

LEARNING STYLES OF EFL SAUDI COLLEGE-LEVEL STUDENTS IN ON-
LINE AND TRADITIONAL EDUCATIONAL ENVIRONMENTS

A Dissertation

Submitted to the School of Graduate Studies and Research

In Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

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May 2011

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ABSTRACT

Title: Learning Styles of EFL Saudi College-level Students in On-line and Traditional Educational Environments

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The primary purpose of this study was to examine Saudi EFL college students' perceptual learning styles in order to determine whether their perception of their learning styles is a predictor of academic persistence, satisfaction and success in different learning environments.

Participants' perceptions about their learning styles in both online-based and class-based environments, and their resulting satisfaction/dissatisfaction and persistence/non-persistence decisions, were explored.

This study employed a concurrent mixed-method approach. Both quantitative and qualitative methods were used. Quantitatively, data was gathered from a sample of 100 college level Saudi EFL students. The students' learning styles were elicited using the Perceptual Learning Styles Preference Questionnaire (PLSPQ) developed by Joy Reid. Qualitatively, individual in-depth interviews were

conducted with two groups that were comprised of six students each representing the two modes of instruction students chose during this study. The interviews were used to answer the questions of the study which related the students' learning styles to their choices, experiences, and satisfaction.

The study findings revealed some interesting results. First, the study presented the preferred learning styles among the Saudi EFL learners. The order of the preferred learning styles was as follows: Tactile, auditory, visual, group, kinesthetic and individual.

Second, the study found no clear correlation between the students' preferred styles and their choice of instructional mode. However, students' satisfaction and success, as well as their positive and negative learning experiences, did correlate with their learning style preferences.

Third, the study supported the idea that students' perceptions of their learning styles are affected by their personality types, cultural beliefs, and teacher's teaching style.

Fourth, the study showed that Saudi EFL students preferred online classes for reasons other than those dictated by their learning styles. However, technology

seems to have created both opportunity and threat within Saudi EFL classes.

Fifth, the research reported on how the students' perceived learning styles affected their use of learning strategies as well as their motivation and confidence in different class formats.

The study concludes with an affirmation on the importance of understanding students' learning styles and meeting students' expectations and needs in the classroom, regardless of class format.

To the two A's of my life: Aisha and Aziz

ACKNOWLEDGMENTS

First and foremost, I thank Allah for His support and bounties. At many points in my academic life, getting to this moment was nothing more than a daydream.

Without the assistance and encouragement of many people, undertaking this work would have been impossible. I extend my gratitude to those who were there when I needed them and played an important role in the successful completion of this dissertation. These people include:

For her endless, across-the-world support, patience and confidence, I express my special thanks - more than words can express -- to my advisor, Dr. Jeannine Fontaine. Your kindness and help were clear in each meeting, email and phone call we exchanged throughout this process.

I am thankful to my dissertation committee: Dr. Michael Williamson and Dr. Gary Dean who supported and shared their time, insights and thoughts.

I am also thankful to the participants in my study, who agreed to share their responses through the questionnaire and the interviews. I am indebted to them all for their cooperation, time, and desire to help.

A big thank you goes to Waleed Al Share and Basim AlHasnan, two colleagues and friends who volunteered to be my contact persons and helped greatly with printing and handling.

I am deeply grateful to my family: my brothers, sisters, and friends, and to my colleagues who supported and encouraged me throughout the process of studying, writing, and rewriting. I acknowledge their help and prayers.

Last but not least, I owe a debt of gratitude to the directors of the Composition and TESOL doctoral program at IUP during the completion of this research, Dr. Ben Rafoth and Dr. Gian Pagnucci. Their help and support were the main motive behind the completion of this work. Thank you both, more than words can express.

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CHAPTER I

INTRODUCTION

Learning styles play a great role in learning. A significant amount of learning style research indicates that students learn, progress and achieve better when their courses are built to meet their learning style preferences (Felder & Silverman, 1988). It is also believed that a student's motivation is increased when their teachers pay enough attention to their learning style preferences (Hein & Budny, 1999). Much of the recent research on learning styles has been geared towards the traditional mode of instruction, i.e. class-based instruction (Loomis, 2000; Demetry, 2002; Felder, 1993; Zywno, 2003). However lately, with the advent and huge growth of online learning, learning styles are also being looked at as a decisive factor in building successful virtual learning environments (Graff, Davies & McNorton, 2004; Tu, 2002). Two limitations are acknowledged when looking at the research on learning styles and online instruction. The first limitation is the researchers' lack of empirical data on the relationships between students' learning style preferences, academic achievement, and attitudes in online courses (Dunn and Griggs, 2003). The second concern is that most studies on online learning and learning styles have been conducted with

undergraduate students rather than graduate students, and it is graduate students who are the main consumers of online learning (Cooper, 2001).

Statement of the Problem

Learning is a humanistic process. It is most likely that what differentiates human beings from any other species is their ability to learn. People are able to acquire new knowledge, advance their existing knowledge and learn new skills. One important aspect of human learning is that it occurs consciously in some situations at some certain times and unconsciously at many other times (Schmidt, 1990). Another important aspect of human learning is that it differs consistently from one person to another (Skehan, 1989, Naimon Frohlich, Stern & Todesco 1978, Rubin, 1975). These differences in the way people learn have led to research that attempts to both study and measure individual learning differences (Schmeck, Ribich & Ramanaiah 1977). Educational research over the last three decades has sought to identify some of the factors that contribute to these differences, and subsequently many questionnaires and inventories have been developed to measure these differences and their effect on learning and teaching.

Among these thoroughly investigated differences is the concept of a learner's 'learning style' (Dunn, 1983; Kolb,

1984; Myers, 1962; Dunn, 1989). More than 30 learning style inventories have been developed and tested. The main motive behind the research in this area is an attempt to answer the following question: How do people learn, particularly if they are not consciously thinking about how they process knowledge?

Keefe (1979, p. 4) defined learning styles as "cognitive, affective, and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment". Stressing the idea of individual differences, Kolb (1984) defined learning styles as the learner's preferred methods of processing and perceiving knowledge. The present study is situated in the context of the insights offered by these two definitions, along with the cognitivist view that learning is a process that a person controls -- that is, an internal process in which information is processed according to individual learning styles.

Background Statement

English as a foreign language (EFL) teaching in Saudi Arabia is faced with many challenges. One of the most salient challenges is the need to employ teaching strategies that recognize students' learning styles. Equally important is the students' need to identify, define and understand

their own learning styles. Teachers need to understand the importance of matching their classroom choices to students' learning styles as well as the implications of mismatches (Reid, 1998). Teachers as well as students need to know how to adapt the best methods of instruction that can help both parties develop and advance.

The two most evident venues for second language instruction are regular class instruction (traditional) and computer based instruction (virtual). Traditional instruction consists of regular classes, physical attendance and face-to-face interaction between teachers and learners. Virtual instruction, on the other hand, takes place in an online environment that does not require physical attendance, nor does it require face-to-face interaction. Instead, it relies on computer mediated systems of communication. The present study looks at students' preferences of one method over the other, and the relationship of that preference to the students' learning styles. Although much of the research done on learning styles has focused on the traditional (classroom-based) method, there is a lack of empirical research on the relationship between learning styles and the choice of, and performance and satisfaction in, online classes (Lessner & De Cicco, 2006). Many researchers believe that students

engage in online classes not because they suit their learning styles, but due to other reasons such as flexibility and convenience (Mupinga, Nora, & Yaw, 2006). This study seeks to reveal the reasons why Saudi students prefer one type of instruction over the other, and investigates the relationships between the reasons they cite and the students' learning styles.

Purpose of the Study

The first aim of this study is to identify the preferred learning styles of Saudi college-level EFL students. As a second goal, the study also aims to investigate the possible relationships between these preferred learning styles and the method of instruction used in the two EFL classroom contexts presented in the previous section, virtual and traditional. The reasons students provide for choosing one method over the other are examined, and the learning styles of both groups are analyzed, in an attempt to discover a set of characteristics for both 'virtual' and 'traditional' learners.

Research Questions

The following specific questions guide the collection and analysis of data:

1- What are the learning styles of EFL Saudi college students, as measured by questionnaire and student self-report? In conjunction with this,

1a. What aspects of learning styles seem to correlate with students' satisfaction, comfort and success in EFL classes in Saudi Arabia?

1b. What positive and negative learning experiences are cited by students, and do these fall into patterns according to the students' learning styles?

2- Do students' learning styles seem to correlate with their choices of online or traditional classrooms in connection with a writing course? If so, in what way? What relationships can be drawn between the two measures?

2a- What are the preferred learning styles of the Saudi EFL virtual learners (those who strongly prefer online instruction)?

2b- What are the preferred learning styles of the Saudi EFL traditional learners (those who prefer traditional classroom instruction)?

3. *-What other regular differences in strategy use, motivation and confidence between Saudi EFL virtual and traditional learners emerge, judging from their perceptions about their learning experiences?*

Research Design

In order to answer these research questions, a mixed method approach has been employed. This approach consists of a concurrent methodology in which quantitative methods represented by questionnaires are combined with a qualitative instrument, represented here by in-depth interviews. The questionnaire used in this study is the Perceptual Learning Style Preference Questionnaire (PLSPQ), which was developed by Joy Reid (1998), (Appendix A). The questionnaire was distributed to 100 EFL Saudi learners taking an introductory writing class at the College of Languages and Translation at King Saud University in Riyadh, Saudi Arabia. The students elicited their perceptual learning styles using the questionnaire, and were given the chance to choose between two modes of instruction for the same course. The first mode was an online (Virtual Learning Environment-based) class and the second mode was a traditional (classroom-based) one. During the course, interviews were conducted with a sample of twelve students,

with two groups of six students each representing the two modes of instruction; in the interviews, the students were asked to reflect on their experiences and perceptions regarding their learning styles and preferred mode of instruction.

Significance of the Study

It is quite clear from the literature on learning styles that an in-depth understanding of learning styles can empower both teachers and students and make the learning process more fruitful (Reid, 1995). The results of this study will provide Saudi EFL teachers and students with awareness that could help them advance the whole EFL process in Saudi Arabia and create more meaningful and effective learning and teaching strategies. This study is also significant in many other ways. Some of these relate to the study's content:

- It is the first study to investigate the Saudi EFL students' learning styles at the college level.
- It investigates the correlation between these learning styles and the primary method of teaching used, (computer-based or class-based).

Other points involve ways in which the study engages and contributes to current issues being generally debated in second language teaching, as well as serving as a foundation

for practical decisions to be made in Saudi Arabia in the near future:

- The results of this study may help curriculum developers in Saudi Arabia choose more meaningful activities and tasks that meet many different learning styles.
- The study has the potential to contribute to the debate on how much technology should be integrated in the Saudi EFL classrooms, and how this technology can best be used in support of students' learning.

This study will contribute to ongoing research in the field of cognitive development among Saudi students.

Location of the Study

The locale for this study is one of the largest and most prestigious Saudi Arabian universities, King Saud University in Riyadh. It is the oldest Saudi university and the largest, in both size and student numbers. This university was chosen for several reasons, two of which I will mention here. Firstly, since King Saud University is the largest university, it has the biggest EFL program. The program is run by the College of Languages and Translation under the Department of European Languages and Translation. The program has two sections, for males and females respectively. It is hoped that this department represents a

wider variety of Saudi students since its students come from different parts of the country. Secondly, the school is a leading Computer-Aided Language Learning (CALL) institution, and has some of the best CALL technology in the country, which will help to validate the data. The CALL instruction provided in this university has in recent times grown immensely, as both instructors and students have begun to acknowledge its benefits (Alkahtani, 2001).

In his survey of four selected Saudi universities, Alkahtani surveyed the CALL instruction used at King Saud University along with three other Saudi universities, and concluded that the implementation of CALL was "minimal and superficial" (p. v) due to several reasons:

a) most of the four schools' instructional equipment was an obstacle and of limited utility; b) the majority of EFL faculty did not have adequate access to instructional equipment, computers, software, or the internet, nor did their students have adequate access to computing services; c) instructional support for using CALL was very limited; d) word processing, e-mail, and the world wide web were the three most frequently utilized CALL resources for EFL instruction; and f) social factors affecting the use of CALL were linked to cultural and religious attitudes held by EFL faculty, administration, and students. (p. v)

Although Alkahtani's conclusions were pessimistic to a degree, Al-Jarf (2005) was optimistic about the

opportunities the World Wide Web alone gave her students when used at King Saud University. She recommends "that the use of blended learning (use of online instruction as a supplement to face-to-face instruction) be extended to other language courses and other college levels" (¶ 10). She also drew on several empirical studies that documented the progress of using CALL technologies among the Saudi EFL learners and describes how they adopted CALL strategies in their daily learning. The latest technology advancement in the College is the introduction of Jusur: a campus-based virtual learning environment that helps deliver courses completely online.

Assumptions

The primary assumption I held in approaching this study is that there is a relation between the students' choice of type of instruction and their learning style. When students are given the choice of either type of instruction, one assumption is that they will usually choose something that would match their learning style, even if they do so unconsciously. A second, related assumption is that students with different learning styles will describe similar learning experiences as positive or negative, but possibly in quite distinct ways. The students' perceptions of positives and negatives may correlate with their learning

styles, a question which this study has tried to address. A third idea is that, since learning styles are unconscious and learners may have no control over them, they may in one way or another affect the learners' choice of learning strategies, which are typically described as conscious and voluntary. Fourth, it is assumed that the learning styles of those learners who prefer online instruction are different from those who favor traditional instruction in ways that the present study has explored. Although learners cited their learning style in talking about their choices, they did so in somewhat inconsistent ways.

Limitations of the Study

Before beginning this research I was aware of several limitations. This study was confined to one small group of college level Saudi students from one on-campus university site and from one geographic location. Also, the focus of the study necessarily limited the themes that have been explored. The research design allowed for a free flow of discussion and elaboration, through which issues other than those relevant to learning styles and methods of instructions were likely to emerge. However, for the purposes of this study these additional issues were not described or analyzed.

Another limitation of this study is the scarcity of previous research that describes Saudi EFL students' learning styles and their relation to their learning and progress.

Need for the Study

In the world of language teaching the debate over revolutionizing the way in which foreign (or additional) languages are taught is overwhelming. Today, technology is at the center of this debate. Online instruction is seen as able to both individualize instruction and create many opportunities for as many learners as possible. However, it must be noted that when decisions about implementing or not implementing technology are made, students' characteristics are given very little concern. The Saudi EFL context is no exception. The introduction of technology in EFL classrooms has been based on administrative decisions, and students' characteristics and preferences have been given little or no thought. Students' preferences and satisfaction with the mode of instruction are believed to be related to their learning styles (Eom, Wen & Ashill, 2006). Thus, this study aims to study Saudi EFL learners' learning styles and their relationship to the students' choices of instructional modes, their use of learning strategies and their positive and negative experiences in learning. The findings of this

study seek to explain Saudi EFL learners' learning styles and contribute to the body of knowledge about their experiences and their perceptions and choices. Ultimately, it is hoped that the findings of this study might lead to understanding ways in which learning environments can be made optimal for Saudi learners, especially but not limited to the context of their English instructional programs.

Definition of Terms

There are several terms in this study that need to be defined. These defined concepts play an important role in grounding this study. Grounding thoughts in authoritative definitions constitutes good research practice. The following paragraphs contain working definitions for these concepts.

Learning style. "Internally based characteristics, often not perceived or consciously used by learners, for the intake and comprehension of new information." (Reid, 1998, p. ix). In this study, learning styles are limited to the main learning styles presented by Reid (1995): visual, tactile, auditory, group, individual, and kinesthetic.

