different cultures in other countries, as well as different retail environments (types of retail stores available, whether consumers use credit cards in the particular country). Using varimax rotation of factors, it was determined that the original CSI was more applicable to New Zealand and the United States and was not as applicable to India and Greece. The researchers concluded that there might be specific decision-making style differences within cultures.

### Critique of the Consumer Styles Inventory

Multiple studies have been conducted to investigate the applicability of the Consumer Styles Inventory (Sproles and Kendall, 1986) to other cultural populations. Within these studies, some concerns have emerged that are discussed below.



### *Shopping Differences*

Walsh et al. (2001) suggested different shopping situations (such as different retail hours) might influence the outcome of results to the Consumer Styles Inventory. However, the New Zealand study (Durvasula et al., 1993) suggested that differences in shopping environments did not influence results for their study. Their findings were similar to Sproles and Kendall's (1986) findings. For example, New Zealand stores close quite early on weekdays and are closed on Sundays and Saturday afternoons. They reported fewer stores and less competition and fewer choices than in the U.S., yet similar findings resulted for factor loadings.

### *Language Translations and Grammatical Issues*

Mitchell and Bates (1998) found issues with the wording and grammatical make-up of the Consumer Styles Inventory statements and questioned whether this instrument was appropriate for use with other countries that may interpret language differently. These researchers criticized some of the CSI statements for ending with a verb, which is rarely used in the United Kingdom. Other studies required language translations for their particular samples (Fan & Xiao, 1998; Hafstrom et al., 1992; Walsh et al., 2001), and the researchers questioned whether changes might have occurred in the meanings of the item statements after the statements were translated into their native languages of Chinese, Korean, and German, respectively.

### *Previous Factor Analysis*

In addition, Mitchell and Bates (1998) also questioned the original study by Sproles and Kendall (1986) with factor loadings reported below .60 and questioned why other forms of reliability were not investigated. This study also suggested that further modifications might be necessary. Additionally, it also suggested that some statements were unclear.

### *Life Experience*

Mitchell and Bates (1998) questioned the use of secondary students in Sproles and Kendall's (1986) study as opposed to undergraduate college students used in their study since secondary students were still living at home and undergraduates would tend to make more independent purchase decisions since they were living away from home. Additionally, the secondary students used in the Sproles and Kendall (1986) and the Sproles and Sproles (1990) studies were students enrolled in family and consumer science courses (formerly known as home economics) and it is unknown whether these students might have already had prior training in resource management concepts.

## The Learning Styles Inventory and the Consumer Decision-Making Styles Inventory

Using stepwise multiple regression, Sproles and Sproles (1990) found a significant relationship between variables in their Learning Styles Inventory and variables in the Consumer Decision-Making Styles Inventory. The Learning Styles Inventory confirmed six possible learning styles. The Consumer Decision-Making Styles Inventory confirmed eight possible consumer decision-making styles. The results from Sproles and Sproles (1990) suggested that it is possible to have multiple consumer decision-making styles with each individual learning style. Some learning styles had significant relationships with more characteristics than others. The Sproles and Sproles (1990) study also proposed this model as a tool for educators to assist students in making better consumer decision in the marketplace. The current study sought to determine whether similar relationships exist between the Gregorc Style Delineator<sup>®</sup> (Gregorc, 1982b) and the Consumer Styles Inventory (Sproles & Kendall, 1986).

## Visual Representation of Mind Styles and Consumer Decision-Making Styles

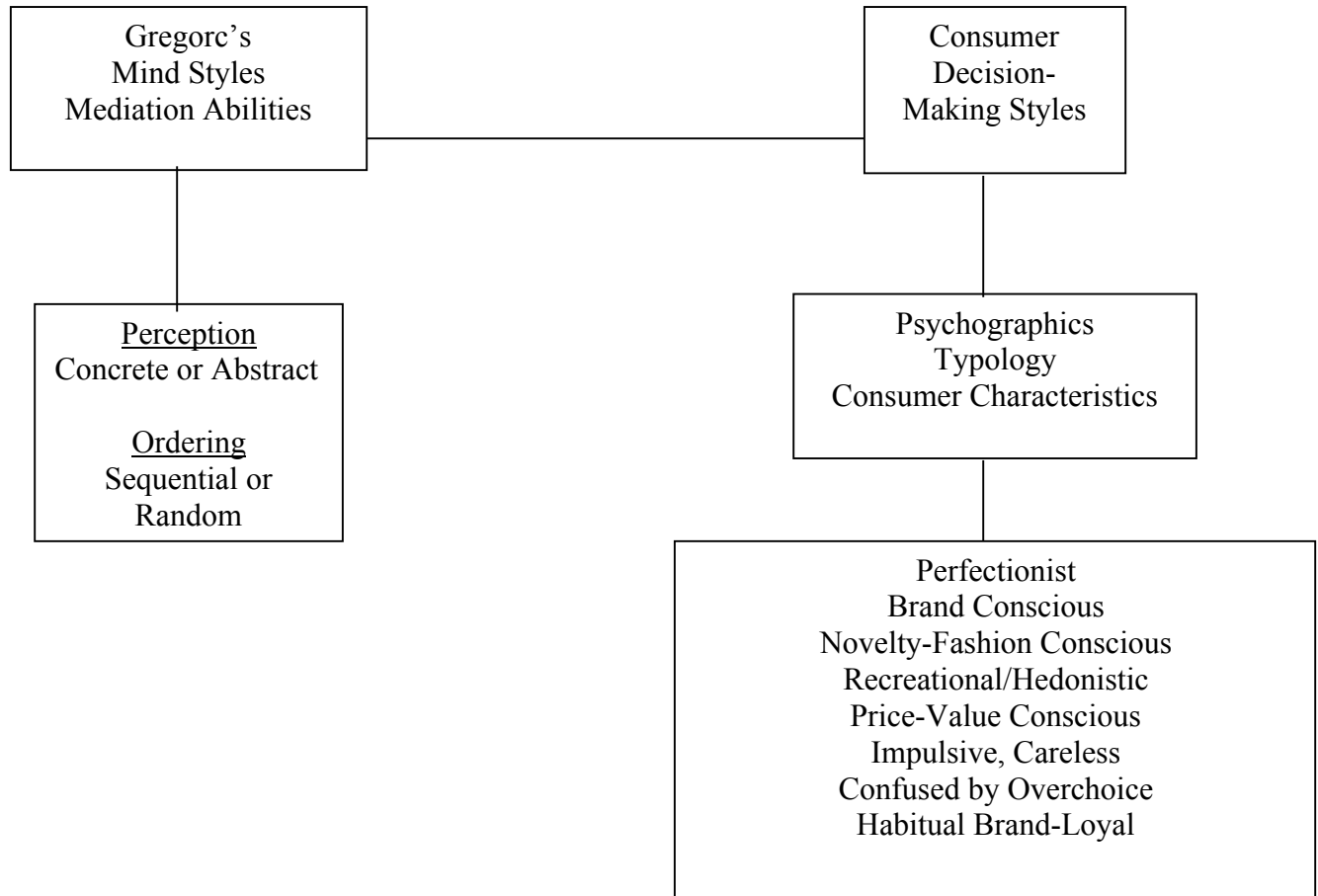
The visual representation of mind styles and consumer decision-making styles for this study is shown in Figure 2. In his mind styles research, Gregorc (1982a) postulated that the mind is made up of two mediation channels, perception and ordering. This study investigated the relationship of these mind styles to consumer decision-making styles, which are made up of three approaches: psychographics, consumer typology, and consumer characteristics.

## Summary

A review of the literature indicates that beginning college students enter college as consumers but may not possess appropriate skills in financial decision making. Recently, studies have suggested that college students are spending, on average, approximately \$287 per month on consumer-related items. A consumer's development of a decision-making style involves a process of learning and is influenced by past experience. Both learning styles and decision-making styles are cognitive. Sproles and Sproles (1990) found a relationship between secondary students' learning styles and their consumer decision-making styles. Although multiple studies have compared the generalizability of the Consumer Styles Inventory across other cultural populations, no studies have explored this with beginning college students. This study focused on whether there was a relationship between beginning college students' mind styles, their

consumer decision-making styles. The self-reported frequencies of consumer purchases typically related to college students were also examined.

Figure 2. Visual Representation of Mind Styles and Consumer Decision-Making Styles



## Chapter 3

### Methodology

This chapter will cover the following major components of the study's methodology: purpose, research design, students, instrumentation, field study, data collection procedures, and data analysis.

#### Purpose

This study focused on whether a relationship exists between beginning college students' mind styles and consumer decision-making styles. A review of the literature revealed specific characteristics of both learning style and consumer decision-making style and the need to continue research in this area. The research questions that guided this study were:

1. What are the demographic profile and self-reported shopping habits of beginning college students?
2. Is there a significant relationship between gender and self-reported shopping habits of beginning college students? If so, to what extent?
3. Is there a significant relationship between the perception of family income and self-reported shopping habits of beginning college students? If so, to what extent?
4. What is the distribution of the Gregorc mind styles among beginning college students?
5. Is there a significant relationship between gender and the Gregorc mind styles distributions among beginning college students? If so, to what extent?
6. Are there distinct consumer decision-making styles of beginning college students?
7. Is there a significant relationship between gender and the consumer decision-making style(s) of beginning college students? If so, to what extent?
8. Is there a significant relationship between the Gregorc mind style scores and consumer decision-making styles of beginning college students? If so, to what extent?

#### Research Design

The research design was pre-experimental. There was no control group and the sample was not random, thus, a threat exists to the external validity of this study and no causal inference

is appropriate. This study was a one-time case study in which the whole group was the case studied and the treatment was the students' life experiences (Cambell & Stanley, 1963).

### Subjects

The subjects were 416 out of 1806 full-time, first-year, first semester students at Radford University during Fall 2003. The subjects were students enrolled in University 100 courses in Fall 2003 and lived in RU Connections residence halls. University 100 is a one-credit course that is taught in each residence hall's classroom during fall semester only of each academic year. The purpose of the course is to assist first-year, first semester students in their transition to the college environment and concentrate on skills to help them succeed academically, socially, and personally. The RU Connections program consists of residence halls that house just first-year residents. Students were chosen to live in these residence halls on a first-come, first-served basis, based on the receipt date of the students' residence hall applications and room deposits.

The sample was purposive from nineteen sections of University 100 from the RU Connections program. The Office of New Student Programs agreed to recruit nineteen RU Connections University 100 course instructors. Each section had an average enrollment of approximately 22 students. At least nineteen sections were targeted to reach a minimum sample size of 380 students. According to the Office of New Student Programs (M. C. Herndon, personal communication, April 15, 2004), during Fall 2003, 605 first-year, first semester students lived in the RU Connections residence halls and 598 were enrolled in RU Connections University 100 courses. Twenty-one sections of University 100 were taught in RU Connections residence halls. A total of 66 sections of University 100 were offered (including the RU Connections sections) and 1,461 first-year, first semester students were enrolled in these courses. A total of 1,804 first-year, first semester students were enrolled full-time during Fall 2003 (See Appendix A).

