STUDENTS' PREFERENCE FOR ONLINE VERSUS FACE-TO-FACE ACADEMIC

ADVISING BASED ON INDIVIDUAL LEARNING STYLES

by

Jess Everet Tuck

A Dissertation Submitted to the Faculty of

The College of Education

in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

Florida Atlantic University
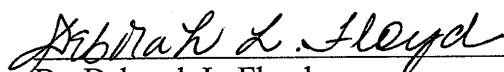
Boca Raton, Florida

August 2009

STUDENTS' PREFERENCE FOR ONLINE VERSUS FACE-TO-FACE ACADEMIC

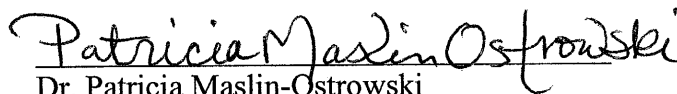## ADVISING BASED ON INDIVIDUAL LEARNING STYLES

by

Jess Everet Tuck

This dissertation was prepared under the direction of the candidate's dissertation advisor, Dr. Deborah L. Floyd, Department of Educational Leadership, and has been approved by the members of his supervisory committee. It was submitted to the faculty of the College of Education and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.
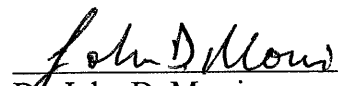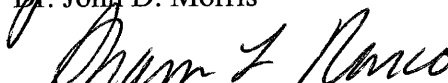
SUPERVISORY COMMITTEE

Dr. Deborah L. Floyd
Dissertation Advisor
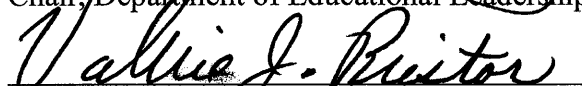
Dr. Patricia Maslin-Ostrowski
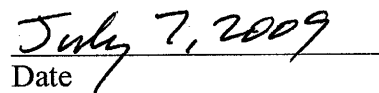
Dr. John D. Morris

Dr. Sharron L. Ronco

Dr. Robert E. Shockley
Chair, Department of Educational Leadership

Dr. Valerie J. Bristor
Dean, College of Education

Dr. Barry T. Rosson
Dean, Graduate College

July 7, 2009
Date

ACKNOWLEDGMENTS

ABSTRACT

Author: Jess Everet Tuck

Title: Students' Preference for Online Versus Face-to-Face

                               Academic Advising Based on Individual Learning Styles

Institution: Florida Atlantic University

Dissertation Advisor: Dr. Deborah L. Floyd

Degree: Doctor of Philosophy

Year: 2009

The purpose of this study was to examine students' preferred methods of
academic advising services and whether they related to their individual learning styles.
The first objective of the study was to determine each participant's learning style. The
second objective of the study was to determine which method of academic advising each
participant preferred. The third objective of the study was to determine whether a
relationship existed between the participants' learning styles and preferred methods of
academic advising. Additionally, the moderating effect of gender, ethnicity, college
major, high school grade point average (GPA), location, and employment on the
relationship was considered. Students' learning styles were measured by the Barsch
Learning Style Inventory (BLSI). Academic advising preference and demographic
information were gathered through a researcher-designed questionnaire. All students
(N=1,184) who completed the Online Advising & Registration System (OARS) were

iv

contacted via e-mail and received a web link to the BLSI and student questionnaire. Data from the students (n=172) who completed the BLSI and student questionnaire were analyzed. Correlation and multiple regression analysis were used to analyze the quantitative data. A qualitative analysis of four open-ended survey questions was completed. The results found no relationship between participants' learning styles and their preferred methods of academic advising services. Additionally, gender, ethnicity, college major, high school GPA, location, and employment did not moderate the relationship between participants' learning styles and their preferred methods of academic advising services. The findings suggest that a student's learning style is not associated with his or her preference for type of advising. Furthermore, this lack of relationship did not change as a function of gender, ethnicity, college major, high school GPA, location, and employment. Recommendations are provided for researchers and practitioners to further contribute to the literature and practice concerning academic advising preference and learning style.

STUDENTS' PREFERENCE FOR ONLINE VERSUS FACE-TO-FACE ACADEMIC

ADVISING BASED ON INDIVIDUAL LEARNING STYLES

LIST OF TABLES

TABLE

CHAPTER 1

INTRODUCTION

An effective advising program is one prime factor in increasing student retention. Academic advising assists students in many ways, and each campus must make a concerted effort to develop a strategy to retain students. Students who receive effective academic advising tend to feel positive about the institution as a whole. (Noel, 1978)

Background

There are many positive outcomes associated with strong academic advising. These include: a caring environment, students' academic and career development, student success, retention and a positive public image established through satisfied students. Academic advising is the one function that covers both academic and student services; it deals with students from their first day at the institution to graduation (Moore & Anderson, 2003). As technology infiltrates every aspect of higher education students are given more options to choose from as opposed to traditional face to face academic advising. While technology grows and advising service options increase, it is important to consider what options best align with student needs and preferences. Online academic advising and face-to-face academic advising are two different methods of delivery that offer the same information. One way to consider preferences is to identify the learning styles most compatible with advising services. According to Dunn and Dunn (1993), learning style is the way students begin to concentrate on, process, internalize, and remember new and difficult academic information.

Statement of the Problem

There is little research about the interrelationship between academic advising and learning styles. Since evidence exists that there is a relationship between learning styles and teaching methods, (Dunn & Debello, 1999; Erdem, 2003; Lee & Li, 2008) then academic advising as a teaching tool, (Uhlik, 2005) and learning styles could also be related . However, no research was found on this topic of academic advising approaches and individual learning styles. Decreased student retention, especially among undergraduate students, is a growing problem among United States colleges and universities. Effective retention programs have shown that academic advising is the very core of successful institutional efforts to educate and retain students (Tinto, 1987). Therefore, in order to increase retention, academic advising services must be continually evolving in order to align with contemporary student's dispositions and educational needs. After examining the research that links effective teaching to a student's learning style, and being aware of the similarities between academic advising and teaching, future research is warranted because in order for retention to be achieved effective academic advising services are essential. Therefore, the problem is that the relationship between student learning styles and academic advising delivery systems has not been adequately explored and should be addressed in order to advance knowledge and understanding about ways to improve student retention and matriculation, especially at the undergraduate levels of university education.

Purpose of the Study

The purpose of this study was to determine whether a relationship exists between participants' learning styles and preferred methods of academic advising, and whether

this relationship was moderated by gender, ethnicity, college major, high school GPA, location, and/or employment. This was a quantitative study where the independent variables are learning style (auditory, visual, and kinesthetic/tactile), and the dependent variable was the advising preference score (APS).

Significance of the Study

This study is significant because there is limited research that has been published about the relationship between academic advising and learning style. A growing body of literature and research thoroughly examines the philosophies behind academic advising. The National Academic Advising Association (NACADA) provides an extensive quantity of knowledge about existing academic advising services utilized by higher education institutions across the U.S. Uhlik (2005) stated that "If advising is teaching, then learning style matters." However, there is little research regarding the preference of the types of academic advising services offered based on individual learning style. This study attempts to provide a link between learning styles and advising methods. Patterns in the data may confirm whether one type of learner would choose a particular type of advising. The outcomes of this study could pinpoint the areas that need improvement which can be used as a benchmark to establish the best practices in academic advising. The results could be used for university academic advising units to target greater numbers of students by either creating advising methods that reach each type of learner separately or creating one multi-faceted advising method that reaches all learners.

Theoretical Framework

The theoretical framework for this study was adapted from Kolb's experiential learning theory (Kolb, 1984). Kolb's experiential learning theory focuses on the

individual's perception of how they learn. There were two basic assumptions that provide

the framework for this model. One, people learn from immediate, here-and-now

experience, and from concepts and books. Two, people learn differently, or according to

their preferred learning styles. According to Uhlik (2005) academic advising relies on

communication, a crucial function shared with teaching. According to Kolb essentially,

the experiential learning theory follows a "framework for examining and strengthening

the critical linkages among education, work, and personal development" (p. 4).

Experiential learning theory focuses on the learner and his or her style of learning and

structures experiences to accommodate different learning styles.

As university freshman students progress through the advising process they will

be given options for obtaining academic information. The way they choose to obtain this

information may be affected by several variables. Different students respond to different

stimuli that aid in their decision making. According to Kolb (1981) "individual learning

styles affect not only academic learning, but also broader aspects of adaption to life, such

as decision making, problem solving, and life-style in general"(p. 248). Uhlik (2005)

stated "learning style is a useful framework within which advising, teaching and learning

can be much more effective."

The advancement of technology redirects student's focus in response to learning

style. According to Uhlik (2005) "regarding the standardization of materials and

technology, one must not overlook the possibility that the synergy - or gestalt - created by

the integration of methods lends itself quite well to simultaneously addressing multiple

learning styles." Most teachers [and advisors] can learn to use learning styles as a

cornerstone of their instruction [and advising] (Dunn & Dunn, 1993, as cited in Uhlik). In

order to understand the possible connection between academic curricula decision making and learning style a theoretical framework is helpful.

Study Sample

The target population consisted of freshman students who chose to participate in online advising at one large, four-year, primarily non-residential, public university within the State of Florida, which is identified as a Research university based on The Carnegie Classification of Institutions of Higher Education (The Carnegie Foundation for the Advancement of Teaching, n.d.). The students surveyed were freshman students who have earned fewer than 30 credit hours. They were advised for more than one semester in order to establish exposure to different methods of advising. The research instrument used to gather data was a questionnaire. An APS developed by the researcher begins the survey (see Appendix A). The APS asked the students to evaluate the importance of different aspects of academic advising, which were translated to preference. The next part of the survey was a research instrument used to identify an individual's learning style, the Barsch Learning Style Inventory (BLSI) (see Appendix A, Barsch, 1980). The final part of the survey asked respondents to supply demographic information (see Appendix A) about their gender, ethnicity, college major, high school GPA, location, and employment.

Caruso & Salaway (2007) stated that gender is a factor for some computing activities. Males dominate gaming and report more use of software for web design. Males also report much stronger skill in computer maintenance and moderately stronger skill using video and audio software than females. In core technologies used in courses (spreadsheets, presentation software, and the use of online library resources) males and females show similar ratings (Caruso & Salaway).

According to Caruso & Salaway (2007) student major is key to technology use and skill level. Business and engineering majors, with their stronger technical profile, report somewhat more agreement that technology has a positive impact on their academic experience (Caruso & Salaway). Coolbaugh (2004) found that high school GPA is highly correlated with the student's score on a technology proficiency exam.

Research Questions

This study addressed the following research questions:

1. What is the relationship between learning style and preferences for academic advising services?

2. Is this relationship moderated by gender, ethnicity, college major, high school GPA, location, and/or employment?

Hypotheses

The researcher proposed the following null hypotheses related to the relationship between learning style and preferences for academic advising services:

$H0_1$ There is no relationship between learning style and preferences for academic advising services.

$H0_2$ Gender does not moderate the relationship between learning style and preference for academic advising services.

$H0_3$ Ethnicity does not moderate the relationship between learning style and preference for academic advising services.

$H0_4$ College major does not moderate the relationship between learning style and preference for academic advising services.

H0$_5$ High school GPA does not moderate the relationship between learning

style and preference for academic advising services.

H0$_6$ Location does not moderate the relationship between learning style and

preference for academic advising services.

H0$_7$ Employment does not moderate the relationship between learning style

and preference for academic advising services.

Definition of Terms

Academic advising is the collaboration between an academic advisor and student to

define and assess academic goals; select appropriate courses for meeting the

student's academic goals; gain a clear understanding of institutional policies,

procedures and resources; develop decision-making skills; and assist the student

in becoming self-directed and self-sufficient.

Academic advisor, in this study, refers to an individual who assists student to establish

and verify their educational plans and select courses accordingly.

Face-to-face academic advising, for the purposes of this study, is an in person meeting

between an academic advisor and student.

Freshman is a university student with 0-29 earned credit hours.

Learning styles are the preferred ways by which people learn and process information.

Learning styles in this study include visual (what you see), auditory (what you

hear), and kinesthetic/tactile (movement and touch).

Online Advising & Registration System (OARS) is an automated system that an academic

advisor and student communicate with each other over the internet to complete

academic advising.

Online advising in this study is academic advising done over the internet through OARS.

Limitations and Delimitations

Respondents are self-selected, so generalizations to wider populations require caution, and in any case would be limited to freshmen at similarly-situated institutions. The assumption is that students completing the survey will be truthful with their answers to the questions on the survey. "A good deal of evidence shows that students are accurate, credible reporters of their activities and how much they have benefited from their college experience, provided that items are clearly worded and students have the information required to accurately answer the questions" (Kuh, 2001, p. 4). There is a body of research in which some psychologists and neuroscientists have questioned the scientific basis of learning styles (Coffield, Moseley, Hall, & Ecclestone, 2004). The model may also be misspecified. There may be other, unmeasured variables that account for preferences in advising. Additionally, the low reliability of the BLSI limits the power in testing the relationship between academic advising preference and individual learning style. Therefore, the results of the study must be taken at face value.

CHAPTER 2

LITERATURE REVIEW

The focus of the literature will begin with contemporary modes of academic advising delivery in higher education. Learning styles will be defined and discussed. Relevant literature comparing and contrasting teaching and academic advising with the effect learning styles have on them will be reviewed.