Perceptual learning style. The ways in which students perceive, organize, use, and retain course information through various senses. This aspect of learning style is often identified through self-reporting questionnaires.

Learning strategies. "External skills often used consciously by students to improve their learning." (Reid, 1998, p. ix).

Visual learning. In this type of learning, facts and concepts are associated with graphics and images that learners store and remember. Learners of this type prefer reading over listening and learn more through "seeing."

Kinesthetic learning. Learners of this type learn more through touching things, through experiencing things "hands-on", and through doing rather than listening or reading. They tend to act things out and remember actions rather than words. In other words, they learn "through concrete complete body experience" (Reid, 1995, p. x).

Auditory learning. Learners of this style like sounds and use their ears more often than other learners. Verbal lectures, discussions, talking, and listening are among the preferred ways in which these learners learn. Sometimes learners of this type are called "musical learners" (Medina, 1991).

Tactile learning. In this type of learning, learners learn best through touching and "hands-on" experience.

TOEFL. This acronym refers to the Test of English as a Foreign Language, a test designed and conducted by the ETS

(Educational Testing Services) that is used to measure the level of students in English.

Online learning. This type of instruction includes any type of learning that happens online. It is instruction that is delivered by web-based or Internet-based technologies, whether synchronous or asynchronous. In this dissertation the terms "e-learning" and "virtual learning" are used interchangeably.

Traditional learning. In contrast to online learning, this type of instruction depends on face-to-face learning in a classroom setting. Traditional learning is an engaged, active exploration of information guided by someone with experience, usually a teacher or professor. Learning can take place in small or large classes, lab sessions, or seminars. This instruction is sometimes called Face-To-Face Instruction and refers to activities carried out with the students and instructor meeting synchronously in the same room; it is also referred to as "on-ground" or "on campus" instruction.

Major learning style. The major learning style refers to the one style (of the six styles presented in Reid's instrument) that best fits a given student's profile, i.e. as a visual, tactile, auditory, group, individual, or kinesthetic learner.

Minor learning styles are secondary areas, less strong for any given learner, yet also suited to the learner. These are "areas where you can function well as a learner. Usually, a very successful learner can learn in several different ways, and so you might want to experiment with ways to practice and strengthen your minor learning styles" (Reid, 1998, p. 166).

Negligible learning styles. This term indicates a style that is farthest from the natural style for any given student. "Often a negligible score indicates that you may have difficulty learning in that way. One solution may be to direct your learning to your stronger styles. Another solution may be to try to work on some of the skills to strengthen your learning style(s) in the negligible area(s)" (Reid, 1998, p. 166).

Computer Assisted language Learning (CALL). According to Keobke (1998), the changing nature of CALL makes it hard to define. He presented a broad definition of CALL pedagogy as "any activity in which a learner uses a computer and improves his/her language" (p. 147).

Overview of Coming Chapters

This dissertation consists of seven chapters. This first chapter forms an introduction to the study and

provides a statement of the problem to be explored. It has presented the research questions, briefly described the research design through which this study will answer these questions, and offered a reflection on the importance and significance of this study. This chapter also explains the context in which this research is taking place.

Chapter Two reviews the literature related to the topic under investigation. It reviews some issues related to learning theories, learning styles, and different modes of instruction; it also further explains the context in which this study is conducted, namely the Saudi EFL context.

Chapter Three presents and outlines the methodology for the study. The problem and the questions that drive this research are restated there and followed by a discussion of the research design, setting and participants. As stated earlier, the data collection methods included two instruments: PLSPQ and individual interviews. These instruments are explained thoroughly in this chapter, which also addresses how the data they yielded were analyzed.

Chapter Four contains the quantitative results and the findings of the questionnaire used in this study, as well as the analysis of those results.

Chapter Five includes the qualitative results of the interviews used in this study. This chapter gives

demographic information on the interviewees, who volunteered and were selected for interviewing, then presents and discusses how the main themes that were distilled from these interviews. After that, the chapter presents the answers to the research questions as they emerged from both main data collection instruments.

Chapter Six contains further discussion of the findings, and concludes with implications, recommendations and suggestions for future research.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The objective of this chapter is to frame the study and refine the focus through which the phenomenon of learning styles and their contribution to the learners' advancement and development may be viewed. This chapter reviews the theoretical and empirical literature on learning styles in order to provide a context for this study. The chapter begins with a brief discussion of learning theories in general and language learning theories in particular, and discusses the paradigm shift towards more "learner" oriented approaches as compared with "learning" oriented approaches. It also discusses learners' characteristics and differences, the characteristics of good language learners, learning styles as a differentiating factor, and the relation of learning styles to the method of instruction employed. The difference between learning strategies and learning styles will be explored, and a survey of the current most common learning styles inventories will be presented. A review of EFL instruction in Saudi Arabia is presented, and the two instructional modes to be contrasted in the Saudi EFL context are discussed. As this study is conducted with

somewhat advanced EFL learners taking a writing course, writing instruction and research about EFL/ESL writing is also touched on.

The rationale for providing a review of learning theories is that learning styles are rooted in the way learners learn. According to Fischer and Fischer (1979), style "can be used to clarify and analyze teaching and learning, and styles are hypothetical constructs which help explain the teaching-learning process" (P.245). Reid (1987) defined styles as "a pervasive quality in the learning strategies or the learning behavior of an individual" (p. 89). In later sections of this chapter, learning styles are reviewed with emphasis on learners' differences, types of instruction and the methods used to measure the effect of the learning styles on the learning process. It is, however, important to fully understand learning research and learning theories in order to understand learning styles and their relation to the student's overall learning/teaching experience.

Language Learning Theories

Among the substantial concerns in second language learning is the shift from the language learning process itself to *the learners*. Although this transition has been general across many fields in education, it has taken

particular forms and has had special application in the field of second language instruction.

In this last area, we must acknowledge a history that encompasses the birth of the cognitivist view of language learning as well as the interest of second language acquisition researchers in the "universal" properties of second language learning. These properties include commonalities shared by learners across languages and ages (White, 2003). In its beginnings, this notion was not concerned with the settings in which the language learning process was taking place, nor did it consider the characteristics of the language learner. The rise of a series of 'cognitivist' approaches was a reaction to the behaviorists, who considered learning to be a passive process. The behaviorist view of language learning was that it was "habit formation." Behaviorists viewed learning as a process in which learners form a set of habits as they respond to the stimuli provided by a teacher (Merriam & Caferella, 1999). The behaviorist view of language learning resulted in an emphasis on the proper input of the teacher and avoiding errors produced by the learners. Consequently, most of the research of that era (to just past the middle of the twentieth century) gave primacy to the teacher, while ignoring the learner. By contrast, cognitivists like Chomsky

considered "how people perceive, interpret, remember, and otherwise think about the environmental events they experience" (Ormrod, 1999 p. 145). They also focused on "the internal mental activities such as information processing and memory to explain how learning occurs" (Dean, 2004, P. 7).

This notion of personalized and internal mental processing led to the emergence of the humanistic approach to language learning in the late 1970's. The humanistic approach was built mainly on the work of Maslow (1970) and Rogers (1969). This approach stressed that "learning is part of a personal journey on the part of the learner to fulfill their [learners] potential as a human being, to becoming self-actualized" (Dean, 2004, P.7-8). Based on these views, it can be concluded that the learner is the center of the learning process and he/she is the central theme in the cognitivist approach and the approaches to follow. The teacher's role in the humanistic approach, and in applications of other viewpoints that oppose the behaviorist position, is as a facilitator who helps students on their learning journey and maximizes the learning opportunities of the students. This idea was the basis of much of the research which has contributed to the debate on student-centered verses teacher-centered instruction, with

respect to the language learning classroom over the last two decades (Cyrus, 2006).

Following in the footsteps of the humanists, the social learning approach appeared. Albert Bandura (1986) argued that learning takes place in a social context and that learners construct knowledge through their interaction with other people in social settings (Fosnot, 1996; Steffe & Gale, 1995). Along the same lines, a group of learning theorists called 'constructivists' (Vygotsky, 1978, 1981; Wertsch 1985; Cole, 1996) came to argue that learning comes out of experience. The resulting 'constructivist' theories of learning have been divided into three groups:

- Exogenous constructivism, which considers knowledge to be a reconstruction of structures that exist in the external world;
- Endogenous constructivism, which claims that learners construct their knowledge through transforming and reorganizing their existing cognitive structures; and
- Dialectal constructivism, which takes a middle position between the preceding two. This one suggests that knowledge grows through the interactions of internal (cognitive) and external (environmental and social) factors. (Woolfolk, 1998)

According to the constructivists, learners are active participants in their learning. They propose that in order for teachers to teach well, they must understand the mental models that students use to perceive the world and the assumptions they make to support those models (Brooks & Brooks, 1993). They also state that the purpose of learning is for an individual to construct his or her own meaning, not just memorize the 'right' answers and regurgitate someone else's meaning (Brooks & Brooks, 1993).

Among the most quoted constructivists is Vygotsky (1978), who described good language learners as those who interact with the external world successfully. He asserted the idea that language learning first happens on an "intermental plane" amongst people and their cultures, and is only later adopted by individuals on an "intramental plane" or personal level (Lee and Smagorinsky, 2000 p. 2). In his seminal work *Thought and Language*, Vygotsky (1986) speaks about the never-ending inner dynamic process of language learning that happens during childhood. He states that "the relation of thought to word is not a thing but a process, a continual movement back and forth from thought to word and word to thought" (p. 218).

Among those who have advanced the socio-cultural shift in language learning is Lantolf (1994), who was affected by

Vygotsky's ideas (Lantolf & Appel, 1996; Lantolf, 2000; Lantolf & Pavlenko, 2001; Hasan, 2002). Lantolf based his work on the Vygotskian idea that the potential for cognitive development depends upon the "zone of proximal development" (ZPD). The ZPD is the level of development attained when children engage in social interaction, and Vygotsky claims that the full development of the ZPD depends upon social interaction. This theory also implies that the range of skill that can be developed with adult guidance or peer collaboration can exceed what can be attained alone. In Lantolf and Thorne's (2006) words, language is "a symbolic artifact" through which people build an indirect relationship with the world around them and "human and social activity is organized through culturally constructed artifacts" (p.201).

Among the SLA theorists who have built on the above traditions and analyzed language learning in terms of conscious and non-conscious processes is Krashen (1982). He has been notably quoted for his differentiation between acquisition and learning:

Adults have two different ways to develop competence in a language: language acquisition and language learning. Language acquisition is a subconscious process not unlike the way a child learns language. Language acquirers are not consciously aware

of the grammatical rules of the language, but rather develop a 'feel' for correctness. In nontechnical language, acquisition is 'picking-up' a language. Language learning, on the other hand, refers to the conscious knowledge of a second language, knowing the rules, being aware of them, and being able to talk about them. Thus, language learning can be compared to learning about a language. (P. 85)

This notion of a complex relationship between conscious and unconscious behavior suggests that the language learning process is multi-faceted and affected by many factors. This supports the claim that "human mental functioning is related to the cultural, institutional, and historical settings in which human action is mediated by tools made available through participation in these societal context" (Donato, 1994, p. 28). Other theorists who stress similar points include Wertsch, Tulviste and Hagstrom (1993) and Wertsch (1998).

The socio-cognitive approach to language learning by those such as Bandura, (1986) and Atkinson (2002) emerged from these trends. This approach focuses on interaction within the socio-cultural contexts in which language learning is taking place and the learner's cognitive interaction with these contexts. However, in EFL settings, such as the context for this study, broader socio-cultural

factors are sometimes considered to be of secondary importance, since most of the language use happens within classrooms. Instead, cognitive factors may be of more importance in this situation. In addition, the differences between socio-cultural interaction in online courses and face-to-face instruction constitute a large debate that is beyond the scope of this study.

From this basic review of language learning theories, one can conclude that the shift to studying *learners* has been very significant. Another conclusion that can be drawn from the above review is that when referring to learners, we are invariably referring to different people with very clear dissimilarities that can be attributed to various reasons. This fact relates clearly to the topic under investigation: that among these differences are those related to the learning styles and methods of instruction. The next section will review research on this important area.

Individual Differences

Researchers have identified many individual differences that affect the way people learn; yet at the same time, these differences are difficult to identify or categorize (Hakuta, Bialystok, & Wiley, 2003; Johnson & Newport, 1989; Flege & Liu, 2001; Flege, Yeni-komshian & Liu, 1999). According to Dornyei (2005), individual differences "have

been found to be the most consistent predictors of L2 learning success, yielding multiple correlations with language attainment in instructed settings within the range of 0.50 and above ... No other phenomena investigated within SLA have come even close to this level of impact." (p. 2).

Among the factors that make these differences challenging to classify is the overlap that occurs between the factors. All these factors are inter-related and it is therefore not possible to draw lines between and within these factors. Another problem that contributes to the difficulty of studying these factors is the overlapping of the language used to describe these differences. They are alternatively discussed under headings such as "differences," "factors," "beliefs", and "preferences" in the work of different scholars. (Piske, MacKay, & Flege, 2001; Baddeley, Gathercole, & Papagno, 1998). According to Ellis (1994) "this makes it difficult to synthesize the results of different studies, and even more difficult to arrive at a coherent overall picture." (p. 471). Part of the problem of studying these differences involves the methodologies used to investigate and explore them. While some researchers employ a theory-then-research approach, others employ research-then-theory approaches (Oxford, 1990; Skehan, 1989; Wenden and Rubin, 1987).

Despite these problems, Ellis (1994) provides a framework for investigating language learners' differences which summarizes three different approaches to differences, claiming that these define three main categories into which the research on differences can be divided. (Table 1).

Table 1
Factors Listed as Influencing Individual Learner Differences in Language Learning in Three Surveys. Adopted from Ellis (1994, p.472)

Altman (1980)	Skehan (1989)	Larsen-Freeman and Long (1991)
1. Age	1. language aptitude	1. Age
2. Sex	2. Motivation	2. Socio-psychological factors
3. Previous experience with language learning	3. language learning strategies	a. motivation
4. proficiency in the native language	4. cognitive and affective factors	b. attitude
5. Personality factors	a. extraversion/introversion	3. Personality
6. Language aptitude	b. risk-taking	a. self-esteem
7. attitudes and motivation	c. intelligence	b. extroversion
8. general intelligence (IQ)	d. field independence	c. anxiety
9. sense modality preference	e. anxiety	d. risk-taking
10. sociological preference (e.g. learning with peers vs. learning with the teacher)		e. sensitivity to rejection
11. cognitive styles		f. empathy
12. learner strategies		g. inhibition
		h. tolerance of ambiguity
		4. Cognitive style
		a. field dependence/independence
		b. category width
		c. reflexivity/impulsivity
		d. aural/visual
		e. analytic/gestalt
		5. Hemispheric specialization
		6. Learning strategies
		7. Other factors e.g. memory, sex

These three surveys describe the internal/external factors involved in the language learning process and the complex interaction between these factors. These factors can

be also arranged in sequential order. Language learner differences in style or personality characteristics can lead to varying strategies, that is, different methods learners use to accomplish language learning; and this strategic difference can in turn lead to differing learning outcomes (Ellis, 1994). Many teacher preparation programs and educators hope that teachers will be able to “examine their best teaching techniques and strategies in light of human differences” (Christison, 1996, p. 10).

Skehan (1989) introduced a general model that incorporates four areas of individual differences: modality preference, foreign language aptitude, learning styles and learning strategies (Figure 1).