Each instructor of the recruited sections agreed to allow two visits to their regularly scheduled University 100 course. The first visit included facilitation of the research instruments. The second visit included follow-up and a class discussion of the results. See Appendix A and Appendix B for more demographic information on Radford University students for Fall 2003 (Office of Institutional Research, Planning, and Assessment, 2004).

The study was conducted during two regularly scheduled University 100 classes for each participating class. The Gregorc Style Delineator<sup>®</sup>, the Consumer Styles Inventory, and the

Demographic Survey were administered during the first session of each class. All participation for this study was voluntary. Students were given the option of an alternative assignment if they chose not to participate, however, all students in attendance at each University 100 class agreed to participate. Students under the age of 18 were allowed to participate, but their responses were not collected for data analysis by the researcher.

### Delimitations

Only full-time, first-year, first semester students, living on-campus, 18 years of age and older, and enrolled in RU Connections University 100 courses at Radford University, were targeted. Students under the age of 18 were allowed to participate, but their surveys were not used in this study, as further Institutional Review Board approval would have been required.

Sophomores, juniors, and seniors were not included since it is unknown if changes have occurred in their learning styles from their first year to their following academic years. Radford University first-year, first semester students were the sole focus of this study. The sample was limited to the numbers of students who were enrolled in RU Connections University 100 courses during Fall 2003. University 100 is a one-credit course that is taught in each residence hall's classroom during fall semester only of each academic year. The purpose of the course is to assist first-year, first semester students in their transition to the college environment and concentrate on skills to help them succeed academically, socially, and personally. The RU Connections program consists of residence halls that house just first-year, first semester residents. Students were chosen to live in these residence halls on a first-come, first-served basis, based on the receipt date of the students' residence hall applications and room deposits. Participating instructors in the RU Connections program were recruited through the Radford University Office of New Student Programs.

### Limitations

A limitation of this study was the subjects in attendance at the first session of each University 100 class. Although a mandatory attendance policy was in effect for each class, participation was voluntary and limited to those who chose to participate.

Demographic characteristics of the subjects may not be similar to other institutions of higher education. The Radford University full-time undergraduate student population is 52% female and ethnic groups represent 10.46% of undergraduates enrolled full-time (Office of

Institutional Research, Assessment, and Planning, 2004). Lack of generalizability to other college student populations within the United States should be considered as a possible limitation. Radford University students are accepted using specific admissions criteria and are not representative of all other institutions of higher education, except for those that may use similar admissions criteria at peer institutions, such as Appalachian State University, Central Missouri State University, and Central Washington State University (Office of Institutional Research, Assessment, and Planning, 2004). A complete listing of Radford University's peer institutions can be found at <http://www.radford.edu/~irpa/BenchmarkInstitutions.html>.

### Instrumentation

Three instruments were used for this study: The Gregorc Style Delineator<sup>®</sup> (see Appendix C), the Consumer Styles Inventory (see Appendix D), and the Demographic Survey (see Appendix E). Following are descriptions of prior statistical analyses concerning the validity and reliability for Gregorc Style Delineator and the Consumer Styles Inventory.

#### *Gregorc Style Delineator<sup>®</sup>*

The Gregorc Style Delineator<sup>®</sup> was administered to assess mind styles. This is a self-reporting, self-scoring instrument containing word matrices that can be completed in approximately 15 minutes with immediate feedback. Scores were tabulated for the four mind styles: (a) Concrete Sequential, (b) Abstract Sequential, (c) Abstract Random, and (d) Concrete Random. The instrument consisted of 10 categories of descriptive words, and individuals ranked the words in rank order from "4" being the most like them and "1" being the least like them. The highest score indicated the dominant mind style. It is possible to have multiple, dominant mind styles. Characteristics of each mind style are listed and described on the back of each instrument.

*Validity of the Gregorc Style Delineator<sup>®</sup>*. Gregorc's study (1982b) conducted a test-retest reliability on 110 adults' responses to the Delineator and a separate instrument that used the same word matrices but were listed in different, random order than the Delineator. Using test-retest (the first test used scores from the Delineator and the second test scores from the random order sample of the Delineator), Concrete Random had the lowest ( $r = 0.55$ ) in the first test and Abstract Sequential had the highest in the second test ( $r = 0.76$ ). Gregorc reported all of

the correlations as statistically significant at the  $p < 0.01$  level and referred to this type of procedure as predictive validity.

*Confirmation of the Gregorc style characteristics.* In another study (Gregorc, 1982b), 475 students completed the Gregorc Style Delineator. Each student was also given a list of random-ordered characteristics that represented the mind style categories of the Delineator. Each person recorded a self-rating on scale of 1-5 as to what extent the characteristics best described him or her. A rating of “1” represented strongly agree to “5” which represented strongly disagree. Approximately 31% of the individuals strongly agreed and 58% agreed that the characteristics described them. Gregorc also reported this procedure as another form of confirmation known as predictive validity.

*Reliability of the Gregorc Style Delineator.* Gregorc (1982c) tested the reliability of the Gregorc Style Delineator using test-retest reliability in a study with 100 adults. The first test standardized alpha coefficients for the four mind styles ranged between .89 and .93. The second test standardized alpha coefficients ranged between .85 to .88 with  $p < .001$ . The alpha coefficients can range between .00 and 1.0 and should be as close to 1.0 as possible (Huck, 2000).

The results shown in Table 2 reflect Gregorc’s (1982c) first test and second test for test-retest reliability and are listed in order by first test and second test results (scores were not available by gender). Because the current study was only conducted one time, test-retest reliability test could not be conducted and no further tests of reliability were used.

#### *Consumer Styles Inventory*

The Consumer Styles Inventory contained 39 statements that required one answer to be chosen for each item statement that best represented the student’s response. A Likert scale was used, with “5” representing strongly disagree to “1” representing strongly agree.

*Reliability of the Consumer Styles Inventory.* No reliability coefficients were reported in the Sproles and Kendall (1986) study nor the Sproles and Sproles (1990) study. However, the Mitchell and Bates (1998) study confirmed reliability with test-retest with Pearson’s correlations of the statements ranging from -.34 to .27. However, an earlier study by Sproles (1985) also used test-retest reliability and reported alpha coefficients between .34 and .70. According to Huck (2000), the alpha coefficients for test-retest can range between .00 and 1.0 and should be as close to 1.0 as possible.



Table 2

*Reliability (Cronbach's Alpha) Analysis of the Gregorc Style Delineator* □

| Scale               | First Test |           |                    | Second Test |           |                    | Reliability Correlation between first and second tests |             |
|---------------------|------------|-----------|--------------------|-------------|-----------|--------------------|--|-------------|
|                     | <i>M</i>   | <i>SD</i> | Standardized Alpha | <i>M</i>    | <i>SD</i> | Standardized Alpha | <i>r</i>   | Alpha level |
| Concrete Sequential | 28.6       | 11.1      | .92                | 29.2        | 10.9      | .92                | .85  | < .0001     |
| Abstract Sequential | 27.4       | 10.5      | .89                | 27.5        | 11.9      | .92                | .87  | < .0001     |
| Concrete Random     | 27.9       | 11.6      | .91                | 28.2        | 11.5      | .91                | .87  | < .0001     |
| Abstract Random     | 29.1       | 12.0      | .93                | 29.5        | 11.4      | .92                | .88  | < .0001     |

*Note:* The sample size for this study was  $n = 111$ . Gender was not reported. From *Gregorc Style Delineator: Development, Technical and Administration Manual* (p. 19), by Dr. A. F. Gregorc, 1982c, Columbia, CT: Gregorc Associates, Inc. Copyright 1982 by Dr. A. F. Gregorc. Reprinted with permission from the author.

Other studies used Cronbach's alpha to test reliability of the consumer decision-making style categories. Hafstrom, Chae, and Chung (1992) found alpha coefficients that ranged from .31 to .84 for the eight consumer decision-making style categories. Fan and Xiao (1998) found alpha coefficients for five consumer decision-making categories ranging from .50 to .60. More recently, Canabal (2002) found reliability coefficients of five consumer decision-making categories that ranged from .47 to .77. The Cronbach's alpha coefficients can range between .00 and 1.0 and should be as close to 1.0 as possible (Huck, 2000).

*Factor analysis of the Consumer Styles Inventory.* Orthogonal varimax rotation of factors was used in previous studies with the Consumer Styles Inventory to confirm the Sproles and Kendall (1986) consumer decision-making styles. This statistical procedure produced varying results depending on different cultural samples. For factor analysis, factors should load .60 or higher (Green, Salkind, & Akey, 2000). Most studies used college students for these samples. Following are short descriptions of the studies that used factor analysis to confirm the consumer decision-making styles.

- Sproles and Kendall, 1986: Eight factors of the Consumer Styles Inventory explained 46% of the variance for the U.S. secondary students.
- Hafstrom, et al., 1992: Eight factors of the Consumer Styles Inventory explained 46% of the variances for Korean college students.
- Durvasula, Lysonski, and Andrews, 1993: Eight factors of the Consumer Styles Inventory explained 56% of the variance for the New Zealand college students.
- Lysonski, Srini, and Zotos, 1996: Seven factors of the Consumer Styles Inventory explained 54.6% of the variance for the New Zealand college student students, 53.7% of the variance for the Greek college students, 57.5% of the variance for the United States college students; and 52.2% of the variance for the Indian college students.
- Fan and Xiao, 1998: Five factors of the Consumer Styles Inventory explained 35% of the variance for the Chinese college students.
- Mitchell and Bates, 1998: Eight factors of the Consumer Styles Inventory explained 50.5% of the variance for the United Kingdom college students.
- Walsh, Mitchell, and Hennig-Thurau, 2001: Seven factors for the Consumer Styles Inventory explained 51.9% of the variance for the adult, non-college German shoppers.

- Canabal, 2002: Five factors of the Consumer Styles Inventory explained 35% of the variance for Indian college students.

#### *Confirmation of the Consumer Decision-Making Styles for the Consumer Styles Inventory*

Multiple studies of the Consumer Styles Inventory have used factor analysis confirm consumer decision-making styles with different cultural samples. No statistical tests for reliability were reported. For factor analysis, the previous studies used college students from various countries. For instance:

- Canabal, 2002: Factor loadings ranged from 0.47 to 0.77 in the six-factor model.
- Durvasula et al., 1993: Factor loadings ranged from 0.50 to 0.82 for their eight-factor model.
- Fan and Xiao, 1998: Factor loadings ranged from 0.55 to 0.60 in the five-factor model.
- Hafstrom et.al., 1992: Factor loadings ranged from 0.31 to 0.84 for the eight-factor model.
- Kamaruddin and Mokhlis, 2003: A correlation matrix was used (although the specific type was not mentioned) and had ranges from 0.01 to 0.37 for the independent variables (social structural variables).
- Mitchell and Bates, 1998: Factor loadings ranged from 0.33 to 0.80 for the eight-factor model.
- Walsh et al., 2001: Factor loadings ranged from 0.42 to 0.77 in the seven-factor model.