Part 1: Contemporary Modes of Academic Advising

Academic advising delivery systems in colleges and universities have responded to institutional changes and evolving expectations of students. Creamer (2000) stated that academic advising is a developmental and educational delivery method that empowers college students to make personal and academic decisions that promote personal growth. Advising services involve many offices on campus. A unified effort is essential if the advice students receive is to be consistent, current, and appropriate. Areas that may become involved in advising include academic departmental offices, individual faculty, counseling centers, residence halls, offices of records, and libraries. Each office or resource contributes to the advising function. Departmental offices and faculty can act as sources of information about programs, majors, and courses. Student affairs involvement may provide special programs in residence halls, while counseling centers may offer individual counseling and testing as well as workshops on such topics as self assessment and decision-making. Accurate and up to date student record keeping is also an important academic advising service. This includes not only essential recordkeeping for each

9

student but also the records kept by each advisor for the individual students they advise. On large campuses, the variety and scope of services are undoubtedly broader, and services more decentralized, than on smaller campuses (Gordon, 1984).

According to Hernandez (2007, p.24) "the introduction of technology on campuses has shifted communication methods of and with students." Students have become comfortable with new technologies including voice mail, menu choice automated messages, integrated data bases, records accessible by computer, electronic mail, web site services, and telecommunicating (Komives, 1999). "Exploring the use of technology to better meet the needs of students in academic advising has been viewed as a logical avenue to consider" (Hernandez, p. 24).

It is important to know the most recent events that led to the shaping of academic advising today. In 1979 the NACADA was formed and attained 500 members by the end of its first year. To increase interest in informed and improved practice, the association supported an annual national conference, advising-related research, a refereed journal, and other outlets for publication and professional development (Gordon & Habley, 2000). There is a listserv on NACADA's website at http://www.nacada.ksu.edu/ where members can share information as well as receive "best practice" updates from other colleges (as cited in Guzman, 2007).

By the early 1990s, as noted by Gordon and Habley (2000), conflicting attitudes toward advising at the national level and reports of actual campus practice indicated that changes were needed not only at the program level but among higher education leaders as well. Additionally, new ideas about some theoretical foundations of advising and about

the specific ways students benefit from college also emerged and offered promising routes to improved practice (Gordon & Habley).

Gardner (1995), Director of the National Resource Center for the Freshman Year Experience and Students in Transition, and Kerr (as cited in Gardner, 1995), past President of the National Academic Advising Association, assert there is no mission more vital to the success of higher education than its efforts to ensure the initial success of beginning freshmen students. There is a wealth of important empirically based research correlating quality academic advisement, student satisfaction, and enhanced persistence and graduation (as cited in Nelson, 2007).

Currently, the most effective academic advising includes comprehensive, timely, and accurate information. Kramer, Chynoweth, Jensen, and Taylor (1987) (as cited in Nelson, 2007) provided an explanation of what a comprehensive academic advising program should target with the beginning student population. Prior to semester onset, students should:

- Prepare for entry into an academic major discipline
- Become familiar with college requirements, course contents, and terminology (i.e., credit hours, sections, building abbreviations, etc.)
- Complete initial registration
- Learn how to adjust class schedule before semester begins

  and

- Learn about financial aid options and policies for acquiring and maintaining financial aid

  The first year, students should:

11

- Learn how to adjust class schedule after semester onset

- Understand university and major requirements (Basic curriculum, credit hours, residence, major courses, prerequisites for admissions to college or major)

- Understand university policies and academic options (academic warning and probation, changing majors, challenging classes, advanced placement credit, transfer credit, independent study credit, study abroad, honors courses)

- Develop accurate expectations of time and effort required to make successful academic progress (time management, study skills and habits)

- Evaluate whether major and career choices match interests and abilities (identify interests, assess abilities, explore major/career options)

- Assume responsibility for educational program

  and

- Learn how to associate with instructors and professors in and out of class. (Kramer et al., 1987, as cited in Nelson, 2007, p. 27)

Academic advising has developed into separate sections with advising centers for undergraduates, and faculty remaining primarily involved at the graduate level.

Faculty advising. In a published report Habley (1993) found that on the vast majority of the campuses he surveyed, academic advising is provided by faculty members. These faculty academic advisors were not critically selected, they received minimal or no training, and they were not systematically evaluated (Habley). Good performance generally went unrecognized and unrewarded. As a result of Habley's report there continues to be a movement toward creating advising centers on campus staffed

totally, in or in part, by personnel with educational preparation and experience as student development specialists.

Advisement centers. A function of academic advising has been a companion to instruction from the beginning of the formal university, and at today's university the major portion of academic advising is transitioning from faculty members to academic advisors. Academic advising centers were created not to replace faculty advising but to supplement and improve the function of advising in response to the four major changes in university environments: projected declining enrollment; the addition of new types of student populations, the largest of which was reentering adults; the strengthening of the student consumer movement; and the general reform of education. In all these changes, administrators felt that improved academic advising would allow the university to adjust in the most beneficial way (Gallagher & Demos, 1983).

The organizational structure, functions, and staffing of centralized academic advising centers vary from campus to campus. This variation is due to what academic advising means. For some schools, academic advising has been simply scheduling for classes. For other schools, advising is given the broadest possible definition and includes scheduling, tutoring, career counseling, job placement, and host of other support activities (Gallagher & Demos, 1983). Increasing numbers of students have raised the need for supplemental forms of advising that include student peers.

Peer advising. College students have used other students for advising and information most often when seeking sources of assistance in achieving their independence and in developing their self-images. To capitalize on this influence, the "peer helper" concept has been used in orientation, residence halls, tutoring, counseling,

and in academic advising (Grites, 1979). Peer advisors support and advise students on course planning, college requirements, and majors. Peer advisors provide drop-in advising in the dining halls, e-mail advising and are available by appointment. Resident hall peer advisors give out advice, hand out timely and important information on college administrative matters like registration and changing majors, and relate their experiences to students. Carstensen and Silberhorn (1979) reported that 31% of the nation's advising programs use peer advisors to support the primary mode of advising services, 25% use residence hall staff, and 11% use other nonprofessional/paraprofessional personnel. Still, increasing enrollment has forced advisors to operate in ways that accommodate all students.

Group advising. Group advising is needed to accommodate large numbers of students. As a result, advisors have had more time during individual appointments to help students further develop their academic programs and related personal and professional goals. Group advising allows for small group meetings that target clusters of students with similar areas of study and provides more specific information regarding the major. The purpose of these meetings is to present departmental and university requirements pertinent to their area of study. Students are given the opportunity to officially declare their major and begin formulating a four-year plan. Groups are limited to a specific number of students as designated by the academic advisor so they can address individual questions in greater detail and encourage group discussion (Bentley-Gadow & Silverson, 2005).

Outreach efforts. Some advising programs, in assuming a more proactive role, have been extended to other parts of the campus and beyond (Grites, 1979). On the

campus such efforts have included bringing academic advising services to areas where students are most highly populated. In an effort to reach the greatest number of students, academic advisors take advantage of locations outside of the traditional advising center.

The advising contract. A shared definition of what is to be accomplished, the principal duties of each party, and the procedures to be used to monitor, evaluate, or change that relationship make up the advising contract. Since each party has personal needs as well as resources, the contract represents a compromise acceptable to both.

In order for the academic advisor to carry out the primary task of acting in the best interest of the advisee, both parties must be clear about what is involved. This is where a negotiation of an advising contract is recommended. An early portion of the advising interaction might best consist of discussion between advisor and advisee about the nature of advising. Kramer and Gardner (1977) suggest the following questions be addressed:

- What does the advisee expect of the advisor?

- What is the advisor willing to provide?

- What is needed by the advisee?

- What are the special skills of the advisor?

- What is the principal task to be accomplished?

- How is progress in advising to be measured?

  and

- How will difficulties that arise be handled? (Kramer & Gardner, p. 26)

All of these questions need to be explored. Yet it is this beginning, this knowing, understanding, and accepting of the task to be done that make up the advising process

15

(Kramer & Gardner, 1977). The understandings reached between advisor and advisee serve to map the boundaries of the advising responsibilities of both parties. In the process, the understandings become the boundary of the advising process itself (Kramer & Gardner). The advising contract is an important part of the future direction of academic advising as technology expands advising options.

Online advising. Technology has brought advising to the inevitable next step, online advising. Online counseling/advising has emerged in recent years and what was once termed an alternative to traditional therapy has now become commonplace (Laszlo, Esterman & Zabko, 1999). Online advising, for the purpose of this study, refers to advising which occurs with the student and advisor not being located in the same room or office but communicating electronically back and forth through a website. The rapid advancement of computer technology has supported continued innovations (Barak, 1999). As more and more users have demanded online services, it has been incumbent upon counselors and servicing agencies to keep pace (Guterman & Kirk, 1999). Online counseling services have proven to be viable options for many users (Cook & Doyle, 2002). This generation of high school graduates has grown up with technology. The internet is a part of their life in communication, socialization, and education. Information has been universally available and free to them.

Due to the lack of research specifically on online advising, it is relevant to look at the research on online coursework. Dupin-Bryant (2004) suggests that one's specific computer training experience is related to completion of online courses. According to Sheard and Lynch (2003) the online instructional setting is attractive to students because

it has the potential to offer educational access in a flexible modality that, when designed

properly, may respond to diverse learning needs.

Creating a hospitable environment as defined by these students may help them

succeed in the academic setting, improve their retention, and ultimately, increase degree

attainment (Kindie 2005). Academic advising has been increasingly regarded as an

important concern on college campuses, particularly as a partial solution to the problem

of student retention (Canonica, 2002). According to Tinto (as cited in Bednorz, 2005) few

colleges have seriously addressed how to improve student learning and how to help more

students succeed. He suggested that a process for helping more students to succeed must

involve attending to the needs of the students as well as the educational setting in which

they are attempting to prosper (Bednorz). According to Beal and Noel (1980) academic

support services available on a campus can represent critical elements in a retention

strategy, and the academic advisement process has been viewed as the cornerstone of

student retention. Wilder (1981) asserts that the quality of academic advising relates not

only to student satisfaction, but to student retention as well.

Part 2: Learning Styles

Understanding the way one learns, processes information and how the experience

affects individual productivity are central aspects to learning style. According to Griggs

(1991), everyone has a learning style that if accommodated, can result in improved

attitudes toward the learning environment, thus developing the potential to increase

productivity, academic achievement, and creativity. Suskie (2003, as cited in Hairston,

2007) notes that there are an abundance of models that present a variety of learning styles

and most models have several instruments that assess these learning styles. While there is

no one model best suited to use in learning styles research, the literature review of
learning styles tended to agree on the following concepts (Sour, 1997, as cited in
Hairston):

- Learners have a preferred style for processing information

- Learning models use learning style inventories as an attempt to measure
  characteristics of individual learning styles

- Learning styles among learners remain relatively constant

- Learners are more comfortable in a learning environment that utilizes their
  established learning style

and

- The rationale behind the use of learning style assessments is to provide a learning
  environment that is best suited for each student by teaching to his or her strengths
  (p. 49)

Research has demonstrated that every learner learns differently and has a different
learning style (Dunn, 1990, as cited in Hairston, 2007; Kolb, Rubin, & McIntyre, 1979,
as cited in Hairston, 2007; Kolb, D., 1984; Belenky, Clinchy, Goldberger, & Tarule,
1986, as cited in Hairston, 2007). Stevenson and Dunn (2001) suggest that many students
can master easy information that is not consistent with their learning preference, but they
can learn more efficiently and rapidly when they use their own learning preference.

The Dunn and Dunn Learning-Style Model. The Dunn and Dunn Learning-Style
Model defines learning style as one's preferences for retaining new and difficult
information. These preferences result from biological and developmental factors, and
they may change and evolve over time (Cicco, 2007). The model consists of five stimuli

and 20 elements, including four perceptual elements—auditory, visual, tactual, and kinesthetic (Dunn & Griggs, 2003). Different instructional methods may be effective or ineffective for students depending on the extent to which they respond to individuals' learning-style preferences. According to Burke (2000) identifying and addressing learning-style preferences can improve students' retention rates, attitudes, and achievement levels.

Gender

Individual learning style differs by gender (Greb, 1999, as cited in Dunn & Griggs, 2000; Mitchell et al., in press, as cited in Dunn & Griggs, 2000; Pizzo et al., 1990, as cited in Dunn & Griggs, 2000). While males tend to be more kinesthetic/tactual and visual, females tend to be more auditory (Dunn & Griggs, 2000). The Dunn and Dunn Learning-Style Model has been researched extensively and results of various studies confirm that males have stronger tactual preferences than females (Dunn & Griggs, 2003). In contrast, according to Reiff (1992) gender has no bearing on modality characteristics among children or adults. There is no relationship between the dominant learning modality and gender, or between gender and the ability to function using each modality (Barbe & Milone, 1981, as cited in Reiff, 1992; Milone, 1983, as cited in Reiff, 1992; Reiff, 1987, as cited in Reiff, 1992).