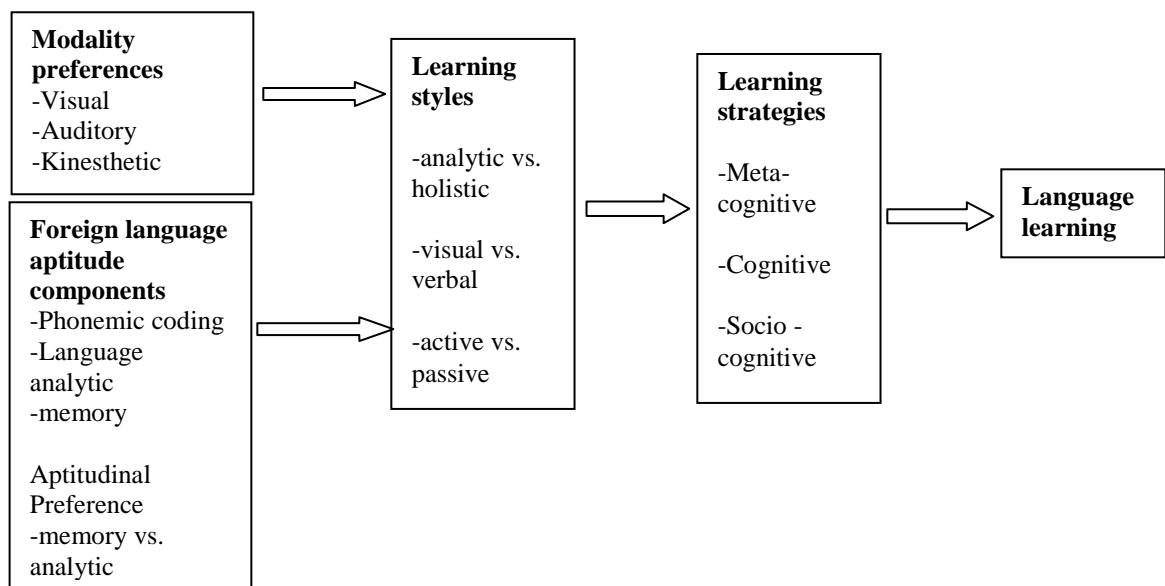


Figure 1: Skehan's model of learner differences and language learning. Adopted from (Takac, 2008 p. 45)

In his model, Skehan incorporates these areas of learner differences and illustrates two aspects of learning styles, which are the main foci of this study. Firstly, the model shows the linear interaction from left to right between these elements that shape individual differences. This arrangement reflects the claim that learning styles may compensate for, and will in any case interact with, anything in the aptitude or the learning modality of the learner. Secondly, it highlights the position of the learning styles in the learning formula, an important difference needed when differentiating between learning styles and learning strategies.

However, based on these differences, some researchers distinguished between "good" language learners and those that are less successful (Stern, 1975). Although not primarily within the focus of this study, the results of studies in this area may bear some relationship to work on learning styles.

Good Language Learners

The first person to introduce the notion of the "good" language learner was Rubin (1975), who introduced some characteristics of good language learners in her article "What the 'good language learner' can teach us". Based on her interviews and observations of EFL learners as well as

her own self-observation, Rubin identified a set of features of good language learners and suggested that these could be taught to the "less successful" language learners. She states, "By looking at what is going on inside the good language learner, by considering how he is successful, what strategies, what cognitive processes he uses to learn a language, we may be led to well-developed theories of the processing of linguistic information which can be taught to others" (p. 49). She introduced seven strategies used by good language learners, and from these built a base for much subsequent research on learning strategies. Her list included these strategies for good language learners:

- They guess willingly and accurately.
- They have a strong will to communicate.
- They are not inhibited and are willing to make mistakes.
- They look for language patterns and forms.
- They practice what is learned.
- They monitor their own speech and the speech of others.
- They pay attention to meaning.

Rubin's definition of 'good' language learners included the ability and responsibility of the learners for their learning, and stressed the importance of the cognitive

processes learners engage in when learning the language. She also admitted the importance of learning styles, which form the basis for these learning strategies; in her recommendations for future research she focused on the importance of individual styles and cultural differences in cognitive learning styles. In doing so, she differentiated between innate factors that cannot be changed, such as aptitude and age, and other characteristics that are changeable, such as motivation and learning strategies. This changeable/nonchangeable distinction has formed the main basis for identifying the difference between learning styles and learning strategies. According to Oxford (1989) "language learning styles and strategies appear to be among the most important variables influencing performance in a second language" (p. 21). She later elaborated on this statement, hypothesizing that the choice of learning strategies depends mostly on the pre-built learning styles. (Oxford, 1990; Oxford, 1996). According to Cassidy (2004) and Dornyei (2005), while learning styles tend to be unconscious habits used independently from their context, learning strategies tend to be intentional and context-dependent. It is important here to stress that while learning strategies may fall outside the scope of this study, the relationship between style and strategy is

strong, so much so that the terms "learning styles" and "learning strategies" are sometimes used interchangeably.

ESL/EFL Writers

As the main focus of this research is on EFL learning styles in a writing course, it was deemed necessary to shed some light on EFL writing research and determine where the research undertaken so far falls within that field of inquiry. As I described what constitutes good language learners, I shed some light in this section on work that has been done to study the development of ESL/EFL writers.

Among the well-known facts about writing research is that it is not as developed as reading research. Beard, Myhill, Riley & Nystrand (2009) report that research on writing is a relatively young area that has had little impact on instructional design and pedagogy. Moreover, they report that this area is cross-disciplinary - that is, it is characterized by different theoretical frameworks with different methodological approaches. According to Beard et al. (2009), writing research has been conducted within three main frameworks. The first is the psychological approach, which focuses on how the writer as an individual manages the complex cognitive operations involved in the process of writing. The second is the sociocultural approach, which looks at how writers are shaped by their own contexts. The

third is the linguistic approach, which concentrates on how language works in texts and contexts to create meaning.

It is clear that the present research falls within the borders of the first approach, that approach which deals with the cognitive development of the writer. Yet, the focus of this research is on second language (L2) writers.

It must be noted here that research on second language (L2) writing came mainly from L1 writing theory and research. Among the most quoted models of L1 writing research is the Hayes and Flower (1980) model that tried to observe the processes that writers employ when composing. They suggested that writers use cognitive processes when writing, and posited that these processes are organized in a hierarchal structure. This model was soon criticized since it ignored the sociocultural context, motivational factors, language knowledge, discourse and genre issues in writing. Writing in this model was looked at as a product. Towards the late 1980s and early 1990s, there was much criticism aimed at this product-centered view of writing, and as a result a new paradigm in writing research appeared. Rather than focusing on the final result of writing, many researchers focused on the writing process itself as a learning, communicating, negotiating and interacting process.

Learning Styles

Among the most researched areas regarding learning is the concept of learning styles. It has been researched both in theory (e.g. Bedford, 2006; Sadler-Smith, 2001) and in practice (e.g. Nygaard, Højlt, & Hermansen, 2008; Barbe & Milone, 1981; Halsne & Gatta, 2002; Joy & Kolb, 2007) and has received much attention over the last thirty years. Learning styles have been studied in relation to many other factors. Among those factors are culture (e.g. De Vita, 2001); students' achievement (e.g. Zywno, 2003); learning attitudes (James & Gardner 1995); and online learning vs. on-campus learning (e.g. Diaz & Cartnal, 1999; On-Campus, 1999). However, it is unfortunate that at present it remains difficult to define the concept of learning styles (Cassidy, 2004), or to provide a single definition for this concept (Cano-García & Hughes, 2000). Ellis (1994) argues that the concept of learning styles is "ill-defined, apparently overlapping with individual differences of both an affective and cognitive nature" (p. 508). In their review of the field of learning styles, Coffield, Moseley, Hall and Ecclestone (2004) stated that "beneath the apparently unproblematic appeal of learning styles lies a host of conceptual and empirical problems. To begin with, the learning styles field is not unified, but instead is divided into three linked

areas of activity: theoretical, pedagogical and commercial” (p. 1). In this research, the pedagogical stance is the area related to the topic of this investigation.

The most comprehensive and most quoted definition of learning styles is that of Keefe (1979: “Learning styles are characteristic cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment” (p. 4). This definition has been widely used since it includes the internal as well as external factors that shape the individual’s learning style. Based on this widely accepted definition, Keefe (1987) outlined a framework for learning styles that consists of:

- The cognitive dimension, which includes “information-processing habits” (p.14)
- The affective dimension, which deals with the personality and “motivationally-based processes” (Keefe, 1987, p.14)
- The physiological dimension, which looks at “biologically-based responses”. (p. 14)

Another definition was provided by Kinsella (1995), who employed Keefe’s framework and suggested that learning style is “an individual’s natural, habitual, and preferred way of absorbing, processing, and retaining new information and

skills which persist regardless of teaching methods or content area" (p. 171). The National Association of Secondary School Principals (NASSP) defined learning style as "the composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment." (Keefe & Ferrell, 1990, p. 59). Keefe (1990) went on to argue that the NASSP Learning Style Profile is the only instrument that measured these three dimensions (cognitive, affective and physiological) of learning style, while other instruments measured only one or two.

Joy Reid (1995) defined learning styles as "internally based characteristics, often not perceived or used consciously, that are the basis for the intake and understanding of new information" (p. viii). She also stated some fundamental hypotheses that learning styles are based on. She writes:

- every person, student and teacher alike, has a learning style and learning strengths and weaknesses;
- learning styles exist on wide continuums, although they are often described as opposites;
- learning styles are value-neutral; that is, no one style is better than others (although clearly some students with some learning styles function better in a U.S. school system that values some learning styles over others);

- students must be encouraged to “stretch” their learning styles so that they will be more empowered in a variety of learning situations;
- often, students’ strategies are linked to their learning styles;
- teachers should allow their students to become aware of their learning strengths and weaknesses. (p. xiii)

Models of Learning Styles

Curry (1983, 1987) analyzed most of the literature in the area of learning styles and reviewed the instruments used to measure learning styles. She came up with a framework for this analysis and used the onion as a metaphor to describe the embeddedness of learning styles (figure 2). She proposed a three layer model at the beginning, and later added a fourth one. Figure 2 presents the later version, which she simply termed “model of learning styles.”

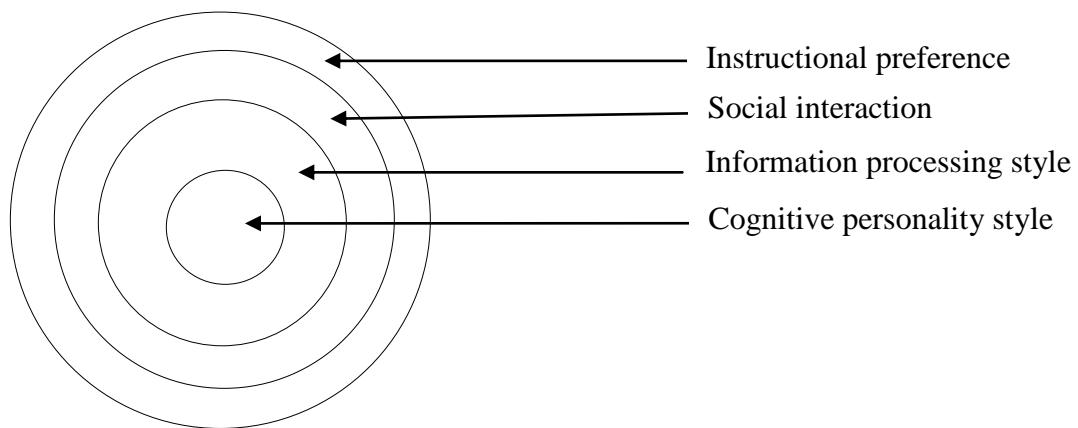


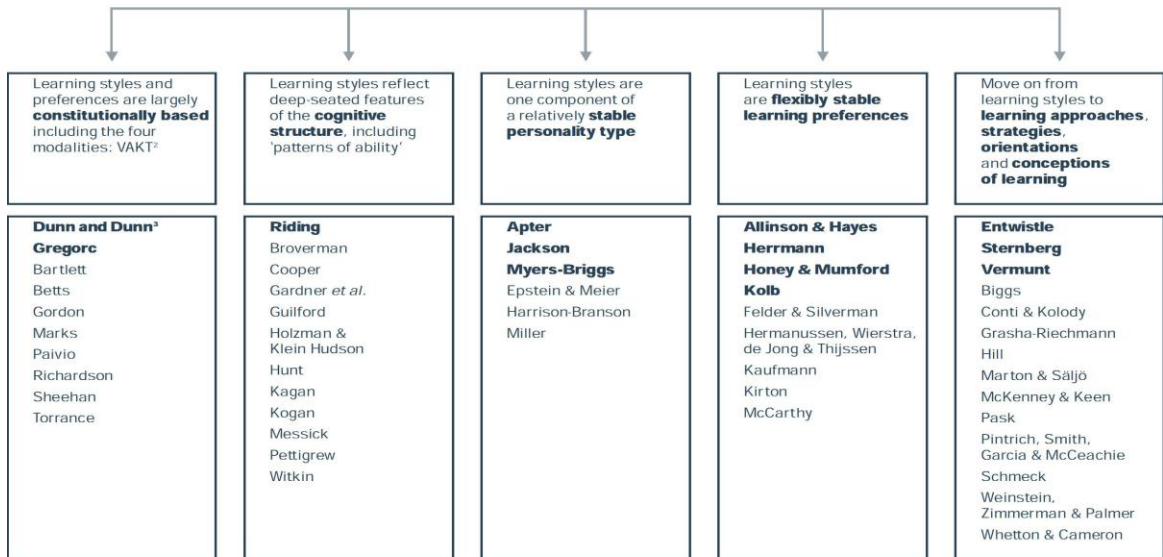
Figure 2: Curry (1983, 1987) model of learning styles.

The layers of the "onion" can be broken down in this way:

- The first and the outermost layer is called *instructional preference*. This layer refers to an individual's preference or choice of learning environment. It is considered the most observable layer and the most susceptible to influence. It is also considered the least stable level of measurement. An example of the instruments that measure this layer is the Learning Preference Inventory (Rezler & Rezmovic, 1981).
- The second layer of this model is *social interaction*, which describes the individual's preference to interact with the social domain during learning. An example of the instruments created to measure the affect of this layer is Riechmann & Grasha's (1974) Student Learning Style Scale.
- The third layer deals with *information processing* and is considered to be more stable. It refers to the individual's logical approach in processing information. An example of an instrument used to measure this layer is the Cognitive Preference Inventory by Tamir and Cohen (1980).
- The final, innermost layer of this model is *cognitive personality style*, and that relates to the permanent

personality behavior that can be observed across different learning situations. The Myers and Briggs Type Indicator (MBTI) (Myers, 1962) is an example of an inventory developed to measure this dimension. The MBTI is a psychometric test that expresses the person's type in a series of four letters representing four different dichotomies or preferences. These dichotomies are extroversion (E) vs. introversion (I); sensing (S) vs. intuition (N); thinking (T) vs. feeling (F); and Judgment (J) vs. perception (P).

Another more recent classification of learning styles is Coffield et al.'s (2004) families of learning styles (Figure 3).



² VAKT = Visual, auditory, kinaesthetic, tactile
³ The theorists in bold type are those chosen for in-depth evaluation

Figure 3: Coffield's et. al.'s families of learning styles. Adopted from Coffield et. al. (2004).

To construct this model, the authors traced 71 models and instruments of learning styles and categorized them into five families. In their words:

"The reason for choosing to present the models we reviewed in a continuum is because we are not aiming to create a coherent model of learning that sets out to reflect the complexity of the field. Instead, the continuum is a simple way of organizing the different models according to some overarching ideas behind them. It therefore aims to capture the extent to which the authors of the model claim that styles are constitutionally based and relatively fixed, or believe

that they are more flexible and open to change”.