#### *Demographic Survey*

The Demographic Survey was administered during the first class session. This information was used to describe the student sample. The Survey consisted of two parts. Part I included information concerning age, gender, ethnicity, family income, mother or guardian's education, father or guardian's education, and residency. Part II asked questions regarding self-reported shopping habits related to consumer goods typically purchased by college students.

#### Field Test

A field test was conducted to provide feedback regarding the instruments and directions prior to administration to first-year, first semester college students during Fall 2003. Both instruments have been previously tested for reliability and validity. However, these instruments

have not been used together. This field test provided the opportunity to receive feedback and ideas for improvement for administration in the full study in Fall 2003.

The EDAE 6924 course composed of doctoral candidates during July 2003 was used. Students enrolled in the EDAE 6924 were required to study different types of educational instruments. This field test served the purpose of providing a real-life example of educational instruments and the opportunity to test them.

The Gregorc Style Delineator<sup>®</sup>, the Consumer Styles Inventory, and the Demographic Survey were administered to the 55 students and they provided feedback with ideas for improvement and efficiency. For those interested, tabulated scores of the Consumer Styles Inventory were emailed to them individually. Students were allowed to keep the Gregorc Style Delineator<sup>®</sup> and scores were recorded on Gregorc Style Delineator Score Sheets (see Appendix F) that were collected by the researcher for comparison to the Consumer Styles Inventory tabulations. Due to the small sample size, no statistical analyses, other than descriptive, were conducted for this field test.

Participation was entirely voluntary. No extra credit or course grades were given. All information was kept confidential and data collected were unidentifiable in any other documentation. The surveys were coded by the student's email address. For both surveys, students were asked to provide feedback at the end of the Consumer Styles Inventory through an online survey.

- Were the instruments easy to understand?
- What improvements might help the administration of these instruments?
- Were there needed changes?
- Additional comments?

Ten students provided feedback through the online survey. Feedback was positive and the students felt the instruments were easy to understand. Other than suggested grammatical and minimal formatting changes, one student questioned whether the mind styles instrument would be appropriate for first-year, first semester college students. The field tests results of these instruments were not used for comparison in the dissertation.

### Data Collection Procedures

For the full study at Radford University in Fall 2003, the following procedures were used.

- Two class sessions were conducted.
- During the first class session, students were asked to complete the Gregorc Style Delineator<sup>®</sup> with a completion time of approximately 15 minutes.
  - After completion of the Gregorc Style Delineator<sup>®</sup>, subjects computed their individual mind style scores. Students kept their copy of the Gregorc Style Delineator<sup>®</sup> and were asked to provide their scores on the Gregorc Style Delineator Score Sheet that was collected by the researcher. Students were also asked to report their email address as the identifier on the Gregorc Style Delineator Score Sheet. No names or student identification numbers were used. A statement was provided on the score sheet to indicate each student's consent to participate by completing the instruments.
- Also at the first class session, students were asked to complete the Consumer Styles Inventory and the Demographic Survey.
  - Participant consent: the Consumer Styles Inventory provided a statement indicating the student's consent to participate by completing the instruments.
- After the initial class session, scores were tabulated for each student's consumer decision-making style and printed on each student's personal Consumer Style Characteristics Profile (see Appendix G), which was developed by the researcher. The Consumer Style Characteristics Profiles were printed and distributed to each student during the second class for discussion.

### Data Analysis

The original form of the Gregorc Delineator<sup>®</sup> was used. The individual student scores were reported as interval values on each of the four mind styles, Concrete Sequential, Abstract Sequential, Concrete Random, and Abstract Random. The mind style with the highest score was reported as the dominant mind style for that student. While it is possible to have dominant scores in multiple mind styles, the decision was made to eliminate the mind style scores for those reporting multiple dominant styles. The numbers within each variation of multiple dominant

mind styles were not large enough to use as separate mind style categories and thus, were not used in the final analysis.

Although multiple studies of the Consumer Styles Inventory have been used with diverse cultural populations (with a few modifications on the consumer decision-making styles to better represent these populations), similar statistical procedures were used from the Sproles and Sproles (1990) study. Additionally, other studies have used similar statistical procedures. Knowing that the consumer decision-making styles from the Consumer Styles Inventory have been modified with other populations and tested on few samples of college student samples in the United States, a test of reliability and a factor analysis was carried out. The statistical methods performed in this study are displayed in Figure 3 and are shown in the order in which they were conducted.

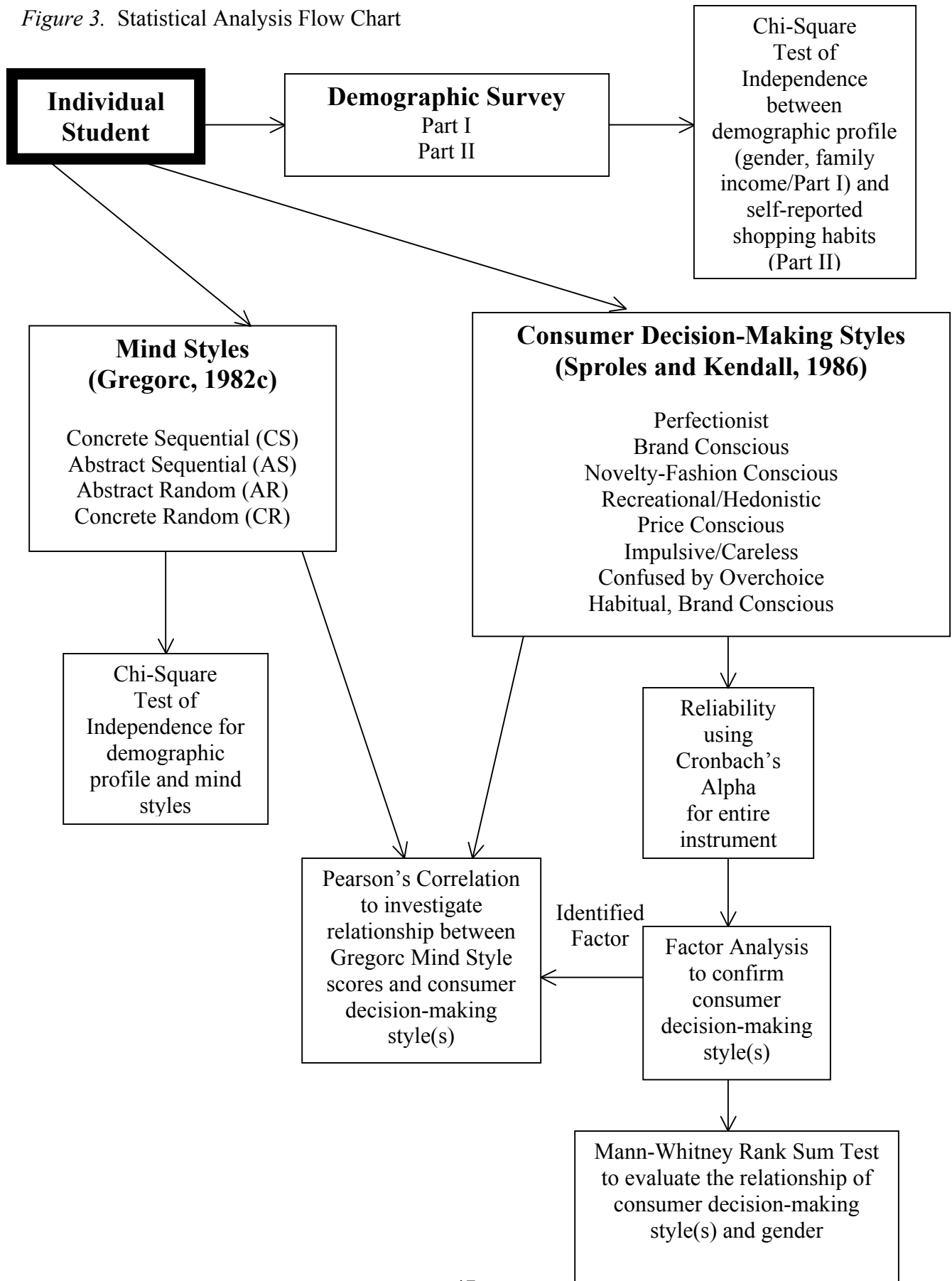
#### *Reliability*

Reliability analysis was not conducted with the Gregorc Style Delineator<sup>®</sup> for this study. Gregorc (1984) used test-retest and since this study was facilitated one time, a comparison for reliability between the two studies was not possible. The entire Consumer Styles Inventory was tested for reliability using Cronbach's alpha. This is an "internal measure of reliability or consistency of the items in an index. It can be used for Likert scales" (Vogt, 1999). Cronbach's alpha coefficients can range from .00 to 1.00 and should be as close as possible to 1.00 (Huck, 2000).

#### *Factor Analysis*

Exploratory factor analysis was performed to determine whether some factors might be reduced or grouped together and to determine whether some variables might be related. Factor analysis is often used in survey research questions or statements (Vogt, 1999). Various studies have shown differences in factors in diverse populations (Canabal, 2002; Fan & Xiao, 1998; Hafstrom, et al., 1992; Lysonski, et al., 1996; Walsh, et al., 2001). Factor analysis also provides a measure of construct validity (Huck, 2000). Varimax rotation of factors that was used in the original study was performed for identification of factors consistent with Sproles and Sproles (1990). Varimax rotation of factors is "orthogonal rotation of the axes in a factor analysis. It maximizes the variances of the factors" (Vogt, 1999, p. 304). Orthogonal is defined as "intersecting or lying at right angles. Uncorrelated variables are said to be orthogonal because, when correlated on a graph, they form right angles to one of the axes (if there is no variance in

Figure 3. Statistical Analysis Flow Chart



one of the variables). In factor analysis, said of a rotation when the axes are kept at right angles; that is when it is assumed that the factors are not correlated” (Vogt, 1999, p. 202). For factor analysis, factors should load .60 or higher (Green, et al., 2000).

#### *Chi-Square Test of Independence*

For this study, the Chi-Square Test of Independence was conducted to determine whether a relationship exists between the demographic profile and self-reported shopping habits of beginning college students. Additionally, the Chi-Square Test of Independence was performed to determine whether a relationship exists between beginning college students’ mind styles and gender. Chi-Square is an inferential statistic test that examines a “test of association between two variables, or as a test of differences between two independent groups.” (Brace, Kemp, & Snelgar, 2003, p. 336).

#### *Pearson’s Correlation*

Pearson’s correlation was conducted to “assess the basic association between individual learning style and their consumer decision-making styles” (Sproles & Sproles, 1990, p. 138). In this study, mind styles replaced the learning styles instrument used in the original study. “Correlation is a special case of regression” (Vogt, 1999, p. 211). Pearson’s correlation also shows “the linear relationship between two variables that have been measured on interval or ratio scales” (Vogt, 1999, p. 211). The mind style scores were the dependent variables and each statement from the Consumer Styles Inventory was the independent variable. Pearson’s correlation coefficients can range between  $-1$  and  $+1$ . The closer the coefficient is to  $+1$ , the stronger the correlation. The closer the coefficient is to  $-1$ , the weaker the correlation (Carver & Nash, 2000).