Culture

According to Dunn and Griggs (2000) individual learning style differs by culture. This was illustrated by correlational studies of the five major cultural groups within the U.S. that revealed significant differences in learning-style preferences (Dunn & Griggs, 2000). European Americans were significantly higher in auditory learning than Native

19

and Hispanic Americans, who tended to be visual learners. African Americans were more likely than European Americans to prefer kinesthetic learning activities (Dunn & Griggs, 1995). In contrast, according to Reiff (1992) learning style and race were not related. Culture will influence aspects of an individual's approach to learning, but generalizations cannot be made about modalities and race (Hale-Benson, 1986, as cited in Reiff, 1992). Dunn & Griggs (2000) stated:

> Research indicates that the differences within each cultural group were greater than the differences between cultural groups. Therefore, teaching college students cannot be approached with a cultural mind-set. Instead, the learning-style strengths of each student must be assessed and interventions must be designed that are compatible with these preferences. (p. 17)

Modalities. A review of the literature has shown that learning styles; visual, auditory, and kinesthetic/tactile are classified as learning modalities (Reiff, 1992), sensory modalities (Kratzig & Arbuthnott, 2006), and perceptual modalities (Hairston, 2007), with each classification being synonymous. Perceptual modality refers to how we take in information that is associated with auditory, visual, or kinesthetic/tactile styles (Hairston). An effective means to reach all learners is modality-based instruction; this consists of organizing around the different modalities to accommodate the needs of the learner (Barbe & Swassing (1979). Students who are allowed to receive information in their preferred sensory mode will tend to remember better and remember longer (Caine & Caine, 1997). There is a large body of research about sensory modality preference (Liu & Ginther, 1999). According to Bissell, White, and Zivin (1971, as cited in Chen, 2001), a sensory modality is a system that interacts with the environment through one of the basic

20

senses. The most important sensory modalities are visual, auditory, and kinesthetic. According to Dunn & Dunn (1979), about 20% to 30% of American students are auditory; about 40% are visual; and the remaining 30% to 40% are either kinesthetic/tactual, visual/tactual, or some combinations of the above major senses.

Visual learners are those who learn by seeing. Visual learning style involves the use of seen or observed things, including pictures, diagrams, videos, demonstrations, etc. Auditory learners must hear what they are learning to really comprehend the meaning. Auditory learning style involves the transfer of information through listening: to the spoken word, of self or others, of sounds and noises. Kinesthetic learners learn better if movement is involved. Kinesthetic learning involves physical experience - touching, feeling, holding, doing, practical hands-on experiences. Tactile or tactual learners need to feel and touch to learn. According to Reiff (1992) the terms kinesthetic and tactile are often used interchangeably.

Online instruction and learning styles. Learning style has been described as a potential factor related to academic achievement and attitude in online courses (Galowich, 1999; Graff, Davies & McNorton, 2004). Web-based educational initiatives have the potential to truly individualize education by taking into account the differences in students' learning styles that affect their attitudes toward online learning (Cicco, 2007). When researching learning style preference it is important to examine in-class instruction and online instruction.

In-class instruction allows for rich human interaction and, in many classrooms, for a social component that is sometimes difficult to establish in the online setting (Arbaugh, 2001). Cicco (2007) suggests that the face-to-face pedagogy over time is a

better indicator of student satisfaction than technologically-based instruction. When additional explanations of particular subject matter are necessary for students, it is more quickly and easily assessable in classroom settings. The face-to-face interactions of in-class courses may serve to reduce social distance and information overload (Cicco).

The use of humor, video clips, and animated online language can be effective ways to build trust in online courses (Fortune, Shifflett, & Sibley, 2006). Howland and Moore (2002) concluded that certain online students need the verbal support of the face-to-face instructional environment. Online instruction has the potential to offer educational access in a flexible modality that, when designed properly, may respond to diverse learning needs (Sheard & Lynch, 2003). Berkson (2005) lists convenience, variety, anonymity/intimacy, quality, and cost as principal reasons that writing students may prefer online courses. Prior computer experience in general predicts receptivity to distance education (Jackson, Chow, & Leitch, 1997).

Cooper (2001) investigated students' perceptions on the quality of online classes as compared to traditional classes. In this descriptive study (n=200), Cooper found that students of online classes were impressed with their opportunities to ask questions (80% of online respondents compared with 74% of traditional classroom respondents), the levels of convenience and flexibility of the courses (89% of online respondents compared with 54% of traditional classroom respondents), and their personal responsibilities for their own learning. Student satisfaction and success in online courses may result from their perceptions of technology and their autonomous or innovative learning styles (Drennan, Kennedy & Pisarski, 2005).

Cicco (2007) suggests individuals who tend to be shy in social settings are able to communicate more clearly in online settings. Still others prefer the online setting because they are strong writers and are able to exercise this skill through the online medium (Berkson, 2005). Students who have options on different ways to complete assignments will tend to select the methods that fit their learning-style preferences (Cicco). The possibilities for meeting learning-style preferences during instruction may increase with online programs (Barrett, 2002).

Learning styles instruments. A variety of researchers in the area of learning styles have derived different definitions, applications and instruments for assessing learning style (Canfield & Lafferty, 1970; Dunn, 1984; Dunn, DeBello, Brennan, Krimsky, & Murrain, 1981; Dunn & Dunn, 1978, 1979: Dunn, Dunn, & Price, 1976, as cited in Button, 1991; Gregorc, 1979a, 1979b, as cited in Button, 1991; Hill & Nunney, 1974, as cited in Button, 1991; Kolb, 1986, as cited in Button, 1991). There are a number of instruments that measure learning style preference. Dunn, Dunn, and Price's (1978) Learning Style Inventory (LSI) and Price, Dunn, and Dunn's (1979, 1979-1993) Productivity Environmental Preference Survey (PEPS) are both used extensively, reliable, and have been validated (Curry, 1987; DeBello, 1990; Tendy & Geiser, 1998/1999). The Myers-Briggs Type Indicator (MBTI) (2003) gives insight into one's personality and how it affects interpersonal, organizational, and learning style preferences. The Kolb Learning Style Inventory (LSI3) (2005) gives a picture of one's usual way of perceiving and processing information and shows how one can use his or her strengths and increase learning flexibility. However, while these instruments have merit, they are too cumbersome, time-consuming, and expensive to employ in this study.

23

The BLSI however, has been used with high school and college students to determine their preferred learning style in three areas; visual, auditory, and kinesthetic/tactile.

BLSI. A number of researchers (Barnett-Queen & Zhu, 1999 [as cited in Hairston, 2007]; Button, 1991; Chen, 2001; Davis, Nur & Ruru, 1994; Hairston, 2007; Halsne & Gatta, 2002; Koyalan , 2004; Kratzig & Arbuthnott, 2006; & Lin, 1999) have used the BLSI as a research tool to determine an individual's learning style. Kratzig & Arbuthnott administered the BLSI to 65 students from the University of Regina and although there were no published psychometric measures for this instrument they calculated Cronbach's alphas for the sample and observed reliability measures of .54 for visual, .56 for auditory, and .38 for kinesthetic/tactile items. In a study by Barbe and Milone (1980, as cited in Reiff, 1992) secondary education students in a classroom were approximately 25-30% visual, 25-30% auditory, 15% kinesthetic/tactile, and 25-30% with mixed modalities.

Barnett-Queen & Zhu (1999, as cited in Hairston, 2007) utilized the BLSI and found that there was no significant difference in preferred learning styles between those students taking an undergraduate human development and growth distance education course and those taking the traditional face-to-face version. An equal number of learners preferred auditory (43%) as did visual (43%). Only 1% of learners preferred kinesthetic/tactile approaches.

Button (1991) utilized the BLSI in a study of 785 students at Portland Community College in Portland, Oregon and Clackamas Community College in Oregon City, Oregon. Of the 785 research subjects, 633 (80.6%) gave their age and 152 (19.4%) chose not to give their age. Of those respondents who gave their age, 59.4% were 25 or younger. The

study's findings revealed that 56.1% were visual learners, 27.6% were auditory learners, and 4.2% were kinesthetic/tactile learners.

In a study by Chen (2001) 250 students in accounting classes at Saint John & Saint Mary Institute of Technology and Shih Chien University in Taipei, Taiwan completed the BLSI. The majority of the respondents were between 18-26 years of age. Of the three learning styles, students in accounting classes most preferred the visual style (M =28.10) and kinesthetic/tactile (M =25.05) style. The auditory style of learning (M =24.3) was least preferred by the students in accounting classes.

Hairston (2007) surveyed 262 students using the BLSI. This study was conducted at six industries (architectural, civil service, education, manufacturing, retail, and trucking) located in the mid-western United States. The age range of the participants was 21-60. Most of the participants reported a visual learning style (57%) as the preferred learning style with the second highest learning style reported as auditory (23%).

Halsne & Gatta (2002) gave 1,642 students the BLSI. This study was conducted at a community college in the Chicago suburbs. The participants were chosen from the courses that were taught over the Internet in the spring 2001 semester and compared to those who were taking the same course on-campus during the same semester. The majority of the respondents were less than 25 years of age.

The BLSI was given to 750 students by Lin (1999). This study was conducted at the Taichung Learning Center of the National Open University. The students were 18 years old or older and from six major disciplines. The respondents exhibited two major learning styles, the auditory style (65.2%) and the visual style (33.9%). Only four (0.9%) respondents preferred learning using the kinesthetic/tactile style.

25

Koyalan (2004) used the BLSI with 58 senior and junior students from the English Language and Literature (ELL) and American Culture and Literature (ACL) Departments at Ege University. The results of the BLSI suggested that 38 of the 58 students were predominantly visual learners; while 12 had a preference for visual material in combination with tactile; 2 had a preference for visual material in combination with auditory; and the remaining 6 had almost equal preferences for the three styles.

In a study by Davis et al. (1994) 103 students completed the BLSI. The sample was taken from two institutions; The Institute of Teacher Training and Education and Hasanuddin University. The majority of the students in the sample (68 individuals, or 66%) were classified as learners who were predominantly visual. They either had a clear visual preference, or visual was so closely combined with another preference that the difference was not significant.

Part 3: Academic Advising and Learning Styles

While there is a plethora of general articles, published research, commentaries and information about academic advising independent of learning styles and vice versa, there has been relatively little research published regarding the relationship one has with the other. However, Uhlik (2005) discusses the relationship of academic advising and learning styles.

In a paper presented at the annual meeting of NACADA, Nisbet, Ruble, and Schurr (1981) discussed advisors expressed desire for information that would clue them in to such insights as individual learning style behaviors that affect test-taking, study habits, and time management at Ball State University in Indiana. According to the paper

it had been demonstrated through research that the understanding of student learning

styles enhanced a teacher's ability to project classroom learning strategies which served

to maximize academic achievement. Nisbet et al. contend that a logical assumption was

that a student's learning style and the connection it has to academic achievement could

generate insights for academic advisors. Information on learning styles was generated

through the Myers-Briggs Type Indicator administered by academic advisors at Ball State

University. Formats for a variety of advising strategies were developed in workshops

with advisors based on learning style preferences. Data gathered on 3,000 students

support that by using information on individual student learning-styles, study behaviors,

locus of control, and anxiety level, retention has improved from 75% to 91% for first year

students. Student attitude and awareness of advising benefits were enhanced as measured

by an increase in voluntary visits for advising beyond those required.

CHAPTER 3

METHODOLOGY

Chapter 3 includes a description of the institutional setting, provides the criteria used for selecting the subjects to be studied, provides demographic characteristics of the subjects involved in the study, as well as procedures for gathering and analyzing the quantitative and qualitative data from the survey instrument.

Institutional Setting

Florida Atlantic University (FAU) is a large doctoral degree granting university that is a multi-campus institution founded in 1964 in the state of Florida. FAU is one of 11 state universities in Florida, serving over 26,000 students. Of the 26,525 students enrolled at FAU during the Fall 2007 term, 3,648 were enrolled in graduate programs, 20,632 were enrolled in undergraduate programs, and 2,245 were unclassified. Freshmen accounted for 3,952 students. Full-time students accounted for 55% of the total enrollment (undergraduate and graduate). FAU enrolled 2,676 first-time-in college students for Fall 2007 which differs from the total number of freshmen. FAU is considered a commuter campus, with 10% of students living in residential housing, and 90% coming from the school's six service area counties. Students are enrolled from 137 different countries and 47 states plus the District of Columbia. The student population consists of 57% white students, 17% black students, 17% Hispanic students, and 5% Asian students. Gender accounts for 60% female and 40% male (Florida Atlantic University Quick Facts, 2008).

28

The FAU Freshmen Academic Advising Services' (FAAS) primary purpose is to provide academic advising services to entering first time freshmen university students. The department specifically works with freshman students of all majors who began at FAU with zero earned credit and transfer freshmen students with up to 29 credits. The FAAS department is a standalone academic advising center. In particular, FAAS provides assistance with: providing academic advising and counsel, course registration information on majors, minors and certificate programs, and other academic support resources.

In the FAAS department graduate students assist with basic office operational tasks and additionally are trained as part time academic advisors. Coordinators are responsible for academic advising and numerous other assigned duties while acting as a liaison between FAAS and a specific college. The assistant & associate directors are responsible for academic advising & other special programs, act as liaisons for a specific college, and act as supervisors for either graduate assistants or coordinators. The director supervises and manages all employees in FAAS. In total there are eleven full time advisors and two graduate student advisors in FAAS.

Subjects

The subjects in this study were incoming FAU freshmen during the Fall 2008 semester. The freshmen have 0-29 earned credits. Their majors represent a variety of majors offered at FAU. During the summer 2008, 2,461 freshman students were given the opportunity to participate in the Online Advising & Registration System (OARS): http://oars.fau.edu/ and 1,184 students chose to participate by completing the OARS.

The OARS is an online advising system designed by FAAS where entering freshman are given all the academic information they need in order to select a first

semester schedule. Using the OARS students read through academic information relevant to choosing courses then login to a secure advising form where they are given a sample schedule for their major. They completed the advising form, selected courses and then submitted the form online. An advisor approved the courses after the student submitted the form and an automatic email was generated to the student notifying them when it was complete. All information was stored in a secure database. Students were advised completely online throughout the summer prior to beginning the Fall 2008 term. These same freshmen were then advised during the fall, in person, for the Spring 2009 semester. This population was contacted during the Spring 2009 semester for data collection. Permission to access students' email addresses from OARS was obtained from the FAU Dean of Undergraduate Studies (see Appendix B). This population was targeted to ask them their preference in advising since they were exposed to both advising methods.