(Coffield et al. 2004 p. 10)

The five families consist of the learning styles and preferences that are:

- Constitutionally-based
- Based on cognitive structure
- Based on stable personality type
- Based on 'flexibly stable' learning preferences
- Based on learning approaches and strategies.

Coffield et. al. continue to state,

“Within each family, we review the broad themes and beliefs about learning, and the key concepts and definitions which link the leading influential thinkers in the group. We also evaluate in detail the 13 most influential and potentially influential models, looking both at studies where researchers have evaluated the underlying theory of a model in order to refine it, and at empirical studies of reliability, validity and pedagogical impact.” (p. 21)

General Models of Learning Styles

The two most widely recognized general models of learning styles are Kolb (1984) and Dunn (2003). Dunn and Griggs (2003) reported on almost 300 publications which have

drawn on the Dunn & Dunn model, and presented a bibliography of research that has applied their model worldwide and in many different contexts. Kolb, on the other hand, produced a bibliography of 2,000 sources that cited more than 1,000 studies on his model of learning styles and his experiential learning theory (Mainemelis, Boyatzis and Kolb, 2002).

The Kolb learning style model. According to Kolb's experiential learning (ELT) model, learning is "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p. 41). As is clear in the definition, this "transformation" of knowledge involves two parts. In their own words, Sternberg and Zhang (2001) make a similar point: "The ELT model portrays two dialectically related modes of grasping experience -- Concrete Experience (CE) and Abstract Conceptualization (AC) -- and two dialectically related modes of transforming experience -- Reflective Observation (RO) and Active Experimentation (AE)" (P. 228).

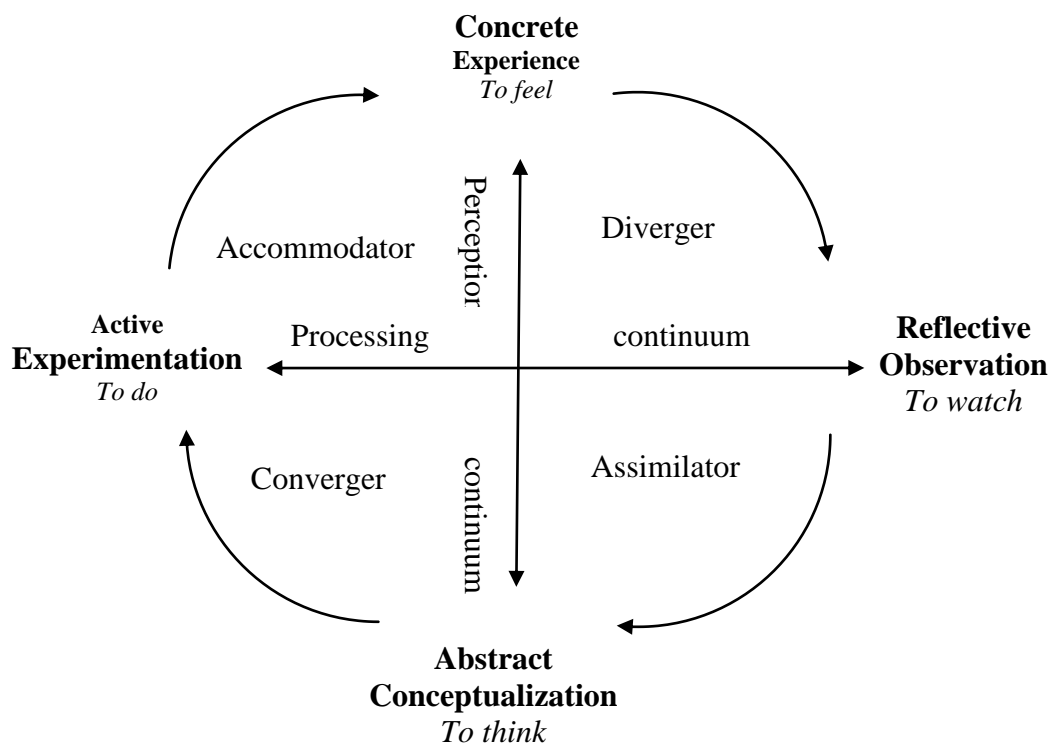


Figure 4: Kolb model of learning and learning styles. (Kolb, 2005)

In this four-stage cycle, learning can start in any of these four areas and lead to the following stage, and this can happen in a fraction of a second or over a longer period of time. In the optimal case, learning starts with a concrete experience that leads to feeling or observing, and these observations and feelings can be turned into abstract concepts and theories that can be tested through active experimentation. This should lead to a new concrete experience and the cycle should continue (Kolb, Boyatzis & Mainemelis, 2001).

According to this model learners can be one of four types; that is, their 'style' in this system consists of which part of the four-stage learning process is most natural and comfortable for them:

- Converger
- Diverger
- Assimilator
- Accommodator

Table 2 lists the characteristics of each of these types.

Table 2
Kolb and Fry on Learning Styles (Tennant, 1997)

Learning style	Learning characteristics	Description
Converger AC AE	Abstract conceptualization + active experimentation	<ul style="list-style-type: none"> · strong in practical application of ideas · can focus on hypothesis deductive reasoning on specific problems · unemotional · has narrow interests
Diverger CE RO	Concrete experience + reflective observation	<ul style="list-style-type: none"> · strong in imaginative ability · good at generating ideas and seeing things from different perspectives · interested in people · broad cultural interests
Assimilator AC RO	Abstract conceptualization + reflective observation	<ul style="list-style-type: none"> · strong ability to create theoretical models · excels in inductive reasoning · concerned with abstract concepts rather than people
Accommodator CE AE	Concrete experience + active	<ul style="list-style-type: none"> · greatest strength is doing things · more of a risk taker · performs well when

experimentation	required to react to immediate circumstances
	· solves problems intuitively

Within Kolb's model (Figure, 4; table 2), learning style preferences are determined using the Learning Style Inventory (LSI). The LSI has been introduced in five versions over the last 35 years, with its most recent version having been tested in 2005. According to Kolb (2005):

All versions of the LSI have had the same format—a short questionnaire (9 items for LSI 1 and 12 items for subsequent versions) that asks respondents to rank four sentence endings that correspond to the four learning modes—Concrete Experience (e.g., experiencing), Reflective Observation (reflecting), Abstract Conceptualization (thinking) and Active Experimentation (doing). Items in the LSI are geared to a seventh grade reading level. The inventory is intended for use by teens and adults. It is not intended for use by younger children. The LSI has been translated into many languages, including, Arabic, Chinese, French, Japanese, Italian, Portuguese, Spanish, Swedish, and Thai, and there have been many cross-cultural studies using it. (p. 10)

Dornyei (2005), however, questioned the validity of the LSI by highlighting the fact that the two poles of the axis in Kolb's models are separate concepts, not related values along a single continuum.

Dunn & Dunn's Learning Style Model. Dunn and Dunn (1999) define learning style as "the way each person begins to concentrate on, process, internalize, and retain new and difficult academic information" (p. 11). In another definition, Dunn, Thies, Honigsfeld & Network (2001), defined learning style as "a biological and developmental set of personal characteristics that make the identical instruction effective for some students and ineffective for others" (p. 2). Both definitions imply a strong emphasis on biological and developmental characteristics.

In their model (Figure 5), Dunn and her colleagues presented the five "stimuli" that affect people when acquiring new information and enumerated the elements that shape each stimulus. Each stimulus consists of four perceptual elements: auditory, visual, tactual and kinesthetic (Dunn & Griggs, 2003). The model consists of 21 elements classified into five stimuli that describe how students learn effectively based on their personal strengths. The five categories are listed here:

- "Environmental preferences that permit or inhibit concentration such as sound versus quiet, bright versus low light, warm versus cool temperatures, and formal versus seating designs;
- Emotional characteristics such as motivation, persistence, responsibility [conformity versus non-conformity], and the need for either externally or internally imposed structure;

- Sociological determinants, including learning alone, in a pair, with peers, as part of a team, with either an authoritative or collegial adult, and/or with variety as opposed to in patterns and routines;
- Physiological traits such as perceptual strengths, time-of-day energy levels, a need for intake and/or mobility while learning; and
- Processing style—global versus analytic and impulsive versus reflective inclinations.”
(Honigsfeld & Dunn, 2006 p. 2).

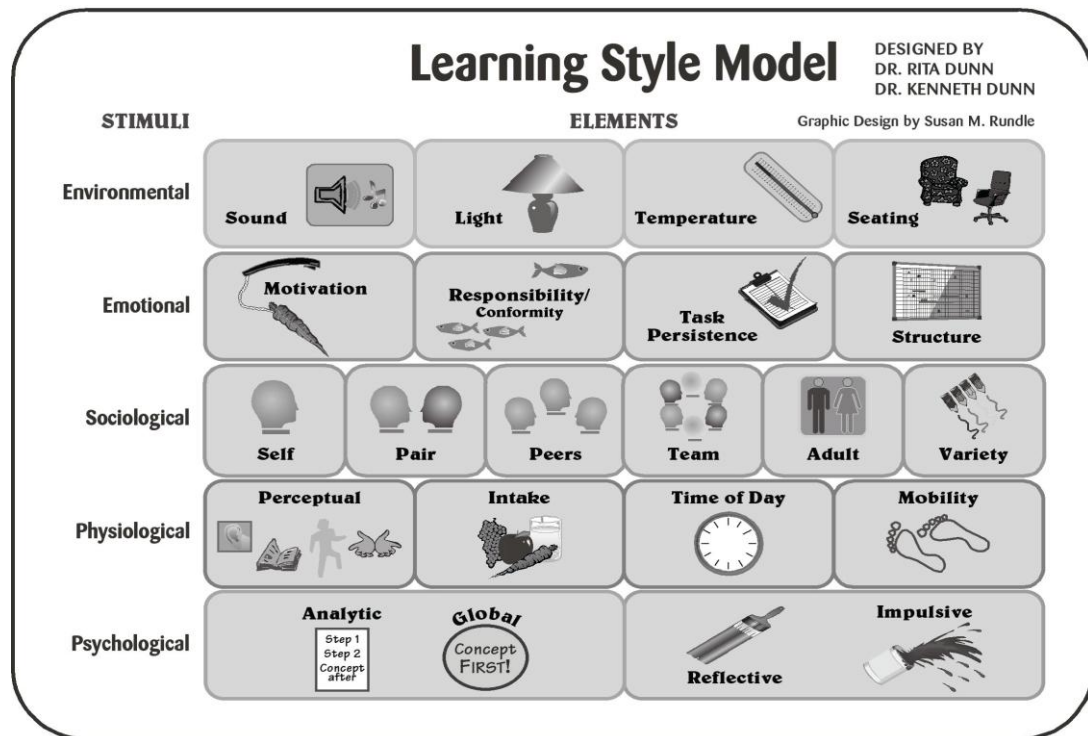


Figure 5: Dunn & Dunn model of learning styles. Adopted from (Honigsfeld & Dunn, 2006 p. 12)

Although the Dunn & Dunn model consists of 21 variables, most individuals are affected by only between 6 and 14. According to Ansalone & Ming (2006), the use of learning style instructional resources such as the

Programmed Learning Sequences (PLSs) has been found to improve students' achievement on tests and attitude.

Building on their model, Dunn & Dunn developed, refined, and reproduced their self-reporting instruments. In the refined version, students fill in one of the Dunn instruments and a full diagnostic report is sent to their teachers or produced online. According to Coffield, Moseley, Hall, and Ecclestone (2004) "[t]he Dunn and Dunn model measures preferences rather than strengths. A positive feature of the model is that it affirms preferences rather than aiming to remedy weaknesses. It does not stigmatize different types of preference. Supporters argue that anyone can improve their achievement and motivation if teachers match preferences with individualized instruction and changes to environment, food and drink intake, time-of-day activities and opportunities to work alone or with others." (p. 21)

Since Dunn and Dunn's model considers age as a decisive factor when dealing with learning styles, a recent look at their website reveals their latest instruments (Dunn & Dunn, 2008), divided by age:

- OPALS: Observational Primary Assessment of Learning Style (ages 3-6)
- ELSA: Elementary Learning Style Assessment (ages 7-9)

- LSCY: Learning Style: The CLUE to You! (ages 10-13)
- LIVES: Learning In Vogue: Elements of Style (ages 14-18)
- BE: Building Excellence Survey (ages 17+)

This model and its instruments are extensively used in American schools and have received much recognition in the learning style literature. However, there have been some concerns over the Dunn and Dunn instrument's validity and reliability. Among the clearest concerns is that they deal with preferences as relatively fixed and constitutionally based. This may lead to labeling and generalization when using this model.

Perceptual Learning Styles

Among the areas of interest shared by the learning styles models and theories is perception. According to Keefe (1988), perception is "the process by which the brain systematically collects information" (p 1), and according to Forgas (1966), "perception becomes the core process in the acquisition of cognitive knowledge" (p. 2).

This process of acquiring information involves the elements of the perceptual modality: visual, auditory, kinesthetic and tactile. Keefe (1987) states that the perceptual modality lies within the cognitive domain of learning styles and that "perceptual response is both

cognitive and affective in the sense that preferred response is a biased initial reaction to information. We prefer to get our information in ways that are pleasing to us" (p. 17).

The importance of studying these perceptual modalities arises for different reasons. Tight (2007) explained some of these reasons when she wrote:

First of all, as has already been established, they [perceptual modalities] represent a crucially important part of the learning process. Secondly, they are very intuitive. That is to say, most people can agree that some people are more visual, for example, while others tend to be more "hands-on." Finally, perceptual preferences may be more easily recognized in oneself and by one's teacher than other learning style variables such as classroom design preference, sensitivity to light, preferred time of day to learn, and whether a person thinks in words or in pictures. (p. 33)

When researching perceptual modalities, researchers agree that since learners are different in their use of perceptual modalities, their modalities may vary and more than one modality may apply to any single learner. Barbe, Swassing & Milone (1979) explained how it is possible to have a dominant modality that is usually supported by a secondary modality. They also considered age as an important

factor. While children may have one dominant modality, adults may use a dominant modality and support it with a secondary modality.

Dunn (1983) stressed four learning style preferences or modalities: visual, auditory, tactile, and kinesthetic; the findings of a previous study (Dunn and Dunn, 1979) suggested that only 20-30% of elementary school students were auditory, while 40% were visual, and the last 30-40% were tactile/kinesthetic.

The auditory modality refers to the learners who can learn best when listening. They usually prefer lecturing, discussing with others, and recording what has been said. Dunn, Dunn and Price (1975), in their study of the perceptual modalities of American elementary school students based on Dunn and Dunn's model, found that less than 12% of the students were auditory learners. Other researchers have likewise found that learning by listening is the least popular and most difficult form of learning among students. (e.g. Garrett, 1991; Reid, 1995)

The visual modality deals with the fact that many learners learn using their eyes. They usually understand better through looking at objects and pictures rather than through using any other modality. Many researchers consider this modality the most dominant sensory modality used among

learners. Jensen (2000), for example, asserts that 80 to 90% of all the information acquired by the brain is visual. He points out that "the retina accounts for 40 percent of all nerve fibers connected to the brain" (p. 55).

The tactile modality refers to the learners who learn through touch. This sensory modality is sometimes mixed with the kinesthetic modality, or the two terms are used interchangeably. While the tactile modality refers to the sense of touching (hands-on), the kinesthetic modality refers to the whole body or large muscle movement and the complete body experience. Reid (1987) indicated that hands-on learning only relates to the tactile learning style. In contrast, she described the kinesthetic modality as the "total physical involvement with a learning situation" (p. 89). Some researchers have indicated that those learners preferring this modality are encouraged to keep written and graphic records (Gadt-Johnson and Price, 2000).