#### *Mann-Whitney Rank Sum Test*

A Mann-Whitney Rank Sum Test was employed to evaluate the relationship of the consumer decision-making style(s) and gender. This statistical test is used to evaluate the median of two independent samples when the samples are not evenly distributed and to determine if a significant difference exists (Green, et al., 2000).



## Summary

This study was conducted at Radford University during Fall 2003 with first-year, first semester students enrolled full time, enrolled in University 100, and living in RU Connections residence halls. The purpose of the study was to investigate the relationship between mind styles and consumer decision-making styles. The statistical methods used were similar some of the methods employed in the Sproles and Sproles (1990) study. Additional statistical analyses were performed to determine whether significant relationships exist between the following: The demographic profile of beginning college students and their self-reported shopping habits, gender and Gregorc mind styles, and gender and consumer decision-making styles.

## Chapter 4

### Findings

The purpose of this study was to determine whether a relationship exists between beginning college students' mind styles and their consumer decision-making styles. This chapter presents the results of descriptive analyses for this study.

The research questions that were investigated in this study were:

1. What are the demographic profile and self-reported shopping habits of beginning college students?
2. Is there a significant relationship between gender and self-reported shopping habits of beginning college students? If so, to what extent?
3. Is there a significant relationship between the perception of family income and self-reported shopping habits of beginning college students? If so, to what extent?
4. What is the frequency distribution of the Gregorc mind styles among beginning college students?
5. Is there a significant relationship between gender and the Gregorc mind styles distributions among beginning college students? If so, to what extent?
6. Are there distinct consumer decision-making styles of beginning college students?
7. Is there a significant relationship between gender and the consumer decision-making style(s) of beginning college students? If so, to what extent?
8. Is there a significant relationship between the Gregorc mind style scores and consumer decision-making styles of beginning college students? If so, to what extent?

### Procedures

Permission to conduct this study was granted from the Institutional Review Board at Virginia Tech, (see Appendix H), Radford University's Institutional Review Board (see Appendix I), and the Radford University Offices of Academic Programs and New Student Programs. The Office of New Student Programs agreed to recruit nineteen University 100 course instructors to allow their University 100 section of students to participate in this study.

University 100 is a one-credit course that is taught in each residence hall's classroom during fall semester only of each academic year. The purpose of the course is to assist first-year, first semester students in their transition to the college environment and concentrate on skills to help them succeed academically, socially, and personally. The RU Connections program consists of residence halls that house only first-year, first semester residents. Students were chosen to live in these residence halls on a first-come, first-served basis, based on the receipt date of the students' residence hall applications and room deposits. All recruited instructors participated in the RU Connections program through the Office of New Student Programs.

The study was conducted during two regularly scheduled University 100 classes for each participating section. The Gregorc Style Delineator<sup>®</sup>, the Consumer Styles Inventory, and the Demographic Survey were administered during the first session of each class. All participation for this study was voluntary. Students were given the option of an alternative assignment if they chose not to participate. However, all students in attendance at each University 100 class agreed to participate. Students under the age of 18 were allowed to participate, but their responses were not included for data analysis by the researcher because parental permission had not been received. Each student received a packet containing printed copies of the Gregorc Style Delineator<sup>®</sup>, Gregorc Style Delineator Score Sheet, Gregorc Mind Styles<sup>®</sup> Learner Characteristics Extenda-Chart (see Appendix J), Consumer Styles Inventory, and the Demographic Survey. Students were allowed to keep their original copies of the Gregorc Style Delineator<sup>®</sup> and were asked to record their score for each mind style (Concrete Sequential, Abstract Sequential, Abstract Random, and Concrete Random) on the separate Gregorc Style Delineator Score Sheet to be collected by the researcher.

Scores were tabulated for each student's consumer decision-making styles. Individual copies of the Consumer Styles Characteristics Profile (see Appendix G) were printed and distributed to students during the second class session. Interpretations of the scores were discussed after the Consumer Styles Characteristics Profiles were distributed. The Consumer Characteristics Profile provided scores for each category of consumer decision-making style. The scores for each consumer decision-making style were calculated using Excel. Students were allowed to keep their printed profiles.

The initial sample consisted of 416 students. From these 416 students, 47 surveys were deemed unusable due to incompleteness of the Gregorc Style Delineator<sup>®</sup> and/or the Consumer

Styles Inventory, or the student being under the age of 18 (this will be referred to as the usable sample,  $n = 369$ ). Thirty-six additional surveys were omitted due to having multiple dominant mind styles, resulting in a qualifying sample of 333 students. Cumulatively, 36 (9.8%) of the participants reported multiple dominant styles. However, of these 36, the numbers within each variation of multiple dominant mind styles were not large enough to use as separate mind style categories, and thus, were not used in the final analysis.

### Delimitations

Only full-time, first-year, first semester students, living on-campus, 18 years of age and older, and enrolled in RU Connections University 100 courses at Radford University, were targeted. Students under the age of 18 were allowed to participate, but their surveys were not used in this study, as further Institutional Review Board approval would have been required.

Sophomores, juniors, and seniors were not included since it is unknown if changes have occurred in their learning styles from their first year to their following academic years. Radford University first-year, first semester students were the sole focus of this study. The sample was limited to the numbers of students who were enrolled in RU Connections University 100 courses during Fall 2003. University 100 is a one-credit course that is taught in each residence hall's classroom during fall semester only of each academic year. The purpose of the course is to assist first-year, first semester students in their transition to the college environment and concentrate on skills to help them succeed academically, socially, and personally. The RU Connections program consists of residence halls that house just first-year, first semester residents. Students were chosen to live in these residence halls on a first-come, first-served basis, based on the receipt date of the students' residence hall applications and room deposits. Participating instructors in the RU Connections program were recruited through the Radford University Office of New Student Programs.

### Limitations

A limitation of this study were the subjects in attendance at the first session of each University 100 class. Although a mandatory attendance policy was in effect for each class, participation was voluntary and limited to those who chose to participate.

Demographic characteristics of the subjects may not be similar to other institutions of higher education. The Radford University full-time undergraduate student population is 52%

female and ethnic groups represent 10.46% of undergraduates enrolled full-time (Office of Institutional Research, Assessment, and Planning, 2004). Lack of generalizability to other college student populations within the United States should be considered as a possible limitation. Radford University students are accepted using specific admissions criteria and are not representative of all other institutions of higher education, except for those that may use similar admissions criteria at peer institutions, such as Appalachian State University, Central Missouri State University, and Central Washington State University (Office of Institutional Research, Assessment, and Planning, 2004). A complete listing of Radford University's peer institutions can be found at <http://www.radford.edu/~irpa/BenchmarkInstitutions.html>.

### Results of the Demographic Profile and Self-Reported Shopping Habits

#### **Research Question One: What are the demographic profile and self-reported shopping habits of beginning college students?**

The Demographic Survey was divided into two parts: Part I included the demographic characteristics. Part II included the statements regarding self-reported shopping habits. The following sections are the results Part I (as shown in Table 3) and Part II (as shown in Appendix E) of the Demographic Survey.

##### *Demographic Survey Part I*

Results of descriptive analysis of both the usable sample ( $n = 369$ ) and the qualifying sample ( $n = 333$ ) are displayed in Appendix K. As shown in Table 3, a Chi-Square/Goodness of Fit analysis was conducted to determine whether the qualifying sample differed significantly from the usable sample. Using an alpha level of  $p < .05$ , the resulting  $p$  values for each demographic variable were not significantly different (gender, age, residency, ethnicity, father/guardian education, mother/guardian education, and family income).

*Gender.* The usable sample of participants included 197 females (59.2%) and 135 males (40.5%). One participant (0.3%) did not report gender. For Fall 2003, the entire first-year, first semester class was 60.9% ( $n = 1099$ ) female and 39.1% ( $n = 707$ ) male students (Office of Institutional Research, Assessment, and Planning, 2004), which was similar in percentages to the current study's sample (see Appendix K).

*Age.* Most students were the age of 18 ( $n = 296$ , 88.9%) or 19 ( $n = 35$ , 10.5%). One student, who was 23 years old, returned to Radford University to pursue an undergraduate degree

Table 3

*Chi-Square/Goodness of Fit Analysis of the Usable (n = 369) and Qualifying (n = 333) Samples for the Demographic Variables*

| Demographic Variable          | <i>n</i> <sup>a</sup> | <i>df</i> | $\chi^2$ value     | <i>p</i> value |
|-------------------------------|-----------------------|-----------|--------------------|----------------|
| Gender                        | 332                   | 1         | .00 <sup>b</sup>   | .99            |
| Age                           | 331                   | 2         | .00 <sup>c</sup>   | 1.00           |
| Residency                     | 330                   | 2         | .00 <sup>d</sup>   | 1.00           |
| Ethnicity                     | 331                   | 4         | 29.38 <sup>e</sup> | .00            |
| Mother's/Guardian's Education | 330                   | 4         | .00 <sup>f</sup>   | 1.00           |
| Father's/Guardian's Education | 331                   | 4         | .00 <sup>g</sup>   | 1.00           |
| Perceived Family Income       | 331                   | 5         | .00 <sup>h</sup>   | 1.00           |

*Note.* <sup>a</sup> The sample size numbers in this table reflect the removal of missing data for this analysis. Different degrees of freedom are reported due to not having responses in some categories.

<sup>b</sup>Zero cells (.0%) have expected counts less than 5. The minimum expected cell count is 135.1.

<sup>c</sup>One cell (33.3%) has an expected count less than 5. The minimum expected cell count is 1.0.

<sup>d</sup>One cell (33.3%) has an expected count less than 5. The minimum expected cell count is 3.0.

<sup>e</sup>Two cells (40.0%) have expected counts less than 5. The minimum expected cell count is 1.0. To report a significant relationship the percentage of expected cell counts should not be higher than 20% or less than 5 per cell (SPSS, Inc., 1999). Thus, this researcher is not reporting this result as significant.

<sup>f</sup>One cell (20.0%) has an expected count less than 5. The minimum expected cell count is 1.0.

<sup>g</sup>One cell (20.0%) has an expected count less than 5. The minimum expected cell count is 1.0.

<sup>h</sup>Zero cells (.0%) have expected counts less than 5. The minimum expected cell count is 7.0.

The alpha level is  $p < .05$ .

after completing four years of military service. The 23 year-old student was included in the sample since he was living on-campus in the RU Connections residence hall. It is possible that other non-traditional aged, first-year students could be living on campus in other residence halls.

*Residency.* As shown in Appendix K, the majority of students reported their residency status as in-state ( $n = 287$ , 86.2%). The remaining students were either out-of-state ( $n = 43$ , 12.9%) or international ( $n = 3$ , 0.9%).