Procedures

To examine students' preferred methods of academic advising services and whether it relates to their individual learning styles, the researcher surveyed the 1,184 students who both completed OARS for the Fall 2008 semester and were advised face-to-face for the Spring 2009 semester. The OARS database was only used to generate a list of subjects' email addresses. An initial email (see Appendix C) was sent by the researcher to the population at the end of November 2008 for the purposes of making the students aware of the coming survey to aid in the return rate. Those subjects were then sent an email (see Appendix D) approximately a week later explaining the assessment and how to consent with a separate web link included to the survey if they chose to participate. The student's email was only linked to the survey to the extent that the survey software

kept track of which participants had completed the survey to avoid sending automatic email reminders. Non-responders received automatic email reminders every three or four days as necessary through the first week of courses in the Spring 2009 semester to increase return rate. To protect the privacy of students, the email list was deleted after use as the researcher's interest was only in the data. No participant information had any personally identifiable characteristics.

Instrumentation

The survey used for this study began with five items asking students to evaluate their experience with each advising method along some dimensions (see Appendix A). An advising preference score (APS) was constructed from the first five items on the survey. The APS was calculated by adding up the values attached to the responses (see Appendix E). The scores ranged from a low of 5 to a high of 20, with the higher score indicating greater preference for online advising. Four open ended questions were used asking the students what they liked and did not like about online advising and face-to-face advising. A final question followed asking about future preference between online advising, face-to-face advising or a combination, which served in determining the validity of the APS.

As noted in Appendix A, the BLSI is a short self administered instrument that was developed by Jeffrey Barsch and copyrighted by Academic Therapy Publications, 1980. The BLSI has been used with high school and college students to determine their preferred learning style in three areas; visual, auditory, and kinesthetic/tactile. This instrument takes approximately 5-10 minutes to complete and thus is more likely to yield a larger response rate among volunteers. The BLSI is constructed to identify the

participants learning style based on only 24 items in contrast to the 104-item LSI, 100-item PEPS, and 144-item MBTI. Participants using the BLSI place a check in the appropriate line (often, sometimes, or seldom) after each of the 24 statements. A score of 5 points is given to often, a score of 3 points is given to sometimes, and a score of 1 point is given to seldom. Point values are placed on the scoring sheet adjacent to the corresponding questions and then tallied by high score as to the participant's preference of learning: visual, auditory, or kinesthetic/tactile. Respondents have a score on each of the learning styles (see Appendix E).

This study required a learning style assessment tool which was quick, economical, easy to complete and score, user-friendly, could be employed by large numbers of students and was informative regarding whether the learner was primarily visual, auditory, or kinesthetic/tactile. The researcher found only one reported study on the reliability with measures of .54 for visual, .56 for auditory, and .38 for kinesthetic items (Kratzig & Arbuthnott, 2006). These reliability measures had limited power in testing the relationship between academic advising preference and individual learning style. The researcher could not find studies reporting the validity of the instrument, however a number of researchers as referenced in the literature review have used the instrument reporting face validity. An additional factor in choosing the BLSI was that the author and publisher of the survey have given permission for its use free of charge for research purposes.

A demographic section was included in the study and it followed the BLSI requesting gender, ethnicity, college major, high school GPA, location, and employment. This instrument was distributed through a link contained in the email.

32

Data Collection

This study utilized quantitative and qualitative methods of research. The APS,

four open ended questions, the BLSI and a demographic section of a researcher designed

survey was sent to the freshman college students through email. The instrument was

setup through Snap Survey Software and imported into SPSS through FAU's Office of

Institutional Effectiveness and Analysis.

Quantitative Analysis Techniques

The study used a correlational design. Both descriptive and inferential statistics

were produced. Tables of frequency distributions and means were used to describe the

sample and the survey results. Pearson's correlation coefficient was calculated to examine

the relationship between advising preference and each of the learning styles. A single

number was used to express the degree of a relationship, i.e. the degree in which one

variable is associated with the change in another variable. The first part of the study

examined the relationship between the learning style scores (auditory, visual and

kinesthetic/tactile) and the APS.

The second part of the study used linear multiple regression analysis to examine

the association between APS and each of the learning styles in the presence of moderator

variables; gender, ethnicity, college major, high school GPA, location, and/or

employment, to determine whether those variables altered the relationship between APS

and learning style. A moderator variable alters the relationship between other variables.

This addresses the question of whether any relationship between learning style and

academic advising method preference differed by levels of each of the six moderator

variables. The results of the regression analysis were used to make inferences from the sample to a larger population of freshman advisees.

Qualitative Analysis Techniques

Data for the qualitative part of the study were collected through the open-ended questions in the survey instrument. Responses to the open-ended survey questions provided additional information about the participants' experiences with online advising and face-to-face advising. Data from the open-ended survey questions were assigned units of meaning through the use of codes. Pattern coding was used to group the initial codes into a smaller number of themes or concepts. According to Miles and Huberman (1994, p. 69) "pattern coding reduces large amounts of data into a smaller number of analytic units and it helps the researcher elaborate a cognitive map, an evolving, more integrated schema for understanding local incidents and interactions." Narratives were selected from the participants' responses to the open ended survey questions to illustrate the themes. The themes emerged from the open-ended question responses based on what the students liked and did not like after being exposed to OARS and face to face advising. The data collected from those themes showed the similarities and differences that can be connected to a particular learning style. In respect to the relationship between learning style and academic advising method preference this would compound and add depth to the investigation.

CHAPTER 4

ANALYSIS OF THE DATA

This chapter restates the research question and hypotheses that guided the study

and presents the results from the statistical analysis of the data retrieved from selected

items from the survey instrument. This chapter also presents the major themes that were

revealed through qualitative analysis of open ended survey questions.

Purpose of the Study

The purpose of this study was to determine whether a relationship existed

between participants' learning styles and preferred methods of academic advising, and

whether this relationship was moderated by gender, ethnicity, college major, high school

GPA, location, and/or employment.

Research Questions and Hypotheses

The researcher posed the following questions with regard to students' preference

of online versus face-to-face academic advising based on individual learning styles:

1. What is the relationship between learning style and preferences for academic

advising services?

2. Is this relationship moderated by gender, ethnicity, college major, high school

GPA, location, and/or employment?

The researcher proposed the following null hypothesis:

$H0_1$ There is no relationship between learning style and preferences for

academic advising services.

H0$_2$ Gender does not moderate the relationship between learning style and preference for academic advising services.

H0$_3$ Ethnicity does not moderate the relationship between learning style and preference for academic advising services.

H0$_4$ College major does not moderate the relationship between learning style and preference for academic advising services.

H0$_5$ High school GPA does not moderate the relationship between learning style and preference for academic advising services.

H0$_6$ Location does not moderate the relationship between learning style and preference for academic advising services.

H0$_7$ Employment does not moderate the relationship between learning style and preference for academic advising services.

Summary of Data Collection and Analysis Procedures

Of the 1,184 subjects who completed OARS for the Fall 2008 semester, 1,162 registered for classes and received the invitation email. This was determined by the 22 email delivery failures to university email accounts tracked through SNAP that were "bounced," that is, either blocked by a filter or not valid. The subjects were sent a web link to the electronic survey via email utilizing SNAP survey software. Two hundred students accessed and began taking the survey. Of these, 28 had to be excluded because they did not finish the survey. Completed surveys numbered 172 for a total response rate of 14.8% (172/1162). Table 1 is an overview of the questionnaire results, including demographics data, listing the aggregated responses from the 172 completed surveys for

each item. Response frequencies and mean scores for APS and the learning styles are

presented.

Table 1

Descriptive Statistics – All Variables

	N	%	APS Mean	Visual Mean	Auditory Mean	Kinesthetic/ Tactile Mean
Gender						
Female	118	68.6	13.24	30.22	27.51	25.49
Male	54	31.4	13.00	31.19	27.52	25.52
Total	172		13.16	30.52	27.51	25.50
Ethnicity						
Asian or Pacific Islander	9	5.2	14.78	32.00	28.00	24.67
American Indian or Alaskan Native	1	.6	13.00	40.00	38.00	36.00
Black	21	12.2	14.14	30.48	28.29	24.76
Caucasian	95	55.2	13.02	30.42	27.39	26.29
Hispanic	34	19.8	12.74	30.59	26.53	24.82
Other	3	1.7	12.33	31.33	32.00	22.67
I would prefer not to say	8	4.7	12.50	29.00	27.75	21.75
Total	171	99.4	13.16	30.55	27.52	25.51
Missing	1	.6				
College						
Architecture, Urban, and Public Affairs	11	6.4	12.36	28.55	29.82	25.09
Arts and Letters	18	10.5	13.94	31.89	26.11	27.11
Business	52	30.2	13.06	30.50	27.00	24.62
Education	7	4.1	13.14	28.86	26.57	29.71
Engineering	18	10.5	13.00	31.22	27.33	25.00
Nursing	15	8.7	13.13	31.07	29.60	26.40
Science	36	20.9	13.17	30.39	27.72	25.39
Undeclared	15	8.7	13.40	30.13	27.33	24.93
Total	172		13.16	30.52	27.51	25.50
HSGPA						
Less than 2.0	0					
2.0-2.9	19	11.0	12.79	29.16	25.89	24.00
3.0-3.9	115	66.9	13.24	30.59	27.97	25.88
4.0 or above	35	20.3	13.03	31.31	26.74	24.86
I do not remember	3	1.7				
Total	172		13.15	30.58	27.48	25.46
Location						
Palm Beach County	53	30.8	13.21	30.87	26.91	24.79
Broward County	70	40.7	13.41	30.63	28.06	25.49
Florida (outside Palm Beach & Broward)	32	18.6	12.72	29.88	27.31	25.19
Out of State	15	8.7	12.73	30.13	27.07	29.20
Out of Country	2	1.2	13.50	31.00	31.00	22.00
Total	172		13.16	30.52	27.51	25.50
Employment						
Yes	77	44.8	13.16	31.79	27.58	26.00
No	95	55.2	13.17	29.49	27.45	25.09
Total	172		13.16	30.52	27.51	25.50
If yes						
On-campus	10		12.80	31.40	27.60	25.80
Off-campus	63		13.14	31.87	27.56	26.19
Total	73		13.10	31.81	27.56	26.14
Hours						
1-10	10		12.60	32.00	28.60	24.00
11-20	33		13.24	31.33	27.58	25.39
21-30	23		13.13	32.00	27.57	28.09
31-40	6		13.33	33.00	25.33	26.00
41 or above	1		11.00	34.00	30.00	28.00
Total	73		13.10	31.81	27.56	26.14

Results

Hypothesis. $H0_1$ There is no relationship between learning style and preferences for academic advising services.

The researcher used Pearson's correlation coefficient to determine if a relationship existed between advising preference and each of the learning styles. Results are shown in Table 2.

Table 2

Correlations Between APS and Learning Styles

		Independent Variables		
		Visual Learning Style	Auditory Learning Style	Kinesthetic Learning Style
Dependent	Pearson's r	.039	.092	.072
Variable:	p (2-tailed)	.609	.232	.347
APS	N	172	172	172

Conclusion. Fail to reject $H0_1$. The results in Table 2 indicated that there is no relationship between learning style and preferences for academic advising services.

Hypothesis. $H0_2$ Gender does not moderate the relationship between learning style and preference for academic advising services.

The researcher used linear multiple regression to determine if the relationship between learning style and preference for academic advising services was moderated by gender. Each learning style was centered by subtracting the mean score of the learning style. Mean centering was done to lessen possible problems with multicollinearity. The product was obtained from the moderator and the centered learning style. The dependent variable was the APS and the independent variables were gender, the centered learning

style, (visual, auditory, and kinesthetic/tactile run separately) and the product. Results of the interaction effects are shown in Table 4.

Conclusion. Fail to reject H0$_2$. The results in Table 4 indicated that gender does not moderate the relationship between learning style and preference for academic advising services.

Hypothesis. H0$_3$ Ethnicity does not moderate the relationship between learning style and preference for academic advising services.

The researcher used linear multiple regression to determine if the relationship between learning style and preference for academic advising services was moderated by ethnicity. The moderator, ethnicity was dichotomized and recoded in SPSS for the purposes of analysis. Caucasian became 1 and all other ethnicities became 0 and were classified as minority due to a low number in some ethnicities. Each learning style was centered by subtracting the mean score of the learning style. The product was obtained from the moderator and the centered learning style. The dependent variable was the APS and the independent variables were ethnicity, the centered learning style, (visual, auditory, and kinesthetic/tactile run separately) and the product. Results of the interaction effects are shown in Table 4.

Conclusion. Fail to reject H0$_3$. The results in Table 4 indicated that ethnicity does not moderate the relationship between learning style and preference for academic advising services.

Hypothesis. H0$_4$ College major does not moderate the relationship between learning style and preference for academic advising services.

39

The researcher used linear multiple regression to determine if the relationship between learning style and preference for academic advising services was moderated by college major. The moderator, college major was recoded in SPSS for the purposes of analysis. The College of Architecture, Urban, and Public Affairs (UP), Arts and Letters (AL), and Education (ED) became 1, The College of Business (BA) became 2, The College of Engineering (EG), Nursing (NU), and Science (SC) became 3, and all Undeclared (UN) became 4 and was used as the reference group. Three dummy codes were created. Each learning style was centered by subtracting the mean score of the learning style. A total of nine product terms were obtained from each dummy code and each of the three centered learning styles. In each regression the dependent variable was the APS and the independent variables were the centered learning style, (visual, auditory, and kinesthetic/tactile run separately) the three dummy codes, and the three products. Results of the interaction effects are presented in Table 3.