The kinesthetic modality refers to the total physical involvement of the learners with the learning situation. Hinkelman and Pysock (1992) described kinesthetic learners as those learners who "would rather act a situation than talk about it" (p. 30). They gave examples of learning activities like role-play, acting, drama and other activities of this type. In her study of the ESL students'

perceptual learning styles in the United States, Reid (1987) concluded that the kinesthetic modality was the most dominant perceptual learning style preference for all the groups she studied.

Reid (1987) identified two other perceptual learning styles preferences that are included in this study: group modality, which is preferred by those learners who learn better in groups; and individual modality which, by contrast, refers to those who learn better when working alone.

In her investigation of the perceptual learning styles of non-native English (NNS) students in the United States, Reid (1987) developed the Perceptual Learning Style Preference Questionnaire (PLSPQ). The PLSPQ is a self-reporting instrument that was designed to measure these six perceptual learning styles in English as a Second Language Learners (ESL); this instrument has been used extensively in many studies across different cultures. This questionnaire has been chosen for use in the present study to elicit the learning styles of the sample of students participating in this study. The details regarding its choice and use in this study will be investigated more in the following chapter.

Perceptual Learning Styles and EFL

According to Reid, (1987) research on the perceptual learning styles of non-native English speakers had not existed before her study. This is why she designed the PLSPQ and conducted her study with 1,388 students to identify their perceptual learning style preferences. She concluded that:

NNS [non-native speakers] learning style preferences often differ significantly from those of NSs; that ESL students from different language backgrounds sometimes differ from one another in their learning style preferences; that other variables such as sex, length of time in the United States, length of time studying English in the U.S., field of study, level of education, TOEFL score, and age are related to differences in learning styles; and that modifications and extensions of ESL student learning styles may occur with changes in academic environment and experience. (p. 87)

An interesting finding of Reid's study involves the preferences of the Arabic speaking students in her sample. Arab students performed higher in the kinesthetic and tactile modalities, and on the whole showed little preference for the group or individual modalities. As this study is concerned with Saudi students, this study was undertaken with the idea that the results may confirm these earlier findings, or may question and enrich them.

Reid's research opened the door for many studies investigating the learning styles of ESL/EFL students. A good portion of this research employed Reid's instrument, the PLSPQ. Another example of research that employed Reid's instrument is Peacock's (2001) study that used the PLSPQ and interviews to investigate Reid's two hypotheses: that "all students have their own learning styles and learning strengths and weaknesses", and that "a mismatch between teaching and learning styles causes learning failure, frustration, and demotivation" (p.1). He investigated 206 EFL students and 46 EFL teachers at a Hong Kong university, and was able to confirm both hypotheses. He used the PLSPQ to measure the students' learning styles, and made use of a modified version of the same instrument to measure the teachers' teaching styles. In the teachers' instrument, he added a self-reporting part that asked the teachers for their level of agreement with Reid's hypotheses. In the students' version, he included interviews to ask the students about their opinions on these hypotheses and whether they agree or disagree with them. As stated above, both parties expressed beliefs confirming the two hypotheses that all students have their own learning styles, learning strengths, and weaknesses; all those interviewed also felt

that a mismatch between teaching and learning styles can cause failure and dissatisfaction.

Turton's 2001 longitudinal study used the PLSPQ to investigate the learning styles of ESL university students over a period of 18 months. In her study, she investigated whether or not the learning style preferences of English non-native learners undergo modification or transformation during their study at American universities. She interviewed 130 non-native English learners after determining their learning styles using the PLSPQ and Oxford's Style Analysis Survey, both at the beginning and again at the end of the eighteen-month period. The investigation focused on any changes that occurred; where changes occurred, she tried to correlate them with variables such as nationality, gender, age, and major/subject discipline. The analysis of the results showed some change over time and the changes were attributed to factors like English proficiency, major, and prior instruction by a NS.

In her study, Park (2006) compared the learning styles of Chinese, Filipino, Korean, Vietnamese, and American students in secondary schools. She compared these students' learning styles with those of the white students in 10 secondary schools in California. Although the study did not show any significance in terms of gender differences, it

showed some differences in the students' ethnic backgrounds. Concerning learning styles, she concluded that Korean, Chinese, and Filipino students were more visual than their Anglo-American classmates. Her results also suggested that Korean, Chinese, and Anglo-American students showed negative preferences for group learning while the Vietnamese students showed a major preference and Filipino students a minor preference for the same modality.

Perceptual Learning Styles and ESL/EFL Writing

Many researchers have investigated learning styles and their relation to writing instruction, and many mixed results were reported (e.g. Reid, 1996). Due to these mixed results, Jones (1996) proposed a need for more research in this area. Among those who reported results is Parker (1991), who studied the relationship between hemispheric preference and writing development and reported that learners with a right hemisphere preference may benefit from being taught writing with exercises that match their hemispheric preference. Another study that reported results is Jones (1996), who studied the relationship between learning styles and EFL writing instruction in Taiwan using the PLSPQ. He concluded his three-year study with the claim that information about the learners' learning styles can effectively inform composition teachers on how to improve

instruction. Two years later, he reported similar results in another study that investigated the relationship between learning styles and EFL writing instruction (Jones, 1998). Using the PLSPQ, he conducted a 5-year action research study that looked into the relation between the writing instruction of EFL Taiwanese undergraduates and their learning styles. He concluded that teachers should first try to systematically explore learners' learning style preferences before planning any intended EFL writing instruction.

DeBello (1985) used the Learning Style Inventory developed by Dunn et al. (1975) to study the link between learners' learning styles and their performance as writers. He reported that when students' sociological learning style preferences such as peer learning, learning alone or learning with an adult were matched with the learning activities, they performed better in their writing and had a better attitude towards writing tasks.

On the opposite side of this issue are some researchers who reported negative or no relationship between learning styles and the writing ability of ESL/EFL learners. Cole (1990), for example, reported that presenting students with prewriting exercises tailored to the learners' learning styles had little effect on their writing ability, writing

apprehension and self-perception of writing. Other studies that tried to relate instructional style to field dependence/independence in learners' gains in writing yielded minimal results (Bryant, 1985).

Matching and Mismatching Learning Styles

In any learning situation, it represents an optimal goal for educators to reach all the students, with their diverse varieties of learning styles. In other words, avoiding conflict between teaching style and student learning styles is among the main reasons for studying learning styles. According to Oxford, Ehrman and Lavine (1991) "teachers tend to mirror their own learning preferences in the teaching approaches they bring to the language classroom, unless they are overridden by the way they themselves were taught" (p. 10). Goodwin (1995) states that although teachers may teach in different ways, their teaching style depends on their own preferential learning style. Expressing a very different viewpoint, but one equally aimed at teachers, Reid (1995) criticized the way teachers teach and warned that 90% of the secondary school teaching is geared towards the auditory modality (recall that this modality was found to be preferred by only a minority of learners).

According to Conner, Wright, DeVries, Curry, Zeider & Wilmsmeyer (1996), educators need to

- Become conscious of the way they address various learning styles in the classroom,
- Try to balance visual, auditory, kinesthetic, and tactile modes, and offer a balance of class and experiential activities.

However, the prospect of trying to accommodate all the learning styles raises some problems. Coffield et al. (2004) admit, "It is hard to imagine teachers routinely changing their teaching style to accommodate up to 30 different learning styles in each class, or even to accommodate 4" (p. 40). Valiente (2008) accuses *culture* in affecting learning styles when he discusses the type of teaching students receive in schools. He concludes that "culture" is the key word that can explain why some students' behaviors are different from what is considered "high quality learning" (p. 73). He recommends approaching students' learning styles with a clear understanding of the role of culture, and proposes what he calls a "cross-cultural learning style" (p. 79).

Researchers have presented three main approaches in dealing with learning styles in the classroom (Dunn & Dunn, 1979; Ross & Schulz 1999; Parker, 1997; Melton, 1990; Santo, 2004, Options & Latest, 2001). These three approaches represent the three main ways instruction should be dealing with these styles.

- The first approach proposes identifying the learner's individual learning style and then adapting the instruction toward the learner's learning style. This idea is sometimes referred to as "matching".
- The second approach is identifying the learner's learning style and then gearing the instruction towards the opposite preference of the learner in order to strengthen these weak preferences. This process is referred to as "mismatching".
- The third approach does not consider identifying the learner's learning style. By contrast, it aims at introducing different methods of instruction that can accommodate most, if not all, of the learners' preferred learning styles.

Many researchers argue for the importance of matching instruction to the students' learning styles and report many benefits from this approach (e.g. Dunn, 1983; Cavanaugh,

1981; Witkin, Moore, Goodenough, & Cox, 1977; Felder, 1993; Pascal, 1990). Kumaravadivelu (1991), for example, states that "the narrower the gap between teacher intention and learner interpretation, the greater are the chances of achieving desired learning outcomes" (p.98). Bridging this gap between teachers and learners plays an important role in enabling students to maximize their classroom experiences (Van Lier, 1996; Breen, 1998). Unfortunately, this gap is easily widened when there is a cultural difference between the students and their teachers (Xiao & Tianjin, 2006).

The idea of matching teaching styles to learning styles is stressed in the field of second language education (Peacock, 2001). Cole (1990) stated that matching instruction with students' learning style preferences resulted in better EFL writing and improved the students' perceptions about themselves as writers, as well as helping them reduce their apprehension. Peacock (2001) investigated Reid's (1987) hypothesis that a mismatch leads to failure and frustration. Using Reid's questionnaire, he investigated 206 EFL students and 46 EFL teachers at the City University of Hong Kong. He found that students favored kinesthetic and auditory styles and disfavored individual and group styles. Teachers, on the other hand, favored kinesthetic and group styles and disfavored tactile and individual styles. It was

found that western teachers included in the study also disfavored auditory styles. There was, therefore, a mismatch regarding group and auditory styles. The interviews revealed that 72% of the students were frustrated by a perceived mismatch between teaching and learning styles; 76% said it affected their learning, often seriously; and 81% of the teachers agreed with Reid's hypothesis. The correlations between learning style, proficiency and discipline were also examined. Learners who favored group styles were significantly less proficient. The conclusions were that EFL teachers should teach in a balanced style in order to accommodate the different learning styles.

Hayes and Allinson (1996) presented a list of the researchers who adapted the idea of matching instruction to learning styles and those who stood against it.

Table 3
Matching and Mismatching Learning Styles. Adapted from Witkin et al. (1977) & Hayes & Allinson, (1996)

Matching	Mismatching
Di Stefano (1970)	Gehlman (1951)
Koran et al (1971)	Glass (1967)
Grieve & Davis (1971)	Coop & Brown (1971)
James (1973)	Anderson (1972)
Carpenter et al (1976)	Nelson (1972)
McCleod & Adams (1977)	Montgomery (1972)
Witkin (1977)	Thornell (1974)
Hudak (1985)	Gorton (1975)
Canino & Cockerill (1988)	Kolb (1985)
Vaughan and Baker (2001)	Rush & More (1991)
	Kosower & Berman (1996)

Interestingly, both groups basically accept the validity of learning styles inventories. Researchers who favored a mismatch built their argument on the claim that a mismatch helps students overcome their weaknesses in cognitive styles and build an integrated approach in their learning (Rush & Moore, 1991). They also argue that mismatching stimulates learning and flexibility in learning (Kosower & Berman 1996). Some researchers favored mismatching for another reason: these argued that matching may lead learners to be bored and ineffective (Vaughan and Baker, 2001).

A third group of researchers took a middle position and argued for a balanced way of treating learning styles; these scholars supported teaching to all modalities. They presented good support for their argument based on the facts of learners' differences, the difficulties involved in designing individualized teaching, and the fact that learning styles cannot be easily changed. (e.g. Ford & Chen, 2001; Felder & Brent, 2005; Manner, 2001; Nilson, 1998; Tight, 2007).

An important fact here that is related to the idea of matching/mismatching students' learning styles is the fact that teachers have their own particular teaching styles.

Just as it is important for learners to be aware of their own learning styles in order to be more successful, it is likewise important for instructors to be aware of their teaching styles. Although this issue does not affect the results of the present study directly, it is clearly relevant in addressing any suggestions that emerge from the present study. Accordingly, I will present some work on teaching styles in the next section.

Teaching Styles

Grasha (1996) categorized teaching styles into four categories. The first is the formal authority style, in which the instructor concentrates on providing and controlling the flow of the content rather than building a relationship with or among the learners. The second teaching style is that of the demonstrator or personal model. The instructor in this style demonstrates and models what is expected from the learner and then guides the students to follow his or her example. The third style of teaching is that of the facilitator. In this style, the instructor places the responsibility on the students to take the initiative in achieving results for different tasks. Instructors in this style tend to favour group activities and problem solving, which necessitates active learning and student collaboration. The fourth and last teaching style is

that of the delegator. Instructors in this style tend to delegate and place much control and responsibility for learning on individuals or groups of students. Students are often asked to work independently or in groups, and must be able to effectively work in group situations and manage various interpersonal roles.

As for learning styles, many other researchers have provided different classifications for teaching styles, and many inventories have been created to measure these styles. An example of these inventories is the Center of Occupational Research Development (CORD) Teaching Style Inventory (TSI) developed in 2005, which describes four types of teaching styles in the form of quadrants: Quadrant A (Cognitive-Processing) describes the instructor that prefers to have students process information via symbols and have the students work individually; Quadrant B (Interaction-Cooperative) also prefers to have students process information via symbols, but have students work collaboratively in groups; Quadrant C (Interaction-Individual) prefers to have students learn through individually working at computers and manipulating variables in interactive web-based applets; and Quadrant D (Cognitive-Enactive) prefers to have students learn collaboratively through lab projects.

Learning Styles and Technology

Brown (1994) asserts that when instruction is matched to the students' learning styles, the students' motivation and performance is greatly enhanced. Accordingly, researchers have studied the adoption of instruction to match the students' learning style preferences in traditional classrooms. Until recently, few researchers had considered the possibility of accommodating different learning styles in online environments.

Studies about the influence of technology on learning have tended to focus on contrasting different generations who grew up with different technologies (Oblinger, 2003). Liu and Reed (1994) stress that one of the promises technology is believed to fulfill is accommodating learners' different needs. An important related benefit claimed for technology is that it can help learners learn independently. The success and achievement of students in online courses is also believed to be related to their learning style preferences (Graff, 2004). In fact some researchers claim that virtual reality environments can accommodate all the learners with all types of learning styles (Chen, Ko & Lin, 2005).

An example of the studies that looked at the relation of technology to the learning styles of the students in the

ESL/EFL contexts is Murray's 2004 study. Murray looked at the impact of the kinesthetic learning style preference on Brazilian English language learners in online environments and their reactions to specific virtual reality formats on the web. The study found that the kinesthetic learning style preference was strongly preferred by this sample of online learners. The results also showed that the web-based virtual formats that were used in the study may have benefitted the learners through incorporating virtual kinesthetic cues-- techniques that simulate the attributes of kinesthetic activities in the brain in online learning. Another benefit, it was suggested, was the use of the power of suggestion to engage the imagination of the research participants, which may promote feelings of simulated kinesthetic activity in the learners' minds.

Graff et al., (2004) studied three different areas of online delivery: online assessment, online searches, and online discussion. They related these modalities to the cognitive styles of learners and their attitudes towards computers as a medium of instruction. The students' cognitive styles and computer attitudes were measured to see if differences occurred between these three variables of online delivery as related to students' cognitive styles and their attitudes towards using computers in their teaching.