*Ethnicity.* Within the usable sample, the largest numbers were white/non-Hispanic at 306 (91.9%) and black/non-Hispanic at 11 (3.3%). Smaller numbers of students from other ethnic backgrounds were represented, as reported in Appendix K. For Fall 2003, the first-year, first semester class was comprised of 1623 (89.9%) white/non-Hispanic students and 86 (4.8%) black/non-Hispanic students.

*Father's/male guardian's education.* Students were asked to report their father or male guardian's highest level of education. The largest number and percentage of students ( $n = 188$ , 56.5%) reported a minimum of college degree or higher. The second largest number that reported their father or male guardian ( $n = 69$ , 20.7%) completed some college. The remaining categories are shown in Appendix K.

*Mother's/female guardian's education.* Students were asked to report their mother or female guardian's highest level of education. The largest number and percentage of students ( $n = 177$ , 53.2%) reported a minimum of college degree or higher. The second largest number ( $n = 81$ , 24.3%) reported that their mother or female guardian had completed some college or higher. The remaining categories are shown in Appendix K.

*Perceived family income.* No students reported a total of perceived family income of \$15,000 or less, but all other income categories were reported. As indicated in Appendix K, the largest number of students reported perceived family income in the highest category provided which was over \$75,000 ( $n = 142$ , 42.6%). Most others did not know or chose not to report this ( $n = 102$ , 30.6%) and the categories reporting perceived family incomes under \$75,000 had the smallest numbers of students ( $n = 67$ , 20.1%).

*Unexpected occurrences during data collection.* Participation was limited to the number of students in attendance, because data collection took place during regularly scheduled University 100 classes. Many questions arose from the participants as to the definition of words listed on the Gregorc Style Delineator<sup>®</sup>. According to Dr. Anthony Gregorc (personal

communication, December 8, 2003), the facilitator is not to answer questions concerning word definitions. This procedural guideline was not learned until after the study was complete. However, the researcher answered questions about specific, recurring words (such as “referential”). This situation may have inadvertently influenced the results. According to Dr. Gregorc, if a person cannot define a word, that particular word is likely not part of that person’s dominant mind style(s).

### *Demographic Survey Part II*

On Part II of their Demographic Surveys, students described their self-reported shopping habits by indicating how often they purchased specific categories of consumer goods. Students indicated how often they purchased these consumer goods by choosing one of the following options: Never, Seldom, Monthly, Every Two Weeks, Weekly, or Daily. Interpretations of the definitions of each purchase category (i.e., clothing, toiletries) were left up to each student. Frequencies and percentages of these purchases by gender for the sample are shown in Table 3. One student did not report gender. Only the highest percentages are reported.

### Results of the Relationship of Gender and Self-Reported Shopping Habits

#### **Research Question Two: Is there a significant relationship between gender and self-reported shopping habits of beginning college students? If so, to what extent?**

To investigate the relationship between gender and beginning college students’ self-reported shopping habits, a Chi-Square Test of Independence was performed. Significant relationships were found between gender and some categories of self-reported frequencies of purchases by the students.

#### *Clothing*

As noted in Table 4, females in this study reported purchasing clothing more frequently than males. For females, 42.9% purchase monthly, 23.0% purchase clothing every two weeks, and 15.8% purchase clothing weekly. For males, 32.6% purchase monthly, 5.2% purchase every two weeks, and 46.7% purchase seldom.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing clothing by gender.

H<sub>0</sub>: The self-reported frequency of purchasing clothing and gender are independent.



Table 4

*Frequencies and Percentages of Consumer Goods Purchases by Gender (n = 332)*

| Purchase Category   | Self-Reported Frequency of Purchases |              |              |                 |               |              |
|---------------------|--------------------------------------|--------------|--------------|-----------------|---------------|--------------|
|                     | Never                                | Seldom       | Monthly      | Every Two Weeks | Weekly        | Daily        |
| Clothing            |                                      |              |              |                 |               |              |
| Female              | -                                    | 11<br>(5.6)  | 84<br>(42.9) | 45<br>(23.0)    | 31<br>(15.8)  | 1<br>(0.5)   |
| Male                | -                                    | 63<br>(46.7) | 44<br>(32.6) | 7<br>(5.2)      | 4<br>(3.0)    | -            |
| Toiletries          |                                      |              |              |                 |               |              |
| Female              | -                                    | 3<br>(1.5)   | 70<br>(35.5) | 75<br>(38.1)    | 47<br>(23.9)  | 1<br>(0.5)   |
| Male                | 1<br>(0.7)                           | 20<br>(14.8) | 54<br>(40.0) | 46<br>(34.1)    | 11<br>(8.1)   | 3<br>(2.2)   |
| Food Away from Home |                                      |              |              |                 |               |              |
| Female              | 2<br>(1.0)                           | 14<br>(7.1)  | 20<br>(10.2) | 44<br>(22.3)    | 100<br>(50.8) | 16<br>(8.1)  |
| Male                | 3<br>(2.2)                           | 12<br>(8.9)  | 9<br>(6.7)   | 21<br>(15.6)    | 63<br>(46.7)  | 27<br>(20.0) |
| Food for Home       |                                      |              |              |                 |               |              |
| Female              | 1<br>(0.5)                           | 8<br>(4.1)   | 23<br>(11.7) | 55<br>(27.9)    | 80<br>(40.6)  | 29<br>(14.7) |
| Male                | 1<br>(0.7)                           | 9<br>(6.7)   | 14<br>(10.4) | 33<br>(24.4)    | 47<br>(34.8)  | 31<br>(23.0) |

table continues

Table 4

*Frequencies and Percentages of Consumer Goods Purchases by Gender (n = 332) continued*

| Purchase Category        | Self-Reported Frequency of Purchases |               |              |                       |              |            |
|--------------------------|--------------------------------------|---------------|--------------|-----------------------|--------------|------------|
|                          | Never                                | Seldom        | Monthly      | Every<br>Two<br>Weeks | Weekly       | Daily      |
| <b>Gas/Auto Expenses</b> |                                      |               |              |                       |              |            |
| Female                   | 24<br>(12.2)                         | 46<br>(23.4)  | 20<br>(10.2) | 52<br>(26.4)          | 53<br>(26.9) | 1<br>(0.5) |
| Male                     | 14<br>(10.4)                         | 28<br>(20.7)  | 6<br>(4.4)   | 30<br>(22.2)          | 53<br>(39.3) | 4<br>(3.0) |
| <b>Auto Insurance</b>    |                                      |               |              |                       |              |            |
| Female                   | 112<br>(56.9)                        | 27<br>(13.7)  | 51<br>(25.9) | -<br>-                | 2<br>(1.0)   | -<br>-     |
| Male                     | 64<br>(47.4)                         | 22<br>(16.3)  | 43<br>(31.9) | 2<br>(1.5)            | 1<br>(0.7)   | -<br>-     |
| <b>Electronics</b>       |                                      |               |              |                       |              |            |
| Female                   | 41<br>(20.8)                         | 136<br>(69.0) | 8<br>(4.1)   | 1<br>(0.5)            | 2<br>(1.0)   | 3<br>(1.5) |
| Male                     | 13<br>(9.6)                          | 83<br>(61.5)  | 20<br>(14.8) | 10<br>(7.4)           | 7<br>(5.2)   | 1<br>(0.7) |
| <b>School Supplies</b>   |                                      |               |              |                       |              |            |
| Female                   | 1<br>(0.5)                           | 86<br>(43.7)  | 75<br>(38.1) | 20<br>(10.2)          | 11<br>(5.6)  | 2<br>(1.0) |
| Male                     | 6<br>(4.4)                           | 66<br>(48.9)  | 45<br>(33.3) | 12<br>(8.9)           | 4<br>(3.0)   | 2<br>(1.5) |

*Note.* Percentages are reported in parentheses. The total number of females was 197. The total number of males was 135. One student did not report gender. Blank cells are noted by -.

As shown in Table 5, the two variables were found to be significantly related,  $\chi^2(4, N = 333) = 91.77, p = .00$ , Cramér's  $V = .56$  and thus, the null hypothesis was rejected. There is a significant relationship between the self-reported frequency of purchasing clothing and gender. Females tend to purchase clothing more frequently than males

#### *Toiletries*

Females reported more frequent purchases of toiletries. As noted in Table 4, 35.5% of females purchase monthly, 38.1% purchase every two weeks, and 23.9% purchase weekly. For males, 40.0% purchase monthly, 34.1% purchase every two weeks, and 8.1% purchase weekly.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing toiletries by gender.

H<sub>0</sub>: The self-reported frequency of purchasing toiletries and gender are independent.

As shown in Table 5, the two variables were found to be significantly related,  $\chi^2(5, N = 333) = 35.90, p = .00$ , Cramér's  $V = .33$  however, the null hypothesis was not rejected. To report a significant relationship the percentage of expected cell counts should not be higher than 20% or less than five per cell (SPSS, Inc., 1999). Thus, this researcher is not reporting this result as significant. There is a no significant relationship between the frequencies of purchasing toiletries and gender.

#### *Food Away From Home*

Males reported more frequent purchases of food away from home than females. As shown in Table 4, 10.2% of females purchase monthly, 22.3% purchase every two weeks, and 50.8% purchase weekly. For males, 15.6% purchase every two weeks, 46.7% purchase weekly, and 20.0% purchase daily.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing food away from home by gender.

H<sub>0</sub>: The self-reported frequency of purchasing food away from home and gender are independent.

As shown in Table 5, the two variables were found to be significantly related,  $\chi^2(5, N = 333) = 13.08, p = .02$ , Cramér's  $V = .20$  and thus, the null hypothesis was rejected. There is a

Table 5

*Chi-Square Analysis of Beginning College Students' Self-Reported Shopping Habits by Gender*  
( $n = 333$ )

| Consumer Good Category | $df$ | $\chi^2$ value     | $p$ -value | Cramér's $V$ |
|------------------------|------|--------------------|------------|--------------|
| Clothing               | 4    | 91.77 <sup>a</sup> | .00        | .56          |
| Toiletries             | 5    | 35.90 <sup>b</sup> | .00        | .33          |
| Food Away From Home    | 5    | 13.08 <sup>c</sup> | .02        | .20          |
| Food for Home          | 5    | 5.33 <sup>d</sup>  | .38        | .13          |
| Gas/Auto Expenses      | 5    | 11.40 <sup>e</sup> | .04        | .19          |
| Auto Insurance         | 4    | 5.70 <sup>f</sup>  | .22        | .13          |
| Electronics            | 5    | 34.70 <sup>g</sup> | .00        | .33          |
| School Supplies        | 5    | 8.34 <sup>h</sup>  | .14        | .16          |

*Note.* This analysis was performed with an alpha level of  $p < .05$ . Two students did not report gender. Different degrees of freedom are reported due to not having responses in some categories.

<sup>a</sup>Two cells (.0%) have expected counts less than 5. The minimum expected count is .41.

<sup>b</sup>Four cells (33.3%) have expected counts less than 5. The minimum expected count is .41. To report a significant relationship the percentage of expected cell counts should not be higher than 20% or less than 5 counts per cell (SPSS, Inc., 1999). Thus, this researcher is not reporting this result as significant.