Table 3 summarizes the interaction effects of college major in 3 separate regression equations, none of which produced a model $R^2 > .035$. Main effects are not displayed in Table 3. No main effects were statistically significant in the models.

Table 3

Summary of Interaction Results of College Major Regression Analysis

Interaction between:	Learning Style	Df	Residual	F	P	N
College Major and:	Visual	3	164	1.372	.253	172
	Auditory	3	164	1.368	.255	172
	Kinesthetic	3	164	.154	.927	172

Conclusion. Fail to reject $H0_4$. The results in Table 3 indicated that college major does not moderate the relationship between learning style and preference for academic advising services.

Hypothesis. $H0_5$ High school GPA does not moderate the relationship between learning style and preference for academic advising services.

The researcher used linear multiple regression to determine if the relationship between learning style and preference for academic advising services was moderated by HSGPA. All "I don't remember" selections were removed by the select cases if command. There were no students who earned less than a 2.0. The moderator, HSGPA was recoded in SPSS for the purposes of analysis. 2.0-2.9 became 1, 3.0-3.9 became 2, and 4.0 and above became 3. The moderator HSGPA was centered by subtracting the mean score of HSGPA. Each learning style was centered by subtracting the mean score of the learning style. The product was obtained from the centered moderator and the centered learning style. The dependent variable was the APS and the independent variables were the centered HSGPA, the centered learning style, (visual, auditory, and kinesthetic/tactile run separately) and the product. Results of the interaction effects are shown in Table 4.

Conclusion. Fail to reject H0$_5$. The results in Table 4 indicated that high school GPA does not moderate the relationship between learning style and preference for academic advising services.

Hypothesis. H0$_6$ Location does not moderate the relationship between learning style and preference for academic advising services.

The researcher used linear multiple regression to determine if the relationship between learning style and preference for academic advising services was moderated by location. The moderator, location was recoded in SPSS for the purposes of analysis into three categories to represent an ordinal distance measure from FAU. Palm Beach and Broward County became 1, the rest of the state of Florida became 2, and out of state and country became 3. The moderator location was centered by subtracting the mean score of location. Each learning style was centered by subtracting the mean score of the learning style. The product was obtained from the centered moderator and the centered learning style. The dependent variable was the APS and the independent variables were the centered location, the centered learning style, (visual, auditory, and kinesthetic/tactile run separately) and the product. Results of the interaction effects are shown in Table 4.

Conclusion. Fail to reject H0$_6$. The results in Table 4 indicated that location does not moderate the relationship between learning style and preference for academic advising services.

Hypothesis. H0$_7$ Employment does not moderate the relationship between learning style and preference for academic advising services.

The researcher used linear multiple regression to determine if the relationship between learning style and preference for academic advising services was moderated by

employment. The moderator employment was separated into three variables; employment, and among those employed, on or off-campus and hours worked. Employment was recoded in SPSS for the purposes of analysis. Yes became 1 and no became 0. Each learning style was centered by subtracting the mean score of the learning style. The product was obtained from the moderator and the centered learning style. The dependent variable was the APS and the independent variables were employment, the centered learning style, (visual, auditory, and kinesthetic/tactile run separately) and the product.

For those that were employed, on or off campus was recoded in SPSS for the purposes of analysis. On-campus became 1 and Off-campus became 0. Each learning style was centered by subtracting the mean score of the learning style. The product was obtained from the moderator and the centered learning style. The dependent variable was the APS and the independent variables were on/off campus, the centered learning style, (visual, auditory, and kinesthetic/tactile run separately) and the product.

The amount of hours worked was recoded in SPSS for the purposes of analysis. 1-10 hours became 1, 11-20 became 2, 21-30 became 3, and 31 and above became 4. The moderator hours worked was centered by subtracting the mean score of hours worked. The product was obtained from the centered moderator and the centered learning style. The dependent variable was the APS and the independent variables were the centered hours worked, the centered learning style, (visual, auditory, and kinesthetic/tactile run separately) and the product. Results of the interaction effects are shown in Table 4.

Conclusion. Fail to reject H0$_7$. The results in Table 4 indicated that employment does not moderate the relationship between learning style and preference for academic advising services.

Table 4 summarizes the interaction effects of 21 separate regression equations, none of which produced a model $R^2 > .044$. Main effects are not displayed in Table 4. No main effects were statistically significant in the models.

Table 4

Summary of Product Term Tests

Dependent Variable: APS		Unstandardized Coefficients		Standardized Coefficients			
Interaction between:	Learning Style	B	Std. Error	Beta	T	p	N
Gender and :							
	Visual	.039	.084	.071	.469	.640	172
	Auditory	-.033	.072	-.060	-.453	.651	172
	Kinesthetic	.005	.075	.009	.068	.946	172
Ethnicity and:							
	Visual	-.114	.074	-.186	-1.550	.123	172
	Auditory	-.046	.069	-.080	-.670	.504	172
	Kinesthetic	-.042	.072	-.069	-.581	.562	172
High School GPA and:							
	Visual	-.025	.068	-.030	-.372	.711	169
	Auditory	.015	.061	.019	.241	.810	169
	Kinesthetic	-.105	.071	-.119	-1.478	.141	169
Location and:							
	Visual	-.021	.052	-.530	-.416	.678	172
	Auditory	.027	.049	.725	.555	.580	172
	Kinesthetic	.086	.052	2.218	1.653	.100	172
Employed and:							
	Visual	-.139	.075	-.198	-1.863	.064	172
	Auditory	.001	.068	.001	.014	.989	172
	Kinesthetic	-.044	.071	-.066	-.618	.537	172
On or Off Campus and:							
	Visual	-.069	.164	-.034	-.421	.674	172
	Auditory	.149	.150	.078	.993	.322	172
	Kinesthetic	.085	.229	.029	.373	.710	172
Hours Worked and:							
	Visual	.022	.077	.542	.293	.770	73
	Auditory	-.099	.070	-2.618	-1.415	.162	73
	Kinesthetic	.008	.070	.203	.111	.912	73

Qualitative Analysis of Open-ended Survey Items

Data for the qualitative part of the study were collected through the open-ended questions in the survey instrument. Responses to open ended survey questions revealed additional information about the participants' experiences with online and face-to-face advising.

Online advising. When asked, "What did you like about OARS (online advising)?" of the 172 students that completed the survey 147 students responded. The majority of the responses were illustrated by the themes: how quick the online advising process was and how easy it was to understand (48%), and how convenient it was for them to access (31%). Several responses contained both themes. The majority of the responses used the words "quick and easy" synonymously. 21% of the responses either didn't address the question or were specific to the individual. One female student responded, "it was quick and easy and I didn't have to go to the campus and wait or make an appointment." Another female student simply states, "OARS allowed me to participate in advising at my own pace and time. I liked knowing I had a way of receiving advising, without the stress of making an appointment and fitting the time into a busy schedule for such."

One student comments on the convenience online advising provided when trying to manage her time:

> I like OARS because it provided a chance for me to pick my classes and decide
> what I wanted to take on my own time, and when I was ready to choose and have
> them approved, I could do it from home, without having to wait for an advisor to
> see me and make an extra drive down here to talk to someone.

45

Responses to the question "What did you not like about OARS (online advising)?" resulted in 136 answers from the 172 participants. Generally, reference was made to the lack of face-to-face contact or how the online advising was too impersonal 30%. One female student's response was "there was no face-to-face interaction with a real person who can offer feedback and personal advice to every individual student's needs."

Another theme that emerged was how the online advising system was considered confusing (17%). One student shared the following comment about her experience with OARS: "I believe I was a bit confused as to what classes I should take. After I found the classes for my major it wasn't so bad, but again, I had help from an older sibling."

A final theme that emerged was the inability for a student to ask questions during the online advising process and get an immediate response (10%). Another student offered the following comment about his experiences, "there was no live chat feature so I could ask somebody a question if needed." Fourteen percent of the students replied with the answer "nothing." 29% of the responses either didn't address the question or were specific to the individual.

Face-to-face advising. Participants were asked to respond to the question, "What did you like about face-to-face advising?" Of the 172 completed surveys, 151 students answered this question. Three themes generally emerged from this question, which are the ability to ask questions (40%), the face-to-face personal contact (29%), and the reassurance that was provided by speaking to a live person (14%). Of the responses, 17% either didn't address the question or were specific to the individual. One female student responded with the following comment:

Face-to-face advising allowed me to ask questions on the spot and receive answers immediately. I felt that by speaking to an advisor directly, I was being reassured that my courses were appropriate for me and that the advisor was catering to my individual needs.

Another student responded about his experience with face-to-face advising:

Face-to-face advising was very helpful. If I had questions on the courses, they were answered by my advisor. I liked the comfort of speaking face-to-face with a real advisor, because I wanted to make sure I was going to register for the right classes and headed towards the right direction.

One student offers the following comment about his experience with face-to-face advising, "There's someone to talk to if I need it, someone to help break down the courses for me and walk me through what would be good choices. In a face to face conversation, I can ask questions I was pondering for future courses."

Participants were invited to respond to the question, "What did you not like about face-to-face advising?" The general theme that emerged was waiting for appointments, or waiting for advisors during walk-in advising, which included taking time out of their schedule (52%). One female student responded with the comment, "having to go to the office, wait, and then see an advisor." Another female student stated, "Usually there is no wait, but because of the amount of students that need advising, especially when it is time to pick the schedule for the next semester, the lines get long and it is sometimes frustrating to wait in them for so long." Two female students responded with the comments, "that I had to leave my room" and "I had to leave the comfort of my home." A student commenting on her frustration with altering her schedule stated:

47

Having to schedule appointments are never an easy thing with a busy schedule,

and if things change from time to time, I would have to make another

appointment, whereas online, you could alter your course decisions and make

changes without the trouble of scheduling appointments and making multiple

visits.

Another reoccurring theme was the student not liking the advisor they dealt with

(13%). One female student stated, "The advisors can be stubborn and not really let you

make your own decisions, more freedom online." A final theme that emerged when asked

what they did not like about face-to-face advising was "nothing" or "I liked it!" (29%).

Of the responses, 7% either didn't address the question or were the answers were specific

to the individual. Table 5 displays the results of the open-ended questions.

Table 5

Results of Open-ended Questions

What did you like about OARS (online advising)?	Quick and easy 48%	Convenient 31%	Mixed Responses 21%	N 147		
What did you not like about OARS (online advising)?	Impersonal 30%	Confusing 17%	Could not ask questions 10%	Nothing 14%	Mixed Responses 29%	N 136
What did you like about face-to-face advising?	Ability to ask questions 40%	Face-to-face contact 29%	Reassurance 14%	Mixed Responses 17%	N 151	
What did you not like about face-to-face advising?	Waiting 52%	Not liking the advisor 13%	Nothing 29%	Mixed Responses 7%	N 124	

The open-ended comments were validated by the APS mean (13.16) on the scale

of 5 to 20. The APS suggested that on average, the students who completed the survey

preferred the same favorable characteristics that were reported in the open-ended

comments. The response to the question "In the future, if you had the choice, what would

you prefer? online advising (13%), face-to-face advising (36%), or a combination of

online and face-to-face advising (52%)" further validated the open-ended comments and

the APS mean.

Chapter Summary

This chapter presented the analysis of the data retrieved from the survey

instrument to answer the research question concerning whether a relationship existed

between participants' learning styles and preferred methods of academic advising, and

whether this relationship was moderated by gender, ethnicity, college major, high school

GPA, location, and/or employment.

The statistical analysis of the data from the survey instrument revealed that there

was no statistically significant relationship between APS and each of the three learning

styles. Further, gender, ethnicity, college major, high school GPA, location, and

employment did not significantly moderate the relationship between APS and learning

style.

The responses to open ended questions on the survey instrument administered to

freshman students who completed OARS revealed how quick the online advising process

was, how easy it was to understand, and how convenient it was to access. The

unfavorable aspects of online advising were the lack of face-to-face contact, the

impersonality, and the inability for a student to ask questions during the online advising process and get an immediate response.

Responses to the open ended questions in reference to face-to-face advising revealed that students liked the ability to ask questions, the face-to-face personal contact, and the reassurance that was provided by speaking to a live person. Students did not like waiting for appointments, waiting for advisors during walk-in advising, and having to take time out of their schedule. Several students did not like the advisor they dealt with, although a large portion of students liked the overall experience.

The results of these analyses are discussed and interpreted in Chapter 5. Chapter 5 also addresses limitations of the study, and recommendations for advisors and future study.

CHAPTER 5

SUMMARY

This chapter provides a summary and interpretation of the findings of this study as they relate to the research questions. Additionally, this chapter will provide a discussion of how the findings relate to the theoretical framework, the limitations of this study and recommendations for academic advisors. Finally, recommendations for future study are offered.

Purpose of the Study

The purpose of this study was to determine whether a relationship existed between participants' learning styles and preferred methods of academic advising, and whether this relationship was moderated by gender, ethnicity, college major, high school GPA, location, and/or employment. This study attempted to provide a link between learning styles and advising methods. It was hoped that outcomes of this study would contribute to the literature and understanding of learning styles and advising approaches. The results would be used for university academic advising units to target greater numbers of students by either creating advising methods that reach each type of learner separately or creating one multi-faceted advising method that reaches all learners. Since the literature cited limited research about the relationship between academic advising and learning style, the researcher believed that the relationship between the two must be explored. The importance of identifying a relationship prompted further exploration of academic advising and learning style.