The results revealed little difference between individuals with different attitudes towards computers; however, differences were clear between individuals with different learning styles. The implication of such a study is that students' learning styles should be considered and studied well when planning online courses, so that such courses meet students' needs and expectations.

From the perspective of marketing and educational psychology, Simmons (2006) tried to introduce a model for studying students' satisfaction with online courses. The model hypothesized that students' satisfaction with online courses is affected by two potentially interrelated factors: their perception of the quality of service provided, and their individual learning styles. While students' satisfaction correlated positively with their sense of the quality of service, no significant correlation was found between levels of satisfaction and the students' learning styles. What can be concluded from this study is that online courses can be satisfying to all students with all types of learning styles.

Online Learning vs. Traditional Learning

Kolb (1984) writes, "learning environments that operate according to a learning theory that is dissimilar to a person's preferred style of learning are likely to be

rejected or resisted by that person" (p. 202). In this sense, the students' choice of one learning environment over another depends mostly on personal factors among which one is their learning style. Zhang, Zhao, Zhou & Nunamaker (2004) carried out a comparison of traditional classroom learning and e-learning and presented both advantages and disadvantages for both settings (Table, 4).

Table 4
Advantages and Disadvantages of E-learning and Traditional Learning. (Zhang et al., 2004)

	Traditional classroom learning	E-learning
Advantages	<ul style="list-style-type: none"> • Immediate feedback • Being familiar to both instructors and students • Motivating students • Cultivation of a social community 	<ul style="list-style-type: none"> • Learner-centered and self-paced • Time and location flexibility • Cost-effective for learners • Potentially available to global audience • Archival capability for knowledge reuse and sharing
Disadvantages	<ul style="list-style-type: none"> • Instructor-centered • Time and location constraints • More expensive to deliver 	<ul style="list-style-type: none"> • Lack of immediate feedback in asynchronous e-learning • Increased preparation time for the instructor • Not comfortable to some people • Potentially more frustration, anxiety, and confusion

In a relevant study, Halsne and Gatta (2002) compared learners' characteristics in two modes of instruction (online vs. face-to-face) in community college settings. The findings of the study illustrated that the online learners -- that is, those learners who chose the online format of the class -- were predominately visual, spent an average of an hour more on their class work, were predominantly female, were primarily married or divorced and had children, and were typically white; they were full-time workers, between the ages 26 and 55, with a family income of more than \$40,000, and had relatively more education. Traditional learners, on the other hand, were primarily auditory or kinesthetic learners, and were lesser than their online counterparts in the earlier characteristics described above.

Neuhauser (2002) compared two sections of the same course. One section took place online, while the other section of the course occurred in the traditional classroom setting. Gender, age, learning preferences and styles, media familiarity, effectiveness of tasks, course effectiveness, test scores, and final grades were considered. The two sections were taught by the same instructor and used the same instructional materials. The results revealed no significant differences in test scores, assignments, participation grades, and final grades,

although the online group's averages were slightly higher. Ninety-six percent of the online students found the course to be either as effective or more effective for their learning than their typical face-to-face course. There were no significant differences between learning preferences and styles and grades in either group. The results of this study suggest that equivalent learning activities can be equally effective for online and face-to-face learners.

Some studies have shown a correlation between the cognitive styles of learners and their academic performance when learning in the two different learning environments, virtual vs. traditional. Some studies have found a preference for online over traditional instruction. An example of these is provided by Adonri and Gittman (1998), who compared the effects of traditional classroom teaching and computer aided instruction (CAI) on the tenth grade students in a public high school in New York. The 70 students were randomly divided into experimental and control groups. The experimental group received CAI in a computer laboratory for 40 minutes a day, two days per week for six weeks. The control group received traditional instruction. A pretest confirmed the equivalence of the two groups, and at the end of the experimental period, the groups completed a posttest. Analysis showed that students using CAI achieved

significantly higher scores than did students taught by traditional methods (effect size = 1.48). An attitude survey also showed an increase in interest in the subject for students who were taught with CAI (effect size = 3.09). These are extraordinarily large effect sizes, although this is not unexpected given the particular group of studies.

EFL Instruction in Saudi Arabia

The definite date for the introduction of EFL into the Saudi system of education is not clearly known. According to Al-Shabbi (1989), the introduction of English as a foreign language dates back to the establishment of the Directorate of Education in 1924 when the first public elementary school was opened. Until 1943, the first elementary grade was the first year Saudi students were exposed to English as one of their compulsory school subjects. After that date the decision was taken to move English as a school subject from the elementary stage to the intermediate stage (grades 7-9). Based on this decision, English has been taught in the elementary (grades 7-9) and secondary (grades 9-12) stages four times a week. Due to the need for qualified teachers and the increased demand for higher education, institutions and universities have had to try to meet that increasing demand. According to Al-Abed Al Haq & Smadi (1996), "The recent mammoth invasion of English in Saudi society has

resulted in the establishment of many departments of English in universities and women's colleges throughout Saudi Arabia" (p. 459). Both writers continue to say that there is continued reflection on the purposes of these departments and state that "the purpose of these departments is to graduate qualified manpower needed for teaching, translation, proselytizing, and for various government jobs which demand proficiency in English" (p. 459).

Unfortunately, with all this demand and the huge numbers of students and departments, there have been limited studies concerned with the type of instruction students receive and critical evaluations of instructional design have not been carried out. The main method of instruction has always been class-based and teacher-centered, and there have been few studies that have dealt with the students' cognitive characteristics.

Another problem that faced the teaching of English in Saudi Arabia was the extensive use of the mother tongue, Arabic, and the unavailability of supplemental educational resources in English (Al-Shabbi, 1989). Enough research has not yet been conducted to identify where problems arise in English teaching and suggest better solutions.

The rarity of research on Saudi students' learning styles may be due to two main reasons. First, the belief in

the reliability of the learning styles instruments is still questioned, even in the context where these instruments were first designed. In this regard, Felder and Spurlin (2005) advise caution in interpreting the results of such instruments:

The instructor should emphasize that any learning style instrument is fallible when applied to individuals, and if students' perceptions of how they learn best differ from what the instruments says, they should not discount their own judgment. They should also be assured that their preferences are not reliable indicators of what they are and are not capable of doing, and that people with every possible learning style can succeed in any profession or endeavour" (p. 105).

The second reason for the limited research in this area is the limited awareness, from all parts of the society, of the importance of gearing research towards the learner rather than the teacher or the learning process itself. Most of the research done in this area has not dealt with the students' attitudes and beliefs towards some aspect of instruction; rather it has dealt primarily with the cultural expectations of the instruction itself. Teachers and instructors' attitudes and beliefs, while examined in more detail than research on students, could also benefit from more attention.

In recent years, technology has been perceived as potentially providing a good source for students' development, and has promised to solve some of the problems students face when learning. The Saudi context was one of those environments that looked at technology as a solution for some of the educational problems in education. However, when faced with the implementation of such technologies in the classes, educators have faced many administrative and cultural hurdles (Al-Kahtani, 2001). Lately and in very recent years, the use of technology in instruction has received more attention, and many studies have highlighted positive attitudes towards this type of instruction from the instructors' and administrators' points of view (Al-Kahtani, 2006; Alharbi, 2002; Alnujaidi, 2008).

In the university where this study is taking place, technology is now viewed as a source of great advancement to the instruction offered in the university, and it is also envisioned as benefiting both students and faculty. The university technology services have been revolutionized, and many technologies have been made available in the year and a half while this study was conducted, to fulfill the promise of revolutionizing the instruction and improving student learning. A Deanship of E-learning has been established, and all introductory courses are now taught online using a

Learning Management System (LMS) called Jusur (translated as "bridges") (KSU, 2008).

It is hoped that this research will relate the use of technology, which is strongly supported these days in Saudi instruction, to the students' needs and their learning styles. Implemented with thoughtful attention to student needs and characteristics, the growing use of technology will be of increasingly greater use to the students in their learning process.

This study was undertaken in the hope of addressing Saudi EFL learning styles and the relation of these styles to the type of instruction students receive. The study aims to fill the gap in the research with respect to Saudi EFL learning style preferences.

CHAPTER III

METHODOLOGY

Introduction

This chapter provides an overview of the methodology chosen for the present study. It begins with a restatement of the problem of this research and reviews the research questions. A research design is presented, which outlines the approach taken to answer the questions. The research setting, participants, instruments and the validity of these instruments are presented and discussed. The data collection processes are outlined and the approaches to analysis are discussed.

Restatement of the Problem and the Research Questions

The main aim of this study is to explore the effect of learning styles on the learning process of Saudi EFL students and their choice of the medium of instruction available (traditional or virtual). It is assumed that learning styles contribute to the students' success, motivation, experiences and satisfaction in the learning process. The questions that drive this study are:

1- What are the learning styles of EFL Saudi college students, as measured by questionnaire and student self-report? In conjunction with this,

1a. What aspects of learning styles seem to correlate with students' satisfaction, comfort and success in EFL classes in Saudi Arabia?

1b. What positive and negative learning experiences are cited by students, and do these fall into patterns according to the students' learning styles?

2- Do students' learning styles seem to correlate with their choices of online or traditional classrooms in connection with a writing course? If so, in what way? What relationships can be drawn between the two measures?

2a- What are the preferred learning styles of the Saudi EFL virtual learners (those who strongly prefer online instruction)?

2b- What are the preferred learning styles of the Saudi EFL traditional learners (those who prefer traditional classroom instruction)?

3- What other regular differences in strategy use, motivation and confidence between Saudi EFL virtual and traditional learners emerge, judging from their perceptions about their learning experiences?

Research Design

One of the basic concepts when conducting research is designing the research components carefully. Maxwell (1996) focuses on this when he distinguishes between good design and bad. He states that the good design is "one in which the components work harmoniously together" (p. 2) and one that "promotes efficient and successful functioning" (p. 2). In contrast, "a flawed design leads to poor operation or failure" (p. 2).

This study employed a mixed method design. A mixed methods approach makes use of both quantitative and qualitative methods. According to Johnson and Onwuegbuzie (2004), "The goal of mixed methods research is not to replace either of these approaches (quantitative and qualitative) but rather to draw from the strengths and minimize the weaknesses of both in single research studies and across studies" (p. 14).

In the quantitative part of the study, the individual learning styles have been tested and explored using a survey. In the qualitative part, a detailed exploration has been done with a small number of participants using open, in-depth interviews. The quantitative methods are used to address the quantitative questions of the study. This was done using the Perceptual Learning Style Preference

Questionnaire (PLSPQ), a self-report questionnaire that helps students discover their preferred learning style. The idea behind using this questionnaire was to elicit the learning styles of the sample. The cost-effectiveness of the questionnaires makes it possible to access a large sample in a short period of time. According to Ary, Jacobs and Razavieh (2005), one of the reasons for using surveys in research may be their convenience in accessing a larger population. The choice to join either section of the class (online or traditional) was left to the students, and the data collection processes coincided with the start of both sections of the course.

The course was taught by the same instructor using two different formats. The online format consisted of the course materials delivered online using Jusur, a virtual, campus-based learning environment. The students participated in the online environment, and used all the features Jusur provides for the students and the instructor to learn and interact. Students made use of the discussion board, peer feedback and group discussions, and submitted their assignments online.

The traditional group had the same course with the same materials, but was taught in a traditional (face to face) classroom. The same class discussions, peer feedback, board,

and materials were used to engage the students in the class and the activities.

When students chose their preference for class format, a random sample of six students from each format were interviewed to discuss their preferences, choices, satisfaction and reactions to the format of teaching they experienced, and the relation of this format to their learning style. The interview questions were posed in Arabic rather than English, as all the interviewees preferred to speak in Arabic. These interviews were transcribed and themes were coded as the study progressed.

While it was easy and possible to interview the male participants, due to social and cultural barriers, female participants were interviewed over the phone. The female participants in the group were first emailed, and consent for phone interviews was acquired prior to setting interview times.

Research Setting

This research was carried out in the English Department at King Saud University, in the context of the writing course entitled Writing III. The traditional format for this course required the students to physically attend classes and work in a traditional, class-based format. The virtual format choice required the students to acquire a

user name and password in order to log into Jusur and join the class online. These passwords were made available before the beginning of the course. The traditional section took place at a weekly time set up by the researcher and the department. By contrast, the online format of the class had no exact time. Instead, assignments and homework were assigned and monitored according to the Jusur features that control time limits for submitting and receiving students' contributions. Participants in this section were able to access either their own computers or the machines made available through the computer lab in the college.

The interviews with both sections took place on a weekly basis, at a preset time and day. Where face-to-face interviews were possible, these individual meetings took place in the department lounge in a very relaxed atmosphere. Each participant was interviewed individually and no time constraints were applied for these interviews. These interviews lasted for an average of an hour; and after they were conducted and transcribed, the transcripts were shared with the interviewees in order to ensure validity and clarity. As previously noted, due to the segregated nature of Saudi EFL classrooms, the interviews with female participants were conducted over the phone, after the

interviewees provided their emails and phone numbers and consented to the interviews.

The Course

This research was conducted during the academic spring semester of 2010. The course that students were taking during this period is Writing III, as noted above. The main aim of this mandatory course, required of all the department's second year students, is to introduce students to academic essay writing. According to the course description:

"The general objective of this course is to further develop the students' ability to write and to refine their writing techniques in terms of more sophisticated lexis and constructions. The focus on the paragraph will very soon shift to the essay. The specific objectives include:

- 1) Highlighting the essential form and function of an essay,
- 2) Reinforcing the idea of thesis statement,
- 3) Illustrating the various means of introducing material to support an argument.

The content of the course will include the following:

- 1) Introductory paragraph and thesis statement,
- 2) Development of the body paragraphs from the introduction,
- 3) Summary of the ideas/arguments in a concluding paragraph,

4) Provision of supporting material in the form of examples, facts, statistics, etc." (KSU, 2009).

The assessment criterion at the end of the course was based on the submission of two papers: a 400-word response essay and a 600-word argumentative essay, in addition to the example essays written during the course for practice. This assessment rubric was identical for both sections of the course.

The two modes of instruction were chosen by the instructor, as department policy gives the instructor the freedom to decide on the method of instruction used. Thus, the Jusur-based section representing the online mode, and the class-based section representing the traditional mode, were made available for students to choose from at the beginning of the semester. Students chose their preferred class section and completed the PLSPQ that decided their learning styles.

Research Participants

The population for this study, in the survey stage, consisted of 100 Saudi college students majoring in English and taking the identified course in writing (Writing III) at King Saud University. For the interview stage, a smaller set of 12 students was invited to participate, based on their

willingness to participate in the interview and their desired class section. The students' biographical information was collected and presented. The study was conducted soon after the ethical forms for this research were revised and finally approved. Among the main reasons for taking this course as set up by the English Department is that it is mandatory for the department's students and a prerequisite for other writing classes. Students must take a writing class in their first year in the department after they finish their first foundation year; as a result, they must take this prerequisite course during their first year. Although King Saud University is located in Riyadh, the capital of Saudi Arabia, it has many students from all over the Kingdom. Given this, it is hoped that the study sample represented a range of EFL Saudi college-level students.

Data Collection

In order to answer the first question and the first part of the third question of this research, the PLSPQ was administered to 100 Saudi EFL students enrolled in the English Department at King Saud University. The required permissions to go ahead with the survey were granted before the study took place. The first research question dealt with the preferred learning styles of the Saudi students, and the survey answered this question to a high degree of validity.

Part of the third question dealt with the learning styles preferences of both the online group and the traditional group, and the PLSPQ also helped in providing answers to this as well.