<sup>c</sup>Two cells (16.7%) have expected counts less than 5. The minimum expected count is 2.04.

<sup>d</sup>Two cells (16.7%) have expected counts less than 5. The minimum expected count is .82.

<sup>e</sup>Two cells (16.7%) have expected counts less than 5. The minimum expected count is 2.04.

<sup>f</sup>Four cells (40.0%) have expected counts less than 5. The minimum expected count is .81.

<sup>g</sup>Four cells (33.3%) have expected counts less than 5. The minimum expected count is 1.65. To report a significant relationship the percentage of expected cell counts should not be higher than 20% or less than 5 per cell (SPSS, Inc., 1999). Thus, this researcher is not reporting this result as significant.

<sup>h</sup>Four cells (33.3%) have expected counts less than 5. The minimum expected count is 1.64.

relationship between the self-reported frequency of purchasing food away from home and gender. Males tend to purchase food away from home more frequently than females.

#### *Food For Home*

Both females and males reported frequent purchases of food for home. As shown in Table 4, 27.9% of females purchase every two weeks, 40.6% purchase weekly, and 14.7% purchase daily. For males, 24.4% purchase every two weeks, 34.8% purchase weekly, and 23.0% purchase daily.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing food for from home by gender.

H<sub>0</sub>: The self-reported frequency of purchasing food for home and gender are independent.

As shown in Table 5, the two variables were found not to be significantly related,  $\chi^2(5, N = 333) = 5.33, p = .38$ , Cramér's  $V = .13$  and thus, the null hypothesis was not rejected. There is no significant relationship between the self-reported frequency of purchasing food for home and gender.

#### *Gas/Auto Expenses*

Males reported more frequent purchases of auto gas and related expenses than females. As indicated in Table 4, 26.4% of females purchase every two weeks, 26.9% purchase weekly, 23.4% purchase seldom, and 12.2% never purchase gas or pay for automobile expenses. For males, 22.2% purchase every two weeks, 39.3% purchase weekly, 20.7% seldom purchase, and 10.4% never purchase gas or pay for auto expenses.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing gas and paying for auto expenses by gender.

H<sub>0</sub>: The self-reported frequency of purchasing gas and paying for auto expenses and gender are independent.

As shown in Table 5, the two variables were found to be significantly related,  $\chi^2(5, N = 333) = 11.40, p = .04$ , Cramér's  $V = .19$  and thus, the null hypothesis was rejected. There is a significant relationship between the self-reported frequency of purchasing gas and paying for auto expenses and gender. Males tend to purchase gas and pay for auto expenses more frequently than females.

### *Auto Insurance*

Both females and males reported infrequent payments for auto insurance. As shown in Table 4, 25.9% of females pay monthly, 13.7% seldom pay for auto insurance, and 56.9% never pay for auto insurance. For males, 31.9% pay monthly, 16.3% seldom pay, and 47.4% never pay for auto insurance.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of paying for auto insurance by gender.

H<sub>0</sub>: The self-reported frequency of paying for auto insurance and gender are independent.

As shown in Table 5, the two variables were found not to be significantly related,  $\chi^2(4, N = 333) = 5.70, p = .22$ , Cramér's  $V = .13$  and thus, the null hypothesis was rejected. There is no significant relationship between the self-reported frequency of paying for auto insurance and gender.

### *Electronics*

Although males reported more frequent purchases of electronic items than females, this relationship was not significant. As noted in Table 4, 69% of females seldom purchase electronics and 20.8% never purchase electronics. For males, 14.8% purchase monthly, and 7.4% purchase every two weeks, and 61.5% seldom purchase electronics.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing electronics by gender.

H<sub>0</sub>: The self-reported frequency of purchasing electronics and gender are independent.

As shown in Table 5, the two variables were found to be significantly related,  $\chi^2(5, N = 333) = 34.70, p = .00$ , Cramér's  $V = .33$  however, the null hypothesis was not rejected. To report a significant relationship the percentage of expected cell counts should not be higher than 20% or less than five per cell (SPSS, Inc., 1999). Thus, this researcher is not reporting this result as significant. There is no significant relationship between the self-reported frequency of purchasing electronics and gender.

### *School Supplies*

Although females reported somewhat more frequent purchases of school supplies than males, this relationship was not significant. As noted in Table 4, 38.1% of females purchase

monthly, 10.2% purchase every two weeks, and 43.7% seldom purchase school supplies. For males, 33.3% purchase monthly, 8.9% purchase every two weeks, and 48.9% seldom purchase school supplies.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing school supplies by gender.

H<sub>0</sub>: The self-reported frequency of purchasing school supplies and gender are independent.

As shown in Table 5, the two variables were found not to be significantly related,  $\chi^2(5, N = 333) = 8.34, p = .14$ , Cramér's  $V = .16$  and thus, the null hypothesis was not rejected. There is no significant relationship between the self-reported frequency of purchasing school supplies and gender.

Results of the Relationship of Perceived Family Income and Self-Reported Shopping Habits  
**Research Question Three: Is there a significant relationship between the perception of family income and self-reported shopping habits of beginning college students? If so, to what extent?**

Frequencies of purchases, means, and standard deviations, as noted in Table 6, were computed to compare by category with the students' perception of family income. The three income categories reported in Table 6 were collapsed from seven income categories listed on Part II of the Demographic Survey (see Appendix E). To investigate whether a significant relationship existed between the beginning students' perceptions of family income and their self-reported shopping habits, a Chi-Square Test of Independence was performed, as noted in Table 7. No significant relationships were found between the students' perceptions of family income and self-reported frequencies of purchases. For the Chi-Square Test of Independence, the categories from the Demographic Survey for the students' perception of family income were not collapsed due to the following reasons: multiple comparisons were being made, to maintain the conceptual value of the consumer goods categories, and to reduce the possibility of Type I error (Brace, Kemp, & Snelgar, 2003).

Table 6

*Frequencies and Percentages of Consumer Goods Purchases by Perceived Family Income**(n = 333)*

| Purchase Category          | Self-Reported Frequency of Purchases |              |              |                 |              |              |
|----------------------------|--------------------------------------|--------------|--------------|-----------------|--------------|--------------|
|                            | Never                                | Seldom       | Monthly      | Every Two Weeks | Weekly       | Daily        |
| <b>Clothing</b>            |                                      |              |              |                 |              |              |
| Under \$75,000             | -                                    | 20<br>(23.0) | 40<br>(46.0) | 12<br>(13.8)    | 7<br>(8.0)   | -            |
| \$75,000 or Above          | -                                    | 35<br>(31.4) | 52<br>(54.4) | 24<br>(22.1)    | 14<br>(14.9) | 1<br>(0.4)   |
| Do Not Know                | -                                    | 19<br>(18.6) | 35<br>(34.3) | 16<br>(15.7)    | 14<br>(13.7) | -            |
| <b>Toiletries</b>          |                                      |              |              |                 |              |              |
| Under \$75,000             | -                                    | 7<br>(8.0)   | 28<br>(32.2) | 41<br>(47.1)    | 10<br>(11.5) | 1<br>(1.1)   |
| \$75,000 or Above          | -                                    | 10<br>(7.0)  | 60<br>(42.3) | 43<br>(30.3)    | 26<br>(18.3) | 2<br>(1.4)   |
| Do Not Know                | 1<br>(1.0)                           | 6<br>(5.9)   | 36<br>(35.3) | 37<br>(36.3)    | 21<br>(20.6) | 1<br>(1.0)   |
| <b>Food Away from Home</b> |                                      |              |              |                 |              |              |
| Under \$75,000             | -                                    | 10<br>(11.5) | 5<br>(5.7)   | 16<br>(18.4)    | 49<br>(56.3) | 7<br>(8.0)   |
| \$75,000 or Above          | 3<br>(2.1)                           | 7<br>(4.9)   | 11<br>(7.7)  | 27<br>(19.0)    | 74<br>(52.1) | 19<br>(13.4) |
| Do Not Know                | 2<br>(2.0)                           | 9<br>(8.8)   | 13<br>(12.7) | 22<br>(21.6)    | 40<br>(39.2) | 16<br>(39.2) |

table continues



Table 6

*Frequencies and Percentages of Consumer Goods Purchases by Perceived Family Income**(n = 332) continued*

| Purchase Category        | Self-Reported Frequency of Purchases |              |              |                 |              |              |
|--------------------------|--------------------------------------|--------------|--------------|-----------------|--------------|--------------|
|                          | Never                                | Seldom       | Monthly      | Every Two Weeks | Weekly       | Daily        |
| <b>Food for Home</b>     |                                      |              |              |                 |              |              |
| Under \$75,000           | -                                    | 6<br>(6.9)   | 10<br>(11.5) | 26<br>(29.9)    | 36<br>(41.4) | 9<br>(10.3)  |
| \$75,000 or Above        | 2<br>(1.4)                           | 4<br>(2.8)   | 19<br>(13.4) | 36<br>(25.4)    | 51<br>(35.9) | 29<br>(20.4) |
| Do Not Know              | -                                    | 7<br>(6.9)   | 8<br>(7.8)   | 26<br>(25.5)    | 40<br>(39.2) | 21<br>(20.6) |
| <b>Gas/Auto Expenses</b> |                                      |              |              |                 |              |              |
| Under \$75,000           | 9<br>(10.3)                          | 11<br>(12.6) | 5<br>(5.7)   | 24<br>(27.6)    | 35<br>(40.2) | 3<br>(3.4)   |
| \$75,000 or Above        | 16<br>(11.3)                         | 37<br>(26.1) | 12<br>(8.5)  | 34<br>(23.9)    | 40<br>(28.2) | 2<br>(1.4)   |
| Do Not Know              | 13<br>(12.7)                         | 26<br>(25.5) | 9<br>(8.8)   | 24<br>(23.5)    | 30<br>(29.4) | -            |
| <b>Auto Insurance</b>    |                                      |              |              |                 |              |              |
| Under \$75,000           | 41<br>(47.1)                         | 7<br>(8.0)   | 34<br>(39.1) | 2<br>(2.3)      | 1<br>(1.1)   | -            |
| \$75,000 or Above        | 79<br>(55.6)                         | 21<br>(14.8) | 36<br>(25.4) | -               | 1<br>(0.7)   | -            |
| Do Not Know              | 56<br>(54.9)                         | 21<br>(20.6) | 23<br>(22.5) | -               | 1<br>(1.0)   | -            |

table continues

Table 6

*Frequencies and Percentages of Consumer Goods Purchases by Perceived Family Income**(n = 332) continued*

| Purchase Category      | Self-Reported Frequency of Purchases |              |              |                       |            |             |
|------------------------|--------------------------------------|--------------|--------------|-----------------------|------------|-------------|
|                        | Never                                | Seldom       | Monthly      | Every<br>Two<br>Weeks | Weekly     | Daily       |
| <b>Electronics</b>     |                                      |              |              |                       |            |             |
| Under \$75,000         | 12<br>(13.8)                         | 53<br>(60.9) | 12<br>(13.8) | 5<br>(5.7)            | 1<br>(1.1) | 1<br>(1.1)  |
| \$75,000 or<br>Above   | 28<br>(19.7)                         | 92<br>(64.8) | 8<br>(5.6)   | 5<br>(3.5)            | 5<br>(3.5) | 1<br>(0.7)  |
| Do Not Know            | 14<br>(13.7)                         | 73<br>(71.6) | 8<br>(7.8)   | 1<br>(1.0)            | 3<br>(2.9) | 2<br>(2.0)  |
| <b>School Supplies</b> |                                      |              |              |                       |            |             |
| Under \$75,000         | 3<br>(3.4)                           | 33<br>(37.9) | 37<br>(42.5) | 12<br>(13.8)          | 1<br>(1.1) | -           |
| \$75,000 or<br>Above   | 4<br>(2.8)                           | 66<br>(46.5) | 50<br>(35.2) | 13<br>(9.2)           | 6<br>(4.2) | 2<br>1.4(0) |
| Do Not Know            | -                                    | 52<br>(51.0) | 33<br>(32.4) | 7<br>(6.9)            | 8<br>(7.8) | 2<br>(2.0)  |

*Note.* Percentages are reported in parentheses. The total number of students reporting perceived family income Under \$75,000 was 88; \$75,000 or Above was 141, and Do Not Know was 102.