The theoretical framework for this study was adapted from Kolb's experiential learning theory (Kolb, 1984). Kolb's experiential learning theory focused on the individual's perception of how they learn. There were two basic assumptions that provided the framework for this model. One, people learn from immediate, here-and-now experience, and from concepts and books. Second, people learn differently, or according to their preferred learning styles. The BLSI was employed to measure a subjects learning style preference.

Building upon the theoretical framework as established by Kolb, Uhlik (2005) stated "learning style is a useful framework within which advising, teaching and learning can be much more effective." Furthermore, Uhlik stated that "if advising is teaching, then learning style matters." One of the theoretical aims of this study was to explore the relevance of learning style which is often associated with teaching. Instead, learning style was examined as it relates to academic advising. Previous research has demonstrated that every learner learns differently and has a different learning style (Dunn, 1990, as cited in Hairston, 2007; Kolb et al., 1979, as cited in Hairston, 2007; Kolb, 1984; Belenky et al., 1986, as cited in Hairston, 2007). While the results of this study do not dispute these claims, the results of this study do conclude that a student's learning style has no relationship with their preferred method of academic advising, whether it is online or face-to-face. Kolb's (1981) research concluded that "individual learning styles affect not only academic learning, but also broader aspects of adaption to life, such as decision making, problem solving, and life-style in general" (p. 248). The current study found no evidence of a connection as it specifically relates to learning style through the utilization of the BLSI, and advising preference. It should be noted that Kolb's (1981, 1984; Kolb &

Kolb, 2005) research was based on the utilization of the LSI focusing on diverging, assimilating, converging, and accommodating.

Summary of the Procedures

To examine student's preferred methods of academic advising services and whether it related to their individual learning style, the researcher gathered data from OARS. The population contacted was the 1,184 students who completed OARS for the Fall 2008 semester and then were subsequently advised face-to-face the following semester. This study utilized quantitative and qualitative methods of research. The APS, four open ended questions, the BLSI and the demographic section of the researcher designed survey was sent to the freshman college students through email. Valid responses totaled 172.

Research Questions

This study sought to answer the following research questions:

1. What is the relationship between learning style and preferences for academic advising services?

2. Is this relationship moderated by gender, ethnicity, college major, high school GPA, location, and/or employment?

Findings

The study found no statistically significant relationship between learning style and preferences for academic advising services. This finding suggests that in this research setting the freshman student's learning style is not related to their preference for choosing whether to be academically advised online or face-to-face. Investigation into moderation effects of gender, ethnicity, college major, high school GPA, location, and employment

53

on the relationship between learning style and preferences for academic advising services was completed. None of the moderator variables statistically altered the relationship between academic advising preference and individual learning style. These findings suggest that when examining the association between the APS and each of the learning styles in the presence of gender, ethnicity, college major, high school GPA, location, and employment the lack of relationship stays the same. The existing literature on academic advising independently of learning style did not provide data to compare to the findings of this study. Implications of the findings of this study offer insights to create a starting point in the literature.

Limitations of Study

There were a few limitations that affected this study that included small sample size, response rate, BLSI reliability, online survey research and sample bias. These limitations will be further examined.

One limitation to this study was small sample size. E-mail addresses were available to the researcher for 1,184 students who participated in online advising. 1,162 of these were valid. 172 freshmen completed the online survey. The overall response rate was 14.8%. According to Yu & Cooper (1983), low response rates decrease the statistical power of the data and increase the size of the confidence interval regarding the sample. Additionally, low response rates challenge the perceived credibility of the study and undermine the actual generalizability of the study by producing misleading conclusions generated by nonresponse bias (Rogelberg & Stanton, 2007). With that said, Rogelberg and Stanton also state that if a study falls short of an expected response rate it does not

mean that the data obtained was biased and that research with low response rates should not be discounted particularly when it examines new uncharted territory.

Since the participants of this study were all chosen based on their completion of OARS, it is important to see if the sample is representative of the larger population of freshman students. Table 6 compares all entering freshman students for the Fall 2008 with the sample of participants in this study. According to Gall, Borg, & Gall (1996) when it is not possible for a researcher to obtain a random sample of a target population, the sample must be compared with the accessible population based on key variables.

Table 6

Demographic Comparison of Population with Sample

Fall 2008		FTIC Freshman Population N=2,461 %	Study Sample n=172 %
Gender			
	Female	52	69
	Male	48	31
Ethnicity			
	Caucasian	57	55
	All Other Ethnicities	43	45
College			
	UP	8	6
	AL	17	11
	BA	22	30
	ED	6	4
	EG	11	11
	NU	6	9
	SC	23	21
	UN	7	9

With the exception of gender, an overrepresentation in BA, and an underrepresentation in AL, these results suggest that the demographics of the volunteer sample reflect those of the population of first time in college freshman (FTIC) students for fall 2008.

Another important limitation is the low reliability of the BLSI. The lack of precision in the BLSI along with a relatively low student response rate limited the power

in testing the relationship when failing to reject the null hypotheses. Therefore, the results of the study "there is no relationship" must be taken at face value.

Utilizing the web for conducting survey research was another possible limitation to this study. Response rates in web surveys have been reported to be as low as 0% (Pradhan, 1999) while overall response rates are typically less than 30% (Kaplowitz, Halock, & Levine, 2004). It has been argued by Sheehan (2001) that not only are response rates declining but also that some of the techniques applicable to mail surveys to increase response rates do not seem to significantly affect response rates to e-mail surveys. Dillman (2000), states that low response rates do not necessarily suggest bias because the respondent's characteristics may still be representative of the population from which it was drawn.

Sample bias is a final limitation to this study. Participation in this study was optional, therefore volunteering introduces a potential for subject bias which reduces the credibility of the questionnaire results. Since the questionnaire was deployed electronically the possibility of false respondents cannot be entirely excluded. Although the researcher took measures to prevent it in the construction of questionnaire items, social desirability factors may have affected the study results. Also, some respondents questioned the anonymity of the survey, and therefore answered less than truthfully. According to Trochim (2001) respondents may answer less than truthfully in an attempt to make themselves somehow look better to the researcher.

Recommendations for Academic Advisors

While the focus of this study was on advising preference and individual learning style, other important findings emerged as it pertains to academic advising preference

through the qualitative analysis of the open-ended questions, the APS, and the additional advising question on future preference.

1. Academic advisors with an interest in reaching students through various approaches that are responsive to traditional age university students should consider the comments of students in the open-ended section for implementing and/or expanding campus academic advising services. The student's candid responses from the open-ended questions regarding their likes and dislikes of online and face-to-face advising provides potentially useful information for practitioners planning advising programs.

Based on the open-ended responses, it was revealed that the majority of students prefer the ability to ask questions, and receive the face-to-face personal contact that offers the reassurance not always provided online. At the same time students also prefer an online advising system that does not take up much of their time and is easy to use. Many students generally do not like waiting for appointments and having to take time out of their schedule for face-to-face advising; online advising can provide a convenient alternative.

2. Academic advisors should consider designing academic advising systems that offer the students 24 hour access to advising and information. The open-ended comments revealed a general theme that students prefer advising that they can access when and where they want. Thus, based on the responses to the open ended questions, academic advisors should consider advising services that offer a help desk approach that affords students access to advisors and useful information electronically any time of day.

3. Consideration should be given to affording students access to advising services that utilize audio, video and application sharing of documents such as advising forms,

which would be included in the advising system. As technology changes, practitioners should avail themselves of technological tools and approaches that support a 24 hour approach to academic advising. As such, consideration should be given to assigning advisors to work in shifts so they can be available more than the traditional eight to five workday. It is possible that, over time, demands for onsite advising could be reduced or eliminated with the availability of electronic support and advisors anytime and anywhere there is access to a computer.

In sum, the candid responses in the open-ended questions, APS, and the additional advising question on future preference suggest that students prefer characteristics of both advising methods. These recommendations should be taken into account when developing a 24 hour online advising system using technological support systems. A priority should be placed on student input when designing and implementing face-to-face and technologically supported academic advising systems.

Recommendations for Future Study

Although this study is limited to one university and has other limitations, the findings offer insights for future study.

1. This research found no significant relationship between learning style and preferences for academic advising services. Future research could replicate that part of this study which found no significant relationship between the dependent variable of the APS and the independent variable of learning style.

2. An instrument other than the BLSI might prove more precise in delineating learning styles. The BLSI was not as discriminating as the researcher hoped. The researcher calculated Cronbach's alphas for the BLSI and observed reliability measures

58

of .52 for visual, .52 for auditory, and .38 for kinesthetic/tactile. While the BLSI may be useful for quickly determining a student's preferred learning style at university career centers, the reliability measures suggest that the utilization of a more useful and practical instrument for research purposes could perhaps more accurately quantify a student's learning style.

3. This study's response rate of 14.8% was low for survey research. Several research-based methods were used by the researcher to maximize the return rate as outlined in Chapter 3. While the findings contribute to and create the literature on academic advising preference as it pertains to individual learning style, it requires validation through further research. It is recommended that replication studies be conducted to support or disconfirm the validity of this study's findings.

4. A student needs based assessment could be developed to further explore what students need and want from academic advising. Since more than half of the students in this study preferred a combination of both online and face-to-face academic advising, more exact descriptors of how students define these needed services is warranted. This assessment could further explore the characteristics students prefer when creating new advising services.

5. Since this study was limited to university freshmen students, future studies should explore sophomores, juniors and seniors preferences in academic advising services. It is possible that as a student matriculates in college, his or her needs and wants may change, especially in areas of mentoring versus information only advising, since they will have had more experience and exposure to both methods.

6. Additionally, increasing the response rate may be achieved by employing more qualitative methodologies rather than quantitative. While this response rate was small, but respectfully representative, future researchers should make intentional efforts to increase the response rate by offering incentives, such as vouchers, prizes, money, and/or donations to all potential participants

Conclusions

This study is a first step in exploring the relationship between academic advising preference and individual learning style. The existing literature base presents academic advising methods and individual learning styles as two separate bodies of research. The results of this study expand and bridge the gap between those bodies of research. There were a few limitations to the study that affected this study that included small sample size, response rate, BLSI reliability, online survey research and sample bias. With a few future study modifications these limitations can be reduced. While the results of this study conclude that a student's preferred method of academic advising is not related to individual learning style, characteristics of academic advising emerged that could be explored in determining academic advising preference when examining online advising vs. face-to-face advising. A factor that may have accounted for academic advising preference was the student's need for advising at that moment rather than learning style. The open-ended responses suggest that motivation, whether it be for convenience or usability may account for preference. Instead of preference relying on learning style, a student that is either required to be advised or has a specific concern may seek out an advising service that is accommodating more often.

Summary

The purpose of this study was to examine student's preferred methods of academic advising services and whether it related to their individual learning style. Additionally, the relationship between the participants' learning styles and preferred methods of academic advising was examined in the presence of gender, ethnicity, college major, high school GPA, location, and employment.

Students' learning style was measured by the BLSI. Academic advising preference and demographic information was measured with a researcher-designed questionnaire. All students (n=1,184) who completed the OARS were contacted via e-mail and received a web link to the BLSI and student questionnaire. Correlation and multiple regression analysis were used to analyze the quantitative data. A qualitative analysis of four open-ended survey questions was completed. The results found no relationship between participants' learning styles and their preferred methods of academic advising services. Additionally, gender, ethnicity, college major, high school GPA, location, and employment did not moderate the relationship between participants' learning styles and their preferred methods of academic advising services.

When considering the recommendations for advisors it should be noted that information on advising preference was produced independently of learning style. Since this study is the first study to attempt to determine a link between advising preference and learning style, it is possible that this study failed to find a connection that was there. The researcher urges further study of academic advising preference and learning styles in an effort to promote the creation of a multifaceted advising system utilizing current mediums of delivery.

61

APPENDIX A

Survey Questions

Student Questionnaire

During the summer before you began taking courses at FAU, you were advised through the Online Advising & Registration System (OARS) for the Fall 2008 semester. Below are 4 images of the OARS website to refresh your memory.

Iajor: Business-Prebusiness

thlete(recruited to play a varsity sport for FAU)? No

niversity Scholars Program? No

isabled Student? No

ternational Student? No

t Personal Information

Transferred Courses

Iath Placement Score : 13%

ourse Title	Grade/Exam Score	Comments

t Transferred Courses

Selected Courses

Subject	First Choice	OK	Comments	Second Choice	OK	Comments
Communications	ENC 1101	☐		ENC 1101	☐	
Mathematics	MAC 1105 & Lab	☐		MGF 1106	☐	
ocial Sciences	ECP 2002	☐		ECO 2023	☐	
Humanities Writing	None	☐		None	☐	
Natural Sciences	None	☐		None	☐	
Humanities Appreciation	MUL 2010	☐		THE 2000	☐	
reshman Seminar	None	☐		None	☐	
lective #1 (optional)		☐			☐	
lective #2 (optional)		☐			☐	
Comments						

t Selected Courses

PROVE STUDENT APPLICATION

JECT STUDENT APPLICATION

64

Transferred Courses

Math Placement Score : %

Course Title	Grade/Exam Score	Comments
AP Chemistry		
AP Psychology		
AP Government		
AP English Literature and composition		

Advisors approved courses and made comments

Edit Transferred Courses

Selected Courses

Subject	First Choice	OK	Comments	Second Choice	OK	Comments
Communications	ENC 1101	☑	Pending AP scores	ENC 1101	☑	Pending AP scores
Mathematics	MAC 2233	☐	Pending math placement exam	MAC 1147	☐	NO, not needed for Business majors
Social Sciences	PAD 2258	☑	However, if you receive AP credit for psychology & US Gov't then PAD 2258 will count as an elective for a business major	PAD 2258	☑	However, if you receive AP credit for psychology & US Gov't then PAD 2258 will count as an elective for a business major
Humanities Writing	PHI 2010	☑	Pending receipt of transcripts for ENC 1101 & ENC 1102	PHI 2010	☑	Pending receipt of transcripts for ENC 1101 & ENC 1102
Natural Sciences	GLY 2100	☑	However, only if you receive lab credit qith chemistry AP, otherwise you still need a natural science with a lab	CHM 2045 & Lab	☐	Not if AP credit is given
Humanities Appreciation	ARC 2208	☑		ARC 2208	☑	
Freshman Seminar	SLS 1503	☑		SLS 1503	☑	
Elective #1		☐			☐	

During the Fall you were advised face-to-face with an academic advisor for the Spring 2009 semester. Thinking back on these experiences, please indicate how important each of the following aspects of advising is to you:

	Very important	Important	Somewhat important	Not important
Being able to access advising services anywhere, anytime	○	○	○	○
Receiving personal attention from an advisor	○	○	○	○
Not having to wait for an advising appointment	○	○	○	○
Discussing course selections with a real person	○	○	○	○
Getting through the advising process quickly	○	○	○	○

What did you like about OARS (online advising)?