The other questions, which investigated the students' experiences, perceptions and their relation to learning styles, were addressed through individual interviews. Open and in-depth interviews took place during the semester while students were taking their courses, whether virtual or traditional, and the data was gathered and coded throughout the whole semester. The interviews were spread over a period of a whole semester (approximately three months) and students' experiences and perceptions were elicited during these interviews. This time frame allowed me to follow the students' interaction and application of the learning styles theory throughout the semester, and observe any changes in the participants' attitudes, behaviors, and experiences.

Sources of Data

This study made use of two methods in collecting the data for answering the research questions: a self-reporting survey and individual interviews. The choice of these two methods is based on two considerations. First, the PLSPQ has a high rate of validity and reliability, and was considered as the best measure of learning styles. Still, this measure

might be flawed on some level (Reid, 1990). An example of a study that questions the PLSPQ is the study done by Isemonger & Sheppard (2007) which examined a Korean version of Reid's questionnaire and reported inconsistency in the reliability estimates. Reid herself (1990) recommended that educators use learning styles instruments with care, and called for a multidimensional instrument that helps to create learning style profiles for learners.

Due to this limitation, and in order to tackle the qualitative issues raised in the research questions, it was decided to combine the PLSPQ with in-depth individual interviews. Second, triangulation has been valued in studies that address a complex issue such as this one. DeCapua and Wintergerst (2005), for example, suggested a triangular approach in studying learning styles and advocated the use of questionnaires, oral interviews and participants' observations.

Triangulation Strategies

Many researchers have explored the idea of establishing trustworthiness in research, regardless of whether that research is quantitative or qualitative. For example, Lincoln and Guba (1985) identified four criteria in quantitative research (internal validity, external validity, reliability, and objectivity) and four criteria in

qualitative research (credibility, transformability, dependability, and conformability).

In relation to the undertaken research, Lincoln and Guba (1985) state that in order to increase the credibility of interpretations and the probability of the findings, triangulation is the preferred method for reaching such goals.

When taken beyond its conventional association with research methods and designs, triangulation can be done in four different forms:

- 1) Data triangulation, which refers to gathering data through several sampling strategies and looking for the data to remain the same in different contexts;
- 2) Investigator triangulation, which refers to having more than one researcher to gather and interpret the data;
- 3) Theoretical triangulation, which refers to the use of more than one theoretical position in interpreting data; and
- 4) Methodological triangulation, which refers to the use of more than one method for gathering data.

Of great relevance to the methodology used in this study is the debate over the reliability of self-reporting questionnaires, and the question of whether or not students

can predict their own learning styles successfully. It must be noted, however, that this study was following a precedent set by many other studies in using the PLSPQ or similar self-reporting questionnaires; in fact, most of the research into perceptual learning styles have done so (Dunn, Dunn, & Price, 1975; Dunn, 1993; Kolb, 1984; More, 1990; Reid, 1987; Reinert, 1970; Park, 2002). Dunn (1983) showed that most students are able to correctly identify their learning style strengths, especially if the style is strongly preferred or rejected.

In fact, she found that most third through twelfth grade students, when tested, knew not only their strong learning preferences but also their weak ones. Another example of the ability of learners to correctly identify their learning preference is Black's 2004 study. Black used a simple question -- asking people for directions - to which they could respond either audibly or in drawing. Black noted that if subjects were visual learners, they would draw a map to their destination, but if they were auditory learners, they would often prefer to be given verbal instructions. Therefore, according to Black (2004) and Dunn (1983), people are able to reliably distinguish their own preferences. From this, we can infer that students know their own strong and weak learning styles, even without formal assessment.

After students had completed the survey and chosen their preferred type of instruction, interviews took place with two sets of students, each set consisting of six students that represented each of the two types of instruction - traditional or virtual. As stated before, these meetings took place during the semester, and the data that were gathered were studied and coded as the study progressed according to the themes that emerged. The meetings were all conducted in Arabic although students were given the choice to speak in Arabic or English. As they all preferred to speak in Arabic, I provided the translation of these interviews. A subsequent validation of the translations was done with the help of the colleagues in the department.

The survey used in this study consisted of two parts. In the first part, a cover letter (Appendix B) was provided with instructions on how to go ahead with the main parts of the survey. After this, a consent form was provided to get the student's permission to go ahead with the rest of the survey. Some biographical information was included at the beginning of the second part of the questionnaire, and a space was left for contact information in case further investigation was needed. The second part of the survey consisted of the main survey: the perceptual learning styles

preferences questionnaire (PLSPQ). At the end of this survey, interviewees who were willing to be interviewed were left a space to input their emails for interviewing.

Perceptual Learning Styles Preference Questionnaire

The PLSPQ was developed by Joy Reid in 1987. She designed the survey to study the learning styles of ESL learners. The survey helped the students assess and determine their own preferred learning styles from among the six main learning style preferences tested: visual, auditory, tactile, kinesthetic, group and individual (Reid, 1987). The sample for Reid's study consisted of 1,388 university ESL students studying at various American universities. They were all from different cultural backgrounds, and the results showed differences among people from different cultures. The results also indicated that there are clear differences between native speakers of English and non-native speakers. The results showed that ESL students strongly preferred kinesthetic (body movement) and tactical (hands-on) learning styles; and most ESL groups (from different cultural backgrounds) showed a negative preference for the group learning style. When looked at in relation to students' cultural backgrounds, Korean students were the most visual, while Arabic and Chinese were also

strong visual learners. Arabic and Chinese students were more auditory than their Japanese counterparts. Among the other findings were that, Japanese speakers were less kinesthetic than Arabic, Spanish, Chinese, Korean and Thai speakers.

The PLSPQ consists of 30 items designed to elicit the six perceptual learning styles preferences: visual, auditory, kinesthetic, tactile, group, and individual learning styles. Each one of the randomly arranged 30 statements is rated on a five-point Likert scale comprised of "strongly disagree", "disagree", "neither agree nor disagree", "agree", and "strongly agree". The scale is presented in Appendix A.

The PLSPQ was used for this study for many reasons, three of which are cited here. First, as noted above, the PLSPQ has been previously validated and its reliability is high (Reid, 1987). Reid stated that the validation of the questionnaire was done by the split half method. A correlation analysis of an original set of 60 statements (10 per learning style) determined which 5 statements should remain within each subset, and that process resulted in the creation of the recent questionnaire with its 30 statements. Second, the PLSPQ was felt to be most relevant to the present study as it was designed mainly to assess the

learning styles of ESL learners. With the prospective respondents' background in mind, the questionnaire made use of simple language for non-native speakers of English. Third, this measure allows students to assess their learning styles easily using the calculations Reid provided with the questionnaire.

Interviews

The second main research instrument in the present study was in-depth interviews. Using interviews in qualitative research is important and indeed is considered to be the basis of qualitative inquiry; hence, the interview was identified as the main way to gain insight into the qualitative component of the research questions for this study. Maxwell (1996) explained the importance of interviews when he stated, "Interviewing can be a valuable way of gaining a description of actions and events especially for events that took place in the past or ones to which you cannot gain observational access" (P. 76).

Individual interviews with students from the two groups were conducted once the students had decided their own learning styles using the PLSPQ and made their choice of type of instruction, virtual or traditional, for their course. As DeCapua and Wintergerst (2005) indicated in their evaluation of how a learning style can be measured with an

instrument, "Interviews of graduate students in a Master's in TESOL degree program revealed that quantitative means alone are insufficient to ascertain the effectiveness and usefulness of a learning styles instrument, particularly in the case of non-native speakers" (p. 1). Because of this, interviews with the members of the two separate instruction groups were suggested in order to answer the other research questions, which centered around the effect of learning styles on the students' choice of instruction method and their experiences whether positive or negative, as well as their satisfaction and success during the course. The two group interviews gave me the opportunity to discuss the effect of learning styles on the students' choices, and also gave the participants the chance to reflect freely on their experiences. As planned, the two groups that represented the two modes of instruction consisted of six students each. The in-depth interviews were conducted individually with each group member, in order to get deep insights into the students' reactions and experiences.

Although there are different types of interviews, this study adapted the open in-depth interview. In this type of interview, the same open-ended questions are asked of all the interviewees. However, the questions are open-ended in the sense that participants were not restricted to simple

"yes" or "no" answers. Rather, each participant was able to answer the same basic questions from different angles relating to their own point of view. This construction of questions helped with the analysis and comparability of the answers.

As this research is about the students' perceptions of their experiences and their own judgments and self-reporting methods, interviews were favored, as they "can allow researchers to investigate phenomena that are not directly observable, such as learners' self-reported perceptions or attitudes" (Mackey & Gass, 2005, p. 173). Although valuable, interviews have some caveats. Selectivity of some information and the memory loss from the interviewees' side are among these caveats. As a result of these concerns, I employed Mackey & Gass's recommendations in conducting successful interviews when they recommend that the interviewer should do the following:

- "Be sensitive to (and/or match the interviewer's characteristics with) the age, gender, and cultural background for the interviewee.
- Encourage open-ended discussion--for example, by keeping silent, or by saying "anything else?" rather than accepting the first answer as the interviewee's final and complete response to a question.
- Develop skills in anticipating and addressing communication problems.

- Try to make the interviewee as comfortable as possible. This can be done by conducting the interview in a familiar place, beginning with small talk to relax the interviewee, and/or using the L1 if a communication problem arises or if the interviewee so prefers.
- Place the key questions in the middle of the interview, because the interviewee may be nervous at the beginning and tired by the end.
- Mirror the interviewee's responses by repeating them neutrally to provide an opportunity for reflection and further input." (p. 174-175)

I designed an initial set of basic interview questions that started with some relaxing and conversational questions in order to help build a friendly rapport with my interviewees. Some other questions used in the course of the interview helped encourage and support interviewees to give more details and information, such as "What do you mean?", or "Would you please explain further?" During the interviews, I took notes to help me to plan the ongoing choice of questions and interpret the interviews more efficiently.

Female Interviews

One of the problematic areas related to the context in which this study is taking place is the issue of gender segregation. In order to interview female participants, I first had to obtain their consent for the interview, and

then interview them at a predetermined time over the phone. In their seminal investigation of remote interviewing, King and Horrocks (2010) presented a justification for using such interviews when face-to-face interviews are impossible, as they were in the Saudi context between a male researcher and female participants.

Quantitative Data Analysis

Since this study employed a mixed method approach and design, the data analysis also employed an exploratory strategy as presented by Creswell (2003). He explained this strategy as "the collection and analysis of quantitative data followed by the collection and analysis of qualitative data" (Creswell, 2003, p. 215).

In certain cases, given the goals of a given research project, quantitative and qualitative analysis methods are used. In the present study, basic statistical analysis of questionnaire results was undertaken in order to determine the learning styles of the Saudi EFL learners. These statistics made clear what the percentage of students with each perceptual preference was and what the major modalities of the virtual and traditional learners were. These preferences are categorized in tables in chapter 4. Descriptive statistics were done with the help of the Applied Research Lab at Indiana University of Pennsylvania,

as well as through using the latest SPSS release. The descriptive statistics were used to elicit the demographics, percentages, and means of the sample. Besides this, the qualitative part took place and was analyzed on its own.

Qualitative Data Analysis

Since descriptive statistics do not clarify the changes in the phenomena studied over a period of time, the interviews helped to address these limitations. These interviews helped me and the participants to reflect on their experiences during the course, and enabled them to provide information that helped me to answer the research questions. These interviews were analyzed qualitatively, as will be described later in the chapter. The data collected from these interviews were analyzed and coded into themes as will be presented later.

According to Creswell (2003), coding is "the process of organizing the material into "chunks" before bringing meanings to these "chunks" (p.192). After the interviews were transcribed, the coding process began. All the meaningful chunks were identified, grouped, listed, regrouped, relisted and revised on a continuous basis. The thematic groupings were minimized, maximized, added to and taken from as required for analysis. Thematic codes were created using a data-driven approach. Rather than forcing a

model or a theory on the data, my task as a researcher was to construct a theory out of the raw data that I obtained from the interviews.

The analysis of the qualitative data from this research is based on the guidelines offered by Braun and Clarke (2006), and King and Horrocks (2010) for analyzing qualitative data. They propose a three-step-process for analyzing interview data.

In stage one, descriptive coding is applied to the transcribed data. In descriptive coding the main aim is to identify those interviewees' responses that are likely to help in addressing the research questions. Rather than interpreting the meaning of the responses, I read and reread the students' input in order to become familiar with the data and make sense of any responses that could contribute to the answers to the research questions. The next step within this initial stage was to highlight anything in the transcript that might help me understand the participants' views, experiences, and perceptions related to the topic of investigation. During this process, in accordance with what the researchers advise, short preliminary comments were written close to the highlighted data in order to help me understand specific chunks. In the final step, I then used these comments to define descriptive codes.

Stage two is called interpretative coding. In this stage, I clustered descriptive codes and defined codes that go beyond the participants' words. These interpretative codes focus more on my interpretation of the meanings of the participants' accounts.

The third stage consists of overarching themes that characterize key concepts in the data analysis. These themes are built on the descriptive and interpretive codes, but feature a higher percentage of abstraction.

Questions were then answered through combining answers from both quantitative and qualitative data.

Validity and Reliability

In order to ensure the validity and reliability of the survey instrument, I and my research committee reviewed all the items in the survey and made sure that the wording was fully comprehended by the participants, and that the questionnaire was suitable for the cultural background of the participants. The survey was also evaluated by two faculty members in the English Department at KSU to ensure full reliability and validity and to predict any areas of misunderstanding or misinterpretations. To ensure full comprehension of the survey, an introductory vocabulary session was introduced before administering the questionnaire in order to address unknown terminology that

may not have been relevant to the students in their previous courses. Students reviewed a few words like "role-playing" and "class-project", and full understanding was reported by all the participants.

CHAPTER IV

QUANTITATIVE FINDINGS

Introduction

This chapter presents the quantitative data analysis procedures and the quantitative results for the research questions of the study. It presents the results of the first data collection method in this study; namely, the questionnaire.

The original purpose of the study was to understand the relation between Saudi EFL students' preferred learning styles and the modes of instruction they choose, linking these to the use of technology in some pedagogical approaches. One of the aims of this study was to determine students' satisfaction, choices and experiences when learning in different modes. The preferred learning styles of the students were measured by the Perceptual Learning Styles Preference Questionnaire (PLSPQ) developed by Joy Reid (Appendix A). Students' perceived learning experiences, as well as changes in their attitudes and behaviors, were measured using interviews conducted during an EFL writing course. The questions that guided this research were:

1- What are the learning styles of EFL Saudi college students, as measured by questionnaire and student self-report? In conjunction with this,

1a. *What aspects of learning styles seem to correlate with students' satisfaction, comfort and success in EFL classes in Saudi Arabia?*

1b. *What positive and negative learning experiences are cited by students, and do these fall into patterns according to the students' learning styles?*

2- *Do students' learning styles seem to correlate with their choices of online or traditional classrooms in connection with a writing course? If so, in what way? What relationships can be drawn between the two measures?*

2a- *What are the preferred learning styles of the Saudi EFL virtual learners (those who strongly prefer online instruction)?*

2b- *What are the preferred learning styles of the Saudi EFL traditional learners (those who prefer traditional classroom instruction)?*

3. - *What other regular differences in strategy use, motivation and confidence between Saudi EFL virtual and traditional learners emerge, judging from their perceptions about their learning experiences?*

The chapter begins with a presentation of how the survey was conducted, and presents the response rate of the sample as well as descriptive statistics on some demographical variables. This is followed by some statistical analysis, and presentation of the scales of the PLSPQ. Following this, reflections are made on the quantitative results of this study.

It is worth noting that interpretations of the quantitative findings of this study are based mainly on the results that were processed by the Applied Research Lab at Indiana University of Pennsylvania using the latest SPSS release.