Blank cells are noted by -.

Table 7

*Chi-Square Analysis of Beginning College Students' Self-Reported Shopping Habits by Perceived Family Income (n = 333)*

| Consumer Good Category | <i>df</i> | $\chi^2$ value     | <i>p</i> -value | Cramér's <i>V</i> |
|------------------------|-----------|--------------------|-----------------|-------------------|
| Clothing               | 8         | 5.64 <sup>a</sup>  | .69             | .10               |
| Toiletries             | 10        | 10.90 <sup>b</sup> | .37             | .13               |
| Food Away From Home    | 10        | 13.57 <sup>c</sup> | .19             | .14               |
| Food for Home          | 10        | 11.53 <sup>d</sup> | .32             | .13               |
| Gas/Auto Expenses      | 10        | 12.70 <sup>e</sup> | .24             | .14               |
| Auto Insurance         | 8         | 16.68 <sup>f</sup> | .03             | .16               |
| Electronics            | 10        | 12.11 <sup>g</sup> | .28             | .14               |
| School Supplies        | 10        | 15.09 <sup>h</sup> | .13             | .15               |

*Note.* Categories of perceived family income for this analysis were as follows: Below \$75,000, \$75,000 and Above, and Did Not Know. This analysis was performed at an alpha level of  $p < .05$ . Two students did not report perceived family income. Different degrees of freedom are reported due to not having responses in some categories.

<sup>a</sup>Three cells (20.0%) have expected count less than 5. The minimum expected count is .27.

<sup>b</sup>Six cells (33.3%) have expected count less than 5. The minimum expected count is .26.

<sup>c</sup>Three cells (16.7%) have expected count less than 5. The minimum expected count is 1.32.

<sup>d</sup>Four cells (22.2%) have expected count less than 5. The minimum expected count is .53.

<sup>e</sup>Three cells (16.7%) have expected count less than 5. The minimum expected count is 1.32.

<sup>f</sup>Six cells (40.0%) have expected count less than 5. To report a significant relationship the percentage of expected cell counts should not be higher than 20% or less than 5 per cell (SPSS, Inc., 1999). Thus, this researcher is not reporting this result as significant.

<sup>g</sup>Nine cells (50.0%) have expected count less than 5. The minimum expected count is 1.04.

<sup>h</sup>Eight cells (44.4%) have expected count less than 5. The minimum expected count is 1.05.

### *Clothing*

As noted in Table 6, regardless of perceived family income level, most students self-reported purchasing clothing monthly.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing clothing by perceived family income.

H<sub>0</sub>: The self-reported frequency of purchasing clothing and students' perception of family income are independent.

As shown in Table 7, the two variables were not found to be significantly related,  $\chi^2(8, N = 333) = 5.64, p = .69$ , Cramér's  $V = .10$  and thus, the null hypothesis was not rejected. There is no significant relationship between the self-reported frequency of purchasing clothing and students' perception of family income.

### *Toiletries*

As noted in Table 6, regardless of perceived family income level, most students self-reported purchases of toiletries monthly or every two weeks.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing toiletries by perceived family income.

H<sub>0</sub>: The self-reported frequency of purchasing toiletries and students' perceived family income are independent.

As shown in Table 7, the two variables were found not to be significantly related,  $\chi^2(10, N = 333) = 10.90, p = .37$ , Cramér's  $V = .13$  and thus, the null hypothesis was not rejected. There is no significant relationship between the self-reported frequency of purchasing toiletries and students' perceived family income.

### *Food Away From Home*

As noted in Table 6, regardless of perceived family income level, most students self-reported purchasing food away from home weekly.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing food away from home by perceived family income.

H<sub>0</sub>: The self-reported frequency of purchasing food away from home and students' perceived family income are independent.

As shown in Table 7, the two variables were found not to be significantly related,  $\chi^2(10, N = 333) = 13.57, p = .19$ , Cramér's  $V = .14$  and thus, the null hypothesis was not rejected. There is no significant relationship between the self-reported frequency of purchasing food away from home and students' perceived family income.

#### *Food For Home*

As noted in Table 6, in all categories of perceived family income, most students self-reported purchasing food for home weekly.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing food for home by perceived family income.

H<sub>0</sub>: The self-reported frequency of purchasing food for home and students' perceived family income are independent.

As shown in Table 7, the two variables were found not to be significantly related,  $\chi^2(10, N = 333) = 11.53, p = .32$ , Cramér's  $V = .13$  and thus, the null hypothesis was not rejected. There was no significant relationship between the self-reported frequency of purchasing food for home and students' perceived family income.

#### *Gas/Auto Expenses*

As noted in Table 6, regardless of perceived family income level, most students self-reported purchasing gas and paying for auto expenses weekly.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing gas and paying for auto expenses by perceived family income.

H<sub>0</sub>: The self-reported frequency of purchasing gas and paying for auto expenses and students' perceived family income are independent.

As shown in Table 7, the two variables were found not to be significantly related,  $\chi^2(10, N = 333) = 12.70, p = .24$ , Cramér's  $V = .14$  and thus, the null hypothesis was not rejected. There was no significant relationship between the self-reported frequency of purchasing gas and paying for auto expenses and students' perception of family income.

#### *Auto Insurance*

As noted in Table 6, regardless of perceived family income level, most students self-reported never purchasing auto insurance.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of paying for auto insurance by perceived family income.

H<sub>0</sub>: The self-reported frequency of paying for auto insurance and students' perceived family income are independent.

As shown in Table 7, the two variables were found not to be significantly related,  $\chi^2(8, N = 333) = 16.68, p = .03$ , Cramér's  $V = .16$  and thus, the null hypothesis was not rejected. There is no significant relationship between the self-reported frequency of paying for auto insurance and students' perceived family income. Although the alpha coefficient was  $p = .034$ , this result should be interpreted with caution since six cells (40.0%) had expected counts less than five. To report a significant relationship the percentage of expected cell counts should not be higher than 20% or less than five per cell (SPSS, Inc., 1999). Thus, this researcher is not reporting this result as significant since the cells had expected counts less than five. The null hypothesis was not rejected.

#### *Electronics*

As noted in Table 6, regardless of perceived family income level, most students self-reported they seldom purchase electronics.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing electronics by perceived family income.

H<sub>0</sub>: The self-reported frequency of purchasing electronics and perceived family income are independent.

As shown in Table 7, the two variables were found not to be significantly related,  $\chi^2(10, N = 333) = 12.11, p = .28$ , Cramér's  $V = .14$  and thus, the null hypothesis was not rejected. There was no significant relationship between the self-reported frequency of purchasing electronics and students' perceived family income.

#### *School Supplies*

As noted in Table 6, regardless of perceived family income level, most students self-reported purchasing school supplies seldom or monthly.

A Chi-Square Test of Independence was conducted to evaluate the self-reported frequency of purchasing school supplies by perceived family income.

H<sub>0</sub>: The self-reported frequency of purchasing school supplies and perceived family income are independent.

As shown in Table 7, the two variables were found not to be significantly related,  $\chi^2(10, N = 333) = 15.09, p = .13$ , Cramér's  $V = .15$  and thus, the null hypothesis was not rejected. There is no significant relationship between the self-reported frequency of purchasing school supplies and students' perceived family income.

### Results of the Dominant Mind Styles

#### **Research Question Four: What is the distribution of the Gregorc mind styles among beginning college students?**

Students were asked to complete the Gregorc Style Delineator<sup>®</sup> to determine their dominant mind style. Following are the results of their reported mind styles.

##### *Mind Styles Frequencies*

Students completed the Gregorc Style Delineator<sup>®</sup> and recorded their dominant mind styles both on the Delineator<sup>®</sup> and the provided Gregorc Style Score Sheet. This involved rank ordering ten sets of words (in order as listed on the Delineator<sup>®</sup>). Within each set of words, students ranked four words in order from “4” being the most descriptive of themselves to “1” being the least descriptive of themselves. Scores were then tabulated with resulting separate, total scores for the style categories of Concrete Sequential, Abstract Sequential, Abstract Random, and Concrete Random. As shown in Table 8, the self-reported frequency results are reported by gender of the usable sample. One student did not report gender and is not included in the table. Frequency distributions were fairly even across categories among Abstract Random ( $n = 114, 34.2.7\%$ ), Concrete Sequential ( $n = 107, 32.1\%$ ), and Concrete Random ( $n = 83, 24.9\%$ ). However, the smallest category was Abstract Sequential ( $n = 29, 8.7\%$ ). As indicated previously, 36 participants (10.8%) were classified as having multiple dominant mind styles and were not used in this study. According to Gregorc (1982c), because of the scoring system, each mind style score should range between 10 and 40 points for each person. A score is considered high if it ranges between 27 and 40 points. A score is considered intermediate if it ranges between 16 and 20 points. A score is considered low if it ranges between 10 and 15 points. According to Gregorc (1982c), these score ranges represent the level of dominance of the particular mind style for that person.