[blank text box]

What did you **NOT** like about OARS (online advising)?

[blank text box]

What did you like about face-to-face advising?

[blank text box]

What did you **NOT** like about face-to-face advising?

[blank text box]

In the future, if you had the choice what would you prefer?
- ○ Online advising
- ○ Face-to-face advising
- ○ A combination of online and face-to-face advising

Barsch learning Style Inventory

Read each statement carefully and select the best response

		Often	Sometimes	Seldom
1)	Can remember more about a subject through listening than reading	○	○	○
2)	Follow written directions better than oral directions.	○	○	○

		Often	Sometimes	Seldom
3)	Like to write things down or take notes for a visual review.	○	○	○
4)	Bear down extremely hard with a pen or pencil when writing.	○	○	○
5)	Require explanations of diagrams, graphs or visual directions.	○	○	○
6)	Enjoy working with tools.	○	○	○
7)	Are skillful with and enjoy developing and making graphs and charts.	○	○	○
8)	Can tell if sounds match when presented with pairs of sounds.	○	○	○
9)	Remember best by writing things down several times.	○	○	○
10)	Can understand and follow directions on maps.	○	○	○
11)	Do better at academic subjects by listening to lectures and tapes.	○	○	○
12)	Play with coins or keys in pocket.	○	○	○
13)	Learn to spell better by repeating the letters out loud than by writing the word on paper.	○	○	○
14)	Can better understand a news article by reading about it in the paper than by listening to radio.	○	○	○
15)	Chew gum, smoke or snack during studies.	○	○	○

		Often	Sometimes	Seldom
16)	Feel the best way to remember is to picture it in your head.	○	○	○
17)	Learning spelling by "finger spelling" the words.	○	○	○
18)	Would rather listen to a good lecture or speech than read about the same material in a book.	○	○	○
19)	Are good at solving and working on jigsaw puzzles and mazes.	○	○	○
20)	Grip objects in hands during learning period.	○	○	○
21)	Prefer listening to the news on the radio rather than reading about it in a newspaper.	○	○	○
22)	Obtain information on an interesting subject by reading relevant materials.	○	○	○
23)	Feel very comfortable touching others, hugging, handshaking, etc.	○	○	○
24)	Follow oral directions better than written ones.	○	○	○

Demographics

What is your gender?

○ Female

○ Male

○ I would prefer not to say

Which of these best describes your ethnic background?

- ○ Asian or Pacific Islander
- ○ American Indian or Alaskan Native
- ○ Black, non-Hispanic
- ○ Caucasian (White), non-Hispanic
- ○ Hispanic
- ○ Other
- ○ I would prefer not to say

Which College is your major in?

- ○ Architecture, Urban & Public Affairs
- ○ Arts and Letters
- ○ Business
- ○ Education
- ○ Engineering
- ○ Nursing
- ○ Science
- ○ Undeclared Major

What was your High School Grade Point Average (GPA)?

- ○ less than 2.0
- ○ 2.0-2.9
- ○ 3.0-3.9
- ○ 4.0 or above
- ○ I do not remember

Where were you located when you completed OARS?

- ○ Palm Beach County
- ○ Broward County
- ○ Florida (outside of Palm Beach and Broward Counties)
- ○ Out of state
- ○ Out of the country

Are you employed?

- ○ Yes
- ○ No

If yes, do you work:

- ○ On-campus
- ○ Off-campus

If yes, how many hours per week do you work?

- ○ 1-10
- ○ 11-20
- ○ 21-30
- ○ 31-40
- ○ 41 or above

APPENDIX B

Permission Letter

Freshman Academic Advising Services
777 Glades Road
Boca Raton, FL 33431
tel: 561.297.3064
fax: 561.297.3132
freshmanadvising@fau.edu
www.fau.edu

MEMORANDUM

TO: Dr. Edward E. Pratt
Dean, Undergraduate Studies

THRU: Deborah Minney (W·M·)
Assistant Provost and Director

FROM: Jess Tuck JT
Coordinator, Academic Support Services

DATE: August 26, 2008

SUBJECT: Online Advising & Registration System (OARS) participants' email addresses for dissertation

*approved.
Edward E. Pratt
8/27/08*

This letter is to request permission to access the email addresses of freshman students who have completed OARS for dissertation use. I am examining student's preferred methods of academic advising services and whether it relates to their individual learning style. The population to be contacted will be based on the number of participants of OARS. Those who participate in OARS and then are subsequently advised in person the following semester will be surveyed. The OARS database will only be used to generate a list of subjects. Those subjects will be sent an email explaining the assessment with a separate web link included to the survey if they choose to participate. Their email will not be linked to the survey to protect their identity. The email list will be deleted after use. My interest is only in the data. All participant information will not have any personally identifiable information.

Please feel free to contact me at (561) 251-9037 or jtuck@fau.edu if you have any questions.

:JT

Boca Raton • Dania Beach • Davie • Fort Lauderdale • Jupiter • Treasure Coast
An Equal Opportunity/Equal Access Institution

72

APPENDIX C

Initial Email

Dear Student,

Be on the lookout for an email very soon that will examine students' preference of online versus face-to-face academic advising based on individual learning styles. **This will take less than 10 minutes!**

The subject heading in the email will be: Your ATTENTION is needed

Sincerely,

Jess Tuck

APPENDIX D

Cover Letter/Consent Form

Cover Letter/Consent Form

Dear Student,

Help make academic advising even better in less than 10 minutes!

Hello, my name is Jess Tuck and I am an academic advisor in Freshman Academic Advising Services and a doctoral student at Florida Atlantic University. The topic of my dissertation focuses on whether students prefer to be advised online or face-to-face, and if learning style has an effect on this preference.

Title of Research Study: Students' Preference of Online Versus Face-to-face Academic Advising Based on Individual Learning Styles.

Investigators: Dr. Deborah L. Floyd, Professor of Higher Education & Doctoral Coordinator and Jess Tuck, Doctoral Student, Education Leadership, Florida Atlantic University.

Purpose: The purpose of this study is to examine students' preference of online versus face-to-face academic advising based on individual learning styles. For the purpose of this study academic advising is defined as the collaboration between an academic advisor and student to define and assess academic goals; select appropriate courses for meeting the student's academic goals; gain a clear understanding of institutional policies, procedures and resources; develop decision-making skills; and assist the student in becoming self-directed and self-sufficient.

Procedures: Participation in this study will require participants to click on the link provided and answer questions on one survey that will take no more than 5-10 minutes to complete.

Risks: The risks involved with participation in this study are no more than one would experience in regular daily activities. As a participant, you can withdraw from this study at any point, as participation is voluntary. There are no effects or risks associated with withdrawing from this study.

Benefits: Potential benefits that participants may attain from participation in this research study include greater knowledge about their own learning styles. Other potential benefits may include that by participating in this study you have contributed to a better understanding of additional knowledge about the development of effective academic advising methods. Results of the study will be available at conclusion of research.

Data Collection & Storage: All of the results will be kept confidential and secure and only the people working with the study will see your data, unless required by law. Data will be stored on a secure server hosted in the Office of Institutional Effectiveness & Analysis at FAU, only accessible by departmental staff. Your email will be deleted after initial contact. The researchers have instituted several safeguards to protect the confidentiality of your information in this research. However, as with any online transmission of data, access to this information is a possibility.

Contact Information: For related problems or questions regarding your rights as a subject, the Division of Research of Florida Atlantic University can be contacted at (561) 297-0777. If you have any questions regarding this study or need clarification, please do not hesitate to contact me Jess Tuck at (561) 297-3064 or via email: jtuck@fau.edu. You may also contact my advisor, Dr. Deborah L. Floyd at (561) 297-3550 or via email: dfloyd@fau.edu.

Please print this letter and keep it for your records. By clicking on the link below and answering the following survey questions, you are consenting to participate in this study. ONLY continue if you are 18 years of age or older. (Link will be provided to Survey)

Both your time and effort are greatly appreciated.

Sincerely,

Jess Tuck, M.Ed.
Doctoral Candidate

APPENDIX E

Instrument Scoring

Instrument Scoring

Advising Preference Score (APS)

The APS will be calculated by adding up the values attached to the responses. The scores will range from a low of 5 to a high of 20. The higher the score is, the greater the preference for online advising.

	Very important	Important	Somewhat important	Not important
Being able to access advising services anywhere, anytime	4 ○	3 ○	2 ○	1 ○

	Very important	Important	Somewhat important	Not important
Discussing course selections with a real person	1 ○	2 ○	3 ○	4 ○

	Very important	Important	Somewhat important	Not important
Receiving personal attention from an advisor	1 ○	2 ○	3 ○	4 ○

	Very important	Important	Somewhat important	Not important
Getting through the advising process quickly	4 ○	3 ○	2 ○	1 ○

	Very important	Important	Somewhat important	Not important
Not having to wait for an advising appointment	4 ○	3 ○	2 ○	1 ○

Barsch Learning Style Inventory (BLSI)

SCORING PROCEDURES

OFTEN = 5 POINTS   SOMETIMES = 3 POINTS   SELDOM = 1 POINT

Place the point value on the line next to its corresponding item number. Next add the points to obtain the preference scores under each heading.

	Visual		Auditory		Kinesthetic/Tactual
#	PTS.	#	PTS.	#	PTS.
2	_____	1	_____	4	_____
3	_____	5	_____	6	_____
7	_____	8	_____	9	_____
10	_____	11	_____	12	_____
14	_____	13	_____	15	_____
16	_____	18	_____	17	_____
19	_____	21	_____	20	_____
22	_____	24	_____	23	_____
Total	_____	Total	_____	Total	_____

REFERENCES

Arbaugh, J. B. (2001). How instructor immediacy behaviors affect student satisfaction
and learning in Web-based courses. *Business Communication Quarterly, 64*(4),
42-54.

Barak, M. (1999). Psychological applications on the internet: A discipline on the
threshold of a new millennium. *Applied and Preventive Psychology, 8*(4), 231-
245.

Barbe, W., & Swassing, R. (1979). *Teaching through modality strengths: Concepts and
practices.* Columbus, OH: Zaner-Bloser.

Barrett, J. (2002). Four years of portability: Perspectives on a laptop program.
Multimedia Schools, 9(4), 46-50.

Barsch, J. (1980). Barsch Learning Style Inventory. Novato, CA: *Academic Therapy
Publications*, *15*(4), 467-470.

Beal, P. E., & Noel, L. (1980). *What works in student retention?* Iowa City, IA:
American College Testing Program.

Bednorz, J. E. (2005). Career counseling effects on motivation levels of community
college students. *Dissertation Abstracts International, 66* (05), 1606A. (UMI
No.3174551)

Bentley-Gadow, J. E., & Silverson, K. (2005). *The sequential advising model for group
advising: Modifying delivery venues for freshmen and transfer students*. Retrieved

May 1, 2008, from

http://www.nacada.ksu.edu/Clearinghouse/AdvisingIssues/Group.htm

Berkson, J. (2005). Learning online. *Writer, 118*(5), 23-25.

Burke, K. (2000). A paradigm shift: Learning-styles implementation and preservice

teachers. In R. Dunn & S.A. Griggs (Eds.), *Practical approaches to using*

learning styles in higher education (pp. 85-94). Westport, CT: Bergin & Garvey.

Button, G. E. (1991). Audio-tutorial biology, andragogy, and self-esteem: Relationships

among independent and dependent variables. Retrieved July 2, 2008, from

Dissertations & Theses: Full Text database. (Publication No. AAT 9211068)

Caine, R. N., & Caine, G. (1997). *Education on the edge of possibility*. Alexandria, VA:

Association for Supervision and Curriculum Development.

Canonica, J. N. (2002). Meeting the first year advising needs of non-traditional male and

female students enrolled in a Mid-Atlantic community college. Retrieved July 7,

2008, from *Dissertations & Theses: Full Text database*. (Publication No. AAT

3067766)

The Carnegie Foundation for the Advancement of Teaching. (n.d.). Retrieved August 26,

2008, from

http://www.carnegiefoundation.org/classifications/sub.asp?key=748&subkey=138

26&start=782

Carstensen, D. J., & Silberhorn, C.A. (1979). *A National Survey of academic advising,*

final report. Iowa City, IA: The American College Testing Program.

Caruso, J. B., & Salaway, G. (2007). *The ECAR study of undergraduate students and*

information technology, 2007. EDUCause Center for Applied Research.