Response Rate

The questionnaire was distributed to the male and female students taking an introductory writing course called Writing III at the English Department of King Saud University in January of 2010. The questionnaire was built on an online survey tool called the Bristol Online Survey <<http://www.survey.bris.ac.uk/>>. This online survey was chosen to overcome the difficulty of accessing the female sample in sex-segregated classes. In addition, research has indicated that email surveys are appropriate for use with college-level students, and are comparable to mail (paper and pen) surveys. For example, when comparing paper and pen

surveys and email services, Shih and Fan (2009) state, "For the studies involving college populations, the response rate difference between e-mail and mail surveys was much smaller [than other differences], or even negligible, suggesting that e-mail survey is reasonably comparable with mail survey for college populations." (p, 1)

When the survey was completed and ready for distribution, email links were sent to the students taking the course. The last part of the questionnaire included an invitation for the students to participate in interviews that would be held during the semester.

107 students in total, both male and female, were taking the course at the time of this survey. As shown in table 5, of the 107 students taking the course, 100 students fully completed the PLSPQ; these responses were judged complete and valid for statistical analysis, yielding an overall response rate of 93.4 percent. Twelve students agreed to participate in the interview section of the study, 9 males and 3 females.

Table 5
Rate of Responses for the Study

Number of distributed questionnaires	Number of returns	Cumulative Percentage
107	100	93.4

Although it was relatively easier to access the male group, I was able to access the female group with the help of another female instructor, who provided assistance when needed.

Demographic Data

Although the demographic data categories are not primarily related to the research questions of this study, it was decided to include these data in the questionnaire in order to create a clear picture of the sample for this research. Table 6 summarizes data related to the students' gender, age, and level of EFL study, as well as their preferred method of instruction. Of the 100 participants in this research, 69 (69%) identified themselves as male, and 31 (31%) as female. The ages of the respondents were classified into three categories: 18-25, 26-30, and 31-35. The largest group of participants (87) fell into the first age group (18-25) and represented the largest percentage (87%). This is consistent with the targeted population taking the course, who happened to be first year students. The next age group (26-30) came second, with 7% of the total. The third age group (31-35) represented 6% of the sample and consisted of 6 participants. The data collected showed that the majority of the sample (47% of the whole sample) described themselves as intermediate EFL learners.

41 students in the sample described themselves as advanced EFL learners and represented 41% of the sample. The rest of the group represented 12% of the sample and consisted of 12 students who described themselves as beginning EFL learners. These numbers seemed logical when taking into account the fact that these students have already finished some studies in English in their respective college educations. When asked about their preferred method of instruction, 66 students (66% of the sample) preferred online classes, while 34 students (34% of the sample) preferred class-based instruction.

Table 6
Demographic Data for the Whole Sample

Category	Frequency	percentage
Gender		
Male	69	69%
Female	31	31%
Age		
18-25	87	87%
26-30	7	7%
31-35	6	6%
Level of EFL study		
Beginner	12	12%
Intermediate	47	47%
Advanced	41	41%
Preferred method of instruction		
Online	66	66%
Class-based	34	34%

Descriptive Statistics

Frequencies, percentages and rankings of the most preferred learning styles among the participants in this research, as elicited by PLSPQ, are presented in table 7. Of the 100 students that participated in this research, 25 (25%) preferred the tactile learning style, 19 (19%) preferred the auditory learning style, 18 (18%) preferred the visual learning style, 15 (15%) preferred the group learning style, 14 (14%) preferred the kinesthetic learning style, and only 9 (9%) preferred the individual learning style. While the tactile learning style accounted for 25% of the whole sample and ranked first in terms of the most preferred learning style, the individual learning style accounted for 9% of the whole group and ranked last as the least preferred learning style among the participants. However, it should be noted that students did show wide variation in their attitudes toward their preferred learning styles, especially between the tactile and individual modality.

Table 7
Distribution of the Whole Sample According to the Preferred Learning Style

Learning style	Frequency	percentage	Rank
Tactile	25	25%	1
Auditory	19	19%	2
Visual	18	18%	3
Group	15	15%	4
Kinesthetic	14	14%	5
Individual	9	9%	6
Total	100	100	

Table 8 presents the percentages, frequencies and ranking of the preferred learning styles of the virtual group. The virtual group consists of the students who preferred to join online classes rather than traditional face-to-face classes. Of the 66 students, referred to as online learners, who showed an interest in joining online classes, 17 (25.8%) preferred the tactile learning style, 14 (21.2%) preferred the visual learning style, 12 (18.2%) preferred auditory learning, 9 (13.6%) preferred kinesthetic learning, 8 (12.2%) preferred the group learning style, and 6 (9.1%) preferred the individual learning style. The tactile and visual modalities accounted for 47% of the virtual learners' learning style preference and ranked as the first two most preferred learning styles, while the group and individual modalities accounted for 21.2% and were considered the least preferred learning style among virtual learners.

*Table 8
Distribution of the Virtual Learners According to the
Preferred Learning Style*

Learning style	Frequency	percentage	Rank
Tactile	17	25.8%	1
Visual	14	21.2%	2
Auditory	12	18.2%	3
Kinesthetic	9	13.6%	4
Group	8	12.1%	5
Individual	6	9.1%	6
Total	66	100	

In comparison to table 8, table 9 presents the percentages, frequencies and ranking of the preferred learning styles for those students who fell into the traditional group. The traditional group consists of the students who preferred to join regular classroom-based courses over online courses. Of the 34 students referred to as traditional learners, 8 (23.5%) preferred the tactile learning style. This 23.5% represented the majority of the students and ranked in first place. The second rank was divided between 7 (20.6%) students who preferred auditory learning and another 7 (20.6%) students who preferred the group learning style. Five students (14.7%) preferred the kinesthetic learning style, 4 (11.8%) preferred visual learning, and only 3 (8.8%) preferred the individual learning style, which fell in the last rank among traditional learners' preferred learning styles.

Table 9
Distribution of the Traditional Learners According to the Preferred Learning Style

Learning style	Frequency	percentage	Rank
Tactile	8	23.5%	1
Auditory	7	20.6%	2
Group	7	20.6%	2
Kinesthetic	5	14.7%	3
Visual	4	11.8%	4
Individual	3	8.8%	5
Total	34	100	

An independent samples t-test was conducted to compare the two groups' (virtual and traditional) preferences in learning styles. The results are projected in table 10. When examining the different learning styles separately, only the group modality was able to predict the learning environment preferred. Meanwhile, results from a Logistic Regression analysis show that Nagelkerke R = .173, which means that the different learning styles account for 17% of the variance in their preference between the two types of classes. This is significant since $p = .038$. In other words, it seems that only the group modality shows a correlation with the preferred type of instruction offered.

Table 10
*Differences in Learning Style Preferences between
 Traditional and Virtual Learners*

Learning style	Mean Traditional Students (N= 34)	Mean Virtual Students (N= 66)	<u>t</u>	<u>p</u>
Group	37.8824	34.2727	-2.712	.008*
Individual	31.8235	34.1515	1.715	.090
Kinesthetic	37.1765	34.7879	-1.522	.131
Auditory	34.9412	34.3030	-.479	.633
Visual	33.2353	33.1818	-.038	.970
Tactile	38.0588	36.2727	-1.218	.226

*p < .05

As stated in the previous section, one of the purposes of the PLSPQ is to help the participants report on their major, minor, and negligible (least preferred) learning styles. When looking at the outcomes for all three of these, the picture becomes more complex. In the following tables, a projection of the major, minor, and negligible preferences are presented. Table 11 presents the learning style preferences of the whole group. Out of the 100 participants, 39 students (39% of the group) chose the group modality as a major learning style preference. 57 (57% of the group) chose the same modality as a minor modality. The remaining 4 people (4% of the group) chose this modality as a negligible modality. For the individual modality, 26 people (26% of the sample) reported having this modality as a major, 64 people

(64% of the sample) reported having it as a minor modality, and 10 students (10% of the sample) reported it as a negligible modality. Kinesthetic was reported as a major preference for 44% of the sample (44 students), a minor preference for 48% of the sample (48 students), and a negligible preference for 8% of the total sample (8 students). 36 out of the 100 participants listed auditory as a major preference (36% out of 100), 59 as a minor (59%) and 5 (5%) as a negligible. For the visual learning style preference, 31 (31%) reported this modality as a major, 61 (61%) as a minor, and 8 (8%) as a negligible. The tactile modality was reported as a major learning style preference by 49 students (49%), as a minor by 47 (47%), and as a negligible by 4 students (4%).

*Table 11
Distribution of the Whole Sample According to the Perceptual Learning Style Preference*

Learning style preference	Group		Individual		Kinesthetic		Auditory		visual		Tactile	
	F	%	F	%	F	%	F	%	F	%	F	%
Major	39	39	26	26	44	44	36	36	31	31	49	49
Minor	57	57	64	64	48	48	59	59	61	61	47	47
Negligible	4	4	10	10	8	8	5	5	8	8	4	4
Total	100	100	100	100	100	100	100	100	100	100	100	100

Note. Major learning style = scores 38-50; Minor learning style = scores 25-37; Negligible learning style = scores 24 or less.

The data in table 12 revealed that, of the 66 participants who chose the online section of the class, 19 students (29%) selected group style learning as their major learning style preference, 44 students (68%) as a minor, and 3 (5%) as negligible. The same table shows that 20 students (30%) out of the online learners chose the individual leaning style as their major, 42 (64%) as a minor, and 4 (6%) as a negligible. For the kinesthetic style, 25 students (38%) chose this preference as a major, 34 (52%) as a minor, and 7 (10%) as a negligible learning style preference. Within the same group of students who chose the online section of the class, 23 students (35%) listed auditory as their major learning style preference, 40 (61%) as a minor, and 3 (4%) as a negligible preference. Data in the same table indicates that 22 (33%) of the online learners preferred visual preference as a major, 37 (56%) as a minor, and 7 (11%) as a negligible preference. The tactile preference was indicated as a major preference by 31 (47%) people in this group, a minor by 31 people (47%), and a negligible by 4 people (6%) of the same group.

Table 12
Distribution of the Virtual Learners According to the Perceptual Learning Style Preference

Learning style preference	Group		Individual		Kinesthetic		Auditory		visual		Tactile	
	F	%	F	%	F	%	F	%	F	%	F	%
Major	19	29	20	30	25	38	23	35	22	33	31	47
Minor	44	68	42	64	34	52	40	61	37	56	31	47
Negligible	3	5	4	6	7	10	3	4	7	11	4	6
Total	66	100	66	100	66	100	66	100	66	100	66	100

Note. Major learning style = scores 38-50; Minor learning style = scores 25-37; Negligible learning style = scores 24 or less.

In contrast to the online group, the traditional (class-based) group showed a different pattern of preferences for learning styles. Table 13 reports on these preferences of the traditional learners. Of the 34 learners who preferred the traditional class format, 19 people (56%) indicated a major preference for the group learning style, 14 people (42%) showed a minor preference, and 1 person (2%) showed negligible preference. 6 people (18%) in the same group showed a major preference for the individual learning style, 22 people (64%) showed a minor preference, and 6 people (18%) showed negligible preference. The kinesthetic learning style was considered a major learning style for 19 people (56%) of the same group, a minor for 14 people (42%), and a negligible learning style for 1 person (2%). The

auditory modality was indicated as a major learning style for 13 people (38%), a minor for 19 (56%), and a negligible for 2 people (6%) of the same group. 10 (30%) of the 34 traditional learners indicated the visual learning style as a major preference, 23 (67%) as a minor, and 1 (3%) as a negligible preference. 18 (53%) of the traditional learners viewed the tactile learning style as a major learning style preference, 16 (47%) as a minor, and no one of the same group considered this modality as a negligible learning style preference.

Table 13
Distribution of the Traditional Learners According to the Perceptual Learning Style Preference

Learning style preference	Group		Individual		Kinesthetic		Auditory		visual		Tactile	
	F	%	F	%	F	%	F	%	F	%	F	%
Major	19	56	6	18	19	56	13	38	10	30	18	53
Minor	14	42	22	64	14	42	19	56	23	67	16	47
Negligible	1	2	6	18	1	2	2	6	1	3	0	0
Total	34	100	34	100	34	100	34	100	34	100	34	100

Note. Major learning style = scores 38-50; Minor learning style = scores 25-37; Negligible learning style = scores 24 or less.

Discussion of the Quantitative Results

The results of the PLSPQ in this study revealed some interesting points that are worth highlighting. The first interesting result that was revealed by this questionnaire

was the overwhelming preference of the tactile modality of learning styles, regardless of the group's class preference. The tactile modality was the most preferred modality of the whole group, regardless of which learning mode was chosen. Both virtual and traditional learners showed a strong preference for this modality. As is clearly evidenced in table 8, 25.8% of the traditional group ranked tactile as their most preferred learning style. The virtual group also ranked this modality as their first preference, although the percentages in this case differed slightly at 23.5%. While this preference would be expected for the traditional group, where most of the learning depends on the interaction between the teacher and the students and among the students themselves, the results are slightly confusing in the case of the virtual group, as most of the online-based learning looked abstract and did not require much physical interaction. The interview results, which are detailed in the following chapters, shed some light on how the students felt that online learning tended to encompass their learning preferences even when they considered themselves to be tactile or kinesthetic learners.

Another generally interesting fact revealed by the quantitative results of this study is the discovery that the individual style of learning was the least preferred choice

for Saudi EFL learners, regardless of their choice of class modality. This seems to correlate with previous research findings about Arab learners and people within the Arab culture in general, who have been found to dislike individual learning compared to group learning (e.g. Reid, 1987).

In fact, when comparing this study to other studies that used the same instrument, the results of the PLSPQ for this study showed some similarities, as well as some differences, in the learning style preferences of Saudi EFL students, when compared to similar groups in other studies from different cultural backgrounds. Among these studies, and of particular relevance to this study, is the study conducted by Reid (1987). Her study showed that Arab EFL learners preferred the kinesthetic modality to all other modalities, and they also showed a strong preference for the auditory modality. The present study confirmed that preference pattern to some extent.

An example of difference between studies comes from comparing the results from Chen (2006). She surveyed grade 7 to 9 Taiwanese EFL learners using the PLSPQ, and reported that group modality was the most preferred modality among her subjects. Kinesthetic preference came second and the auditory preference came third. In contrast to the findings

of the present study, the tactile modality was reported as the least preferred modality among her subjects.

Conclusion

This chapter presented the results of the first data collection method, the questionnaire. It reflected on the first out of three steps of the data analysis. The second step will be analyzing the interview results that were gathered from interviewing learners in this study. This second step, which involves qualitative analysis, will be presented in the following chapters 5 & 6. The third step will be presented in chapter 6 and will include a combination of the results presented in chapters 4 and 5. It will contain the final answers to the research questions.

CHAPTER V

QUALITATIVE FINDINGS AND ANSWERING RESEARCH QUESTIONS

Introduction

The preceding chapter, which presented the questionnaire results, provided some answers for certain parts of the research questions that could not be answered qualitatively. These include the distribution of learning styles, the preferences of students for different types of instruction, and the relationship between the two. Yet the survey, while informative, did not provide any answers to the questions related to students' experiences: whether the experiences were positive or negative; what the students' levels of satisfaction were; and what the students' perceptions were of how their instructional preference related to their learning styles. For this reason, it was decided from the beginning to utilize interviews as a way of eliciting answers to these questions.

As stated earlier in chapter 3, interviewees were given the choice to speak either in Arabic or in English. All of them chose Arabic, as they felt relaxed and easy using their first language. I translated their responses, and asked a colleague to verify the accuracy of my translations.

As noted at the end of the previous chapter, this chapter