Table 8

*Descriptive Analysis of Dominant Mind Styles by Gender (n = 332)*

| Dominant Mind Styles       | N   | Percentage Within Mind Style | Percentage of Sample | <i>M</i> | <i>SD</i> | Range |
|----------------------------|-----|------------------------------|----------------------|----------|-----------|-------|
| <b>Concrete Sequential</b> |     |                              |                      |          |           |       |
| Female                     | 61  | 57.0                         | 18.3                 | 25.6     | 5.0       | 14-38 |
| Male                       | 46  | 42.3                         | 13.8                 | 25.8     | 4.9       | 13-42 |
| Total                      | 107 | 100.0                        | 32.1                 | 25.7     | 5.0       | 13-42 |
| <b>Abstract Sequential</b> |     |                              |                      |          |           |       |
| Female                     | 15  | 51.7                         | 4.2                  | 21.9     | 4.4       | 14-36 |
| Male                       | 14  | 48.2                         | 3.2                  | 24.5     | 4.8       | 6-38  |
| Total                      | 29  | 100.0                        | 8.7                  | 22.9     | 4.7       | 6-38  |
| <b>Concrete Random</b>     |     |                              |                      |          |           |       |
| Female                     | 37  | 44.6                         | 11.1                 | 25.6     | 4.4       | 15-38 |
| Male                       | 46  | 55.4                         | 13.8                 | 25.8     | 5.3       | 13-38 |
| Total                      | 83  | 100.0                        | 24.9                 | 25.7     | 4.8       | 13-38 |
| <b>Abstract Random</b>     |     |                              |                      |          |           |       |
| Female                     | 85  | 74.6                         | 25.5                 | 27.7     | 4.5       | 17-40 |
| Male                       | 29  | 25.4                         | 8.7                  | 24.7     | 4.3       | 14-34 |
| Total                      | 114 | 100.0                        | 34.2                 | 26.5     | 4.7       | 14-40 |

*Note.* One student did not report gender. Total of females in the sample was 197 (59.2%) and total of males was 135 (40.5%).



## Results of the Relationship of Gender and the Gregorc Mind Styles

### **Research Question Five: Is there a significant relationship between gender and the distribution of Gregorc mind styles of beginning college students? If so, to what extent?**

To investigate the relationship between gender and mind styles of beginning college students, a Chi-Square Test of Independence, with an alpha level of  $p < .05$ , was performed to evaluate self-reported dominant mind style scores by gender.

H<sub>0</sub>: Self-reported, dominant mind style scores and gender are independent.

The five variables were found to be significantly related,  $\chi^2(3, N = 332) = 19.70, p = .00$ , Cramer's  $V = .24$ . Thus, the null hypothesis was rejected. The sample included 197 females and 135 males and one student did not report gender. There was a significant relationship between the students' self-reported, dominant mind style scores and gender, as shown in Table 9. Females were more likely than males to report their dominant mind styles as Abstract Random. However, males were more likely than females to report their dominant mind style as Concrete Random.

## Results of the Consumer Decision-Making Styles Inventory

### **Research Question Six: Are there distinct consumer decision-making styles of beginning college students?**

Exploratory Factor Analysis, using principal components analysis and with direct oblimin and eigenvalues greater than 1, was conducted to determine whether the eight consumer decision-making styles could be confirmed from the Sproles and Kendall (1986) study. One factor, the Recreational/Hedonistic consumer decision-making style, with six statements loading .60 or higher, accounted for 15.18% of the variance, and is noted in Table 10. In order for other factors to be present, at least four statements should load .60 or higher onto the other factors, which did not occur in this factor analysis (Green, Salkind, & Akey, 2000). However, the factor loadings for all statements are reported and the remaining statements that did not load onto Factor 1 are reported in the consumer decision-making style categories from Sproles and Kendall (1986). The decision was made to report additional statistical analyses for this study based on the six statements that loaded onto Factor 1. Additional results related to the remaining statements from the Consumer Styles Inventory are located in Appendix L.

Table 9

*Chi-Square Analysis of the Distribution of Self-reported, Dominant Gregorc Mind Styles by Gender (n = 332)*

|                              | Self-Reported, Dominant Gregorc Mind Style |                     |                 |                 | Total |
|------------------------------|--|---------------------|-----------------|-----------------|-------|
|                              | Concrete Sequential                        | Abstract Sequential | Abstract Random | Concrete Random |       |
| <b>Female</b>                |  |                     |                 |                 |       |
| Count                        | 61.0                                       | 14.0                | 85.0            | 37.0            | 197.0 |
| Expected count               | 63.5                                       | 16.6                | 67.6            | 49.3            | 197.0 |
| Percentage within gender     | 31.0                                       | 7.1                 | 43.1            | 18.8            | 100.0 |
| Percentage within mind style | 57.0                                       | 50.0                | 74.6            | 44.6            | 59.3  |
| Percentage of total sample   | 18.4                                       | 4.2                 | 25.6            | 11.1            | 59.3  |
| <b>Male</b>                  |  |                     |                 |                 |       |
| Count                        | 46.0                                       | 14.0                | 29.0            | 46.0            | 135.0 |
| Expected count               | 43.5                                       | 11.4                | 46.4            | 33.8            | 135.0 |
| Percentage within gender     | 34.1                                       | 10.4                | 21.5            | 34.1            | 100.0 |
| Percentage within mind style | 43.0                                       | 50.0                | 25.4            | 55.4            | 40.7  |
| Percentage of total sample   | 13.9                                       | 4.2                 | 8.7             | 13.9            | 40.7  |

*Note.* With an alpha level of  $p < .05$ ,  $\chi^2(3, N = 332) = 19.70$ ,  $p = .00$ , Cramér's  $V = .24$

Table 10

*Factor Analysis of the Consumer Styles Inventory Statements Using Principle Components Analysis for the Current Study (n = 333)*

| Statement   | Factor Loading |
|---|----------------|
| <b>Factor/Consumer Decision-Making Style Factor for the Current Study<sup>a</sup></b>   |                |
| <b>Recreational/Hedonistic</b>  |                |
| I usually have one or more outfits of the very newest style.                            | .70            |
| I keep my wardrobe up-to-date with changing fashions.                                   | .68            |
| Fashionable, attractive styling is very important to me.                                | .65            |
| Going shopping is one of the enjoyable activities in my life.                           | .65            |
| I enjoy shopping just for the fun of it.  | .62            |
| I prefer buying the best-selling brands.  | .62            |
| <b>Consumer Decision-Making Style Factors from the Sproles and Kendall (1986) Study</b> |                |
| <b>Recreational/Hedonistic</b>  |                |
| Shopping the stores wastes my time.   | .45            |
| Shopping is not a pleasant activity for me.   | .41            |
| I make my shopping trips fast.  | .04            |
| <b>Novelty, Fashion Conscious</b>   |                |
| It's fun to buy something new and exciting.   | .55            |
| To get variety, I shop different stores and choose different brands.                    | .17            |
| <b>Habitual, Brand Loyal</b>  |                |
| I have favorite brands I buy over and over.   | .55            |
| I go to the same stores each time I shop.   | .34            |
| Once I find a product or brand I like, I stick with it.                                 | .27            |
| I change brands I buy regularly.  | -.17           |

table continues

Table 10

*Factor Analysis of the Consumer Styles Inventory Statements Using Principle Components Analysis for the Current Study (n = 333) continued*

| Statement   | Factor Loading |
|---|----------------|
| <b>Brand Conscious, Price Equals Quality</b>                              |                |
| The more expensive brands are usually my choices.                         | .50            |
| Nice department and specialty stores offer me the best products.          | .48            |
| The well-known national brands are best for me.                           | .46            |
| The higher the price of a product, the better its quality.                | .32            |
| The most advertised brands are usually very good choices.                 | .30            |
| <b>Perfectionist, High Quality Conscious</b>                              |                |
| My standards and expectations for products I buy are very high.           | .45            |
| A product does not have to be perfect or the best to satisfy me.          | .38            |
| Getting very good quality is very important to me.                        | .38            |
| I make special effort to choose the very best quality products.           | .32            |
| In general, I usually try to buy the best overall quality.                | .28            |
| I shop quickly, buying the first product or brand that seems good enough. | .24            |
| I really don't give my purchases much thought or care.                    | .12            |
| <b>Impulsive, Careless</b>  |                |
| I am impulsive when purchasing.   | .32            |
| Often I make careless purchases I later wish I had not.                   | .28            |
| I carefully watch how much I spend.                                       | .17            |
| I should plan my shopping trips more carefully than I do.                 | .14            |
| I take the time to shop carefully for the best buys.                      | -.02           |

table continues

Table 10

*Factor Analysis of the Consumer Styles Inventory Statements Using Principle Components Analysis for the Current Study (n = 333) continued*

| Statement  | Factor Loading |
|--|----------------|
| Price Conscious, Value for Money   |                |
| I buy as much as possible at sale prices.                                | .25            |
| I look carefully to find the best value for the money.                   | -.13           |
| The lower price products are usually my choice.                          | -.28           |
| Confused by Overchoice   |                |
| The more I learn about products, the harder it seems to choose the best. | .14            |
| All the information I get on different products confuses me.             | .07            |
| There are so many brands to choose from that I often feel confused.      | .04            |
| Sometimes it's hard to choose which stores to shop.                      | -.03           |

*Note.* Factor 1, Recreational/Hedonistic, accounted for 15.81% of the variance.

As interpreted by the researcher, the six statements with .60 or higher that loaded onto Factor 1, the Recreational/Hedonistic consumer decision-making style. An additional factor analysis was not conducted to determine whether differences existed by gender, since the sample size for each gender should include at least 200 students (Brace, Kemp, & Snelgar, 2003), which also was not possible for this study with the usable sample including 197 females and 135 males.

For the Consumer Styles Inventory, the students were asked to indicate how much they agreed or disagreed (based on a Likert scale) with each statement by reporting one response of the following: 1 = Strongly Disagree, 2 = Disagree, 3 = In Between, 4 = Agree, and 5 = Strongly Agree. The results of the descriptive analysis are reported in Table 10 for the six items that made up the Recreational/Hedonistic factor. See Appendix L for a table that shows results from the remaining statements from the Consumer Styles Inventory.

As noted in Table 11, the mean scores for the individual six statements revealed more specific patterns of responses from the students. As mentioned previously, each student responded to each statement with one of the following: 1 = Strongly Disagree, 2 = Disagree, 3 = In Between, 4 = Agree, 5 = Strongly Agree. All percentages are reported within gender. The total number of females was 197. The total number of males was 135. One student did not report gender. Statements are not reverse-scaled for reporting response frequencies. For instance, for the statement, "I prefer buying the best-selling brands," males ( $n = 135, M = 2.9, SD = .90$ ) there was little difference in the male responses than in the female responses ( $n = 197, M = 3.1, SD = .90$ ). For the statement, "I usually have one or more outfits of the very newest style," females ( $n = 197, M = 3.5, SD = .85$ ) tended to agree more than males ( $n = 135, M = 2.90, SD = .90$ ), however, the standard deviation for males ( $SD = 1.1$ ) suggests that there was more variance among the males' responses. On the other hand, the statement "I keep my wardrobe up-to-date with the changing fashions" had more females ( $n = 197, M = 3.6, SD = .89$ ) agree than males ( $n = 135, M = 2.8, SD = 1.1$ ). Again, the larger standard deviation for males ( $SD = 1.1$ ) suggests there was more variance among the males' responses. For the statement "Fashionable, attractive styling is important to me," females ( $n = 197, M = 3.8, SD = .78$ ) agreed more than males ( $n = 135, M = 3.2, SD = .99$ ) and the larger standard deviation for males ( $SD = .99$ ) suggests that there was more variance among the males' responses.