Chen, C. (2001) Preferred learning styles and predominant thinking styles of Taiwanese

    students in accounting classes. Retrieved July 3, 2008, from *Dissertations &*

    Theses: Full Text database. (Publication No. AAT 3007054)

Cicco, G. (2007) A comparison of online instruction and in-class instruction as related to

    graduate students' achievement, attitudes, and learning-style preferences

    Retrieved May 1, 2008, from *Dissertations & Theses: Full Text database*.

    (Publication No. AAT 3272794)

Coffield, F., Moseley, D., Hall, E., & Ecclestone, K. (2004). Learning styles and

    pedagogy in post-16 learning: a systematic and critical review. London: Learning

    and Skills Research Centre. Retrieved September 26, 2008, from

    http://www.lsneducation.org.uk/research/reports/

Cook, J. E., & Doyle, C. (2002). Working alliance in online therapy as compared to face-

    to-face therapy: Preliminary results. *CyberPsychology & Behavior, 5*(2), 95-105.

Coolbaugh, A. M. (2004) Assessing technology proficiency in higher education: An

    observation study to identify critical issues. Retrieved October 7, 2008, from

    Dissertations & Theses: Full Text database. (Publication No. AAT 3146570)

Cooper, L.W. (2001). A comparison of online and traditional computer applications

    classes. *T.HE. Journal, 28*(8), 52-58.

Creamer, D. G. (2000). Use of theory in academic advising. In V. N. Gordon, & R. H.

    Wesley (Eds.), *Academic advising: A comprehensive handbook.* San Francisco:

    Jossey-Bass.

Curry, L. (1987). *Integrating concepts of cognitive or learning styles: A review with attention to psychometric standards.* Ottawa: Canadian College of Health Services Executives.

Davis, E. C., Nur, H., & Ruru, S. A. A. (1994). Helping teachers and students understand learning styles. *English Teaching Forum*, *32*(3), 12-19.

DeBello, T. (1990). Comparison of eleven major learning styles models: Variables appropriate populations, validity of instrumentation, and the research behind them. *Journal of Reading, Writing, and Learning Disabilities International, 6*(3), 203-222.

Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method. 2nd ed.* New York, NY: John Wiley & Sons.

Drennan, J., Kennedy, J., & Pisarski, A. (2005). Factors affecting student attitudes toward flexible online learning in management education. *Journal of Educational Research, 98*(6), 331-338.

Dunn, R., & Debello, T. (1999). *Improved test scores, attitudes, and behaviors in America's schools: Supervisors' success stories*. Westport, CT: Bergin &Garvey.

Dunn, R., & Dunn, K. (1979). Learning styles/teaching styles: Should they … Can they …Be matched? *Educational Leadership, 36*(4), 238-244.

Dunn, R., & Dunn K. (1993). *Teaching secondary students through their individual learning styles: Practical approaches for grades 7-12*. Boston: Allyn & Bacon.

Dunn, R., Dunn, K., & Price, G. E. (1978). *Learning styles inventory manual.* Lawrence, KS: Price Systems.

Dunn, R., & Griggs, S. A. (1995). *Learning styles: Quiet revolution in American secondary schools*. Westport, CT: Praeger.

Dunn, R., & Griggs, S. A. (2000). *Practical approaches to using learning styles in higher education*. Westport, CT: Bergin & Garvey.

Dunn, R., & Griggs, S.A. (Eds.). (2003). *Synthesis of the Dunn and Dunn learning-style model research: Who, what, when, where, and so what?* New York: St. John's University.

Dupin-Bryant, P.A. (2004). Pre-entry variables related to retention in online distance education. *American Journal of Distance Education, 18(4),* 199-206.

Erdem, M. (2003). Examining the effect of teaching method and learning style on student course achievement for hospitality students. Retrieved September 15, 2008, from *Dissertations & Theses: Full Text database*. (Publication No. AAT 3106540)

Florida Atlantic University. (2008). *2007 - 2008 Quick Facts*. Retrieved June 3, 2008, from http://www.fau.edu/academic/iea/inst/facts.htm

Fortune, M. F., Shifflett, B., & Sibley, RE. (2006). A comparison of online (high tech) and traditional (high touch) learning in business communication courses in Silicon Valley. *Journal o/Education/or Business, 81*(4), 210-214.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction* (6th ed.). White Plains, NY: Longman.

Gallagher, P. J., & Demos, G. D. (Eds.). (1983). *Handbook of counseling in higher education*. New York : Praeger.

Galowich, P. (1999). *Learning styles, technology attitude and usage: What are the connections for teachers and technology in the classroom?* (Report No. IR 019

584). San Antonio, TX: Society for Information Technology & Teacher Education

International Conference. (ERIC Document Reproduction Service No. ED4323

12)

Gardner, J. (1995). Perspectives on academic advising for first year students: Present and

future. In: *First Year Academic Advising: Patterns in the Present Pathways to the*

Future. Monograph Series, No.18, National Resource Center for the Freshman

Experience and Students in Transition, University of South Carolina, Columbia,

SC.

Gordon, V. N. (1984). *The undecided college student: An academic and career advising*

challenge. Springfield, IL: Charles C. Thomas.

Gordon, V. N., & Habley, W. R. (2000). *Academic advising: a comprehensive handbook*.

National Academic Advising Association. San Francisco: Jossey-Bass.

Graff, M., Davies, J., & McNorton, M. (2004). Cognitive style and cross cultural

differences in internet use and computer attitudes. *European Journal of Open,*

Distance and E-Learning, Retrieved March 21, 2008, from

http://www.eurodl.org/

Griggs, S. A. (1991). Learning styles counseling. *ERIC Digest*. ED341890. Retrieved

July 23, 2008 from http://www.ericdigests.org/1992-4/styles.htm

Grites, T.J. (1979). *Academic advising: Getting us through the eighties.* Washington, DC:

American Association for Higher Education, Educational Resource Information

Center (AAHE-ERIC).

Guterman, J. & Kirk, M (1999). Mental health counselors and the internet. *Journal of*

Mental Health Counseling, 21(4), 309-325.

Guzman, A. (2007). Academic advising: Meeting the advising needs of first year non-
traditional students enrolled at a two year community collegeRetrieved July 7,
2008, from *Dissertations & Theses: Full Text database*. (Publication No. AAT
3240432)

Habley, W. R. (1993). *Fulfilling the promise? Final report, ACT fourth national survey
of academic advising*. Iowa City, IA: American College Testing Program.

Hairston, N. R. (2007). Employees' attitude toward e-learning: Implications for policy in
industry environments. Retrieved July 3, 2008, from *Dissertations & Theses: Full
Text database*. (Publication No. AAT 3257874)

Halsne, A. M., & Gatta, L. A. (2002). Online versus traditionally delivered instruction: A
descriptive study of learner characteristics in a community college setting. *Online
Journal of Distance Learning Administration,* 5. Retrieved July 8, 2008, from
http://www.westga.edu/~distance/ojdla/

Hernandez, T. R. (2007) Academic advising in higher education: Distance learners and
levels of satisfaction using Web camera technology. Retrieved July 8, 2008, from
Dissertations & Theses: Full Text database. (Publication No. AAT 3276365)

Howland, J. L., & Moore, J. L. (2002). Student perceptions as distance learners in
Internet-based courses. *Distance Education, 23*(2), 83-195.

Jackson, D., Chow, S., & Leitch, R.A. (1997). Toward an understanding of the behavioral
intention to use an information system. *Decision Sciences, 28*(2), 357-389.

Kaplowitz, M., Hadlock, T., & Levine, R. (2004). A comparison of web and mail survey
response rates. *Public Opinion Quarterly*, *68*(1), 94-101.

Kindie, H. A. (2005). Community college students' perceptions of classroom climate. Retrieved March 31, 2009, from *Dissertations & Theses: Full Text database*. (Publication No. AAT 3164933)

Kolb, D. A. (1981). Learning styles and disciplinary differences. In A. W. Chickering & Associates (Eds.), *The modern American college* (pp. 232-255). San Francisco: Jossey-Bass.

Kolb, D. A. (1984). *Experimental learning: Experience as a source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.

Kolb, A., & Kolb, D. (2005). *The Kolb Learning Style Inventory - Version* 3.1: *2005 technical specifications* (31st ed.). Retrieved July 24, 2008, from http://www.learningfromexperience.com/images/uploads/Tech_spec_LSLpdf

Koyalan, A. (2004). Do what I do, not what I say. *International Association of Teachers of English as a Foreign Language Research News*. Retrieved July 22, 2008, from http://sfl.ieu.edu.tr/docs/tdu/publications/Do%20What%20I%20Do,%20Not%20 What%20I%20Say%20(Aylin%20Koylan).pdf

Komives, S. R. (1999). The changing nature of work in higher education. In C.S. Johnson & H.E. Cheatham (Eds.), *Higher education trends for the next century: A research agenda for student success* (pp. 35-42). Washington, DC: American College Personnel Association.

Kratzig, G. P., & Arbuthnott, K. D. (2006). Perceptual learning style and learning proficiency: A test of the hypothesis. *Journal of Educational Psychology, 98*(1), 238-246.

Kramer, H. C., & Gardner, R. E. (1977). *Advising by faculty*. Washington, DC: National

    Education Association.

Kramer, G., Chynoweth, B., Jensen, J., & Taylor, L. (1987). Developmental advising: A

    taxonomy of services. *NASPA Journal*, *24,* 23-31.

Kuh, G. D. (2001). *The national survey of student engagement: Conceptual framework*

    and overview of psychometric properties. Retrieved July 7, 2008, from

    http://nsse.iub.edu/pdf/conceptual_framework_2003.pdf

Laszlo, J. V., Esterman, G., & Zabko, S. (1999). Therapy over the internet? Theory,

    research & finances. *CyberPsychology & Behavior*, 2(4), 293-307

Lee, L. & Li, C. (2008). The moderating effects of teaching method, learning style and

    cross-cultural differences on the relationship between expatriate training and

    training effectiveness. *The International Journal of Human Resource*

    Management, *19*(4), 600-619. Retrieved September 15, 2008, from

    http://www.informaworld.com/10.1080/09585190801953640

Lin, C. (1999). *Learning style and preferred sources of information regarding distance*

    education in Taiwan. Retrieved from *Dissertations and Theses database*. (AAT

    9946689)

Liu, Y., & Ginther, D. (1999). Cognitive styles and distance education. *Online Journal of*

    Distance Administration, 2(3), pp. 22 – 41.

Miles, M. B., & Huberman, A.M. (1994). *Qualitative data analysis: An expanded*

    sourcebook (2nd ed.). Thousand Oaks, CA: Sage Publications.

Moore, M. G., & Anderson, W. G. (2003). *Handbook of distance education*. Mahwah,

    NJ: Lawrence Erlbaum Associates, Inc.

Myers, I., McCaulley, M., Quenk, N., & Hammer, A. (2003). *MBTI manual: A guide to the development and use of the Myers-Briggs Type Indicator* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.

Nelson, D. B. (2007). Academic Concept Mapping (ACM): A critical thinking tool in academic advising for improving academic performance in college freshmen. Retrieved July 9, 2008, from *Dissertations & Theses: Full Text database*. (Publication No. AAT 3277112)

Nisbet, J. A., Ruble, V. E., & Schurr, K. T. (1981, October). Advising with 20/20 vision: Improving student retention by using learning styles information in academic advising. Paper presented at the Annual Meeting of the National Academic Advising Association, Indianapolis, IN.

Noel, L. (1978). *Reducing the dropout rate*. San Francisco: Jossey-Bass.

Pradhan, K. (1999). The Internet in Nepal: A survey Report. *The International Information and Library Review*, *31*(1), 41–47.

Price, G., Dunn, R., & Dunn, K. (1979, 1979-1993). Productivity Environmental Preference Survey. Retrieved June 16, 2009, from Mental Measurements Yearbook database.

Reiff, J. C. (1992). *What research says to the teacher: Learning styles.* Washington DC: National Education Association.

Rogelberg, S. G., & Stanton, J. M. (2007). Understanding and dealing with organizational survey nonresponse. *Organizational Research Methods, 10*(2), 195-209.

Sheard, J., & Lynch, J. (2003). Accommodating learner diversity in Web-based learning

    environments: Imperatives for future developments. *International Journal of*

    Computer Processing of Oriental Languages, 16(4), 243-260.

Sheehan, K. (2001). E-mail survey response rates: A review. *Journal of Computer*

    Mediated Communication, 6. doi:10.1111/j.1083-6101.2001.tb00117.x

Stevenson, J., & Dunn, R. (2001). Knowledge management and learning styles:

    Prescriptions for future teachers. *College Student Journal*, *35*(4), 483-490.

Tendy, S., & Geiser, W. F. (1998/1999). The search for style. It all depends on where you

    look. *National Forum of Teacher Education Journal, 9*(1), 3-15.

Tinto, V. (1987). *Increasing student retention*. San Francisco: Jossey Bass.

Trochim, W. (2001). *The research methods knowledge base* (2nd ed.). Cincinnati, OH:

    Atomic Dog Publishing.

Uhlik, K. S. (2005). If advising is teaching, then learning style matters. *NACADA*

    Clearinghouse of Academic Advising Resources. Retrieved March 27, 2008, from

    http://www.nacada.ksu.edu/Clearinghouse/AdvisingIssues/Mental-Health.htm

Wilder, J. R. (1981). A successful academic program. *Journal of College Student*

    Personnel, 16, 281.

Yu, J., & Cooper, H. (1983). A quantitative review of research design effects on response

    rates to questionnaires. *Journal of Marketing Research, 20*(1), 36-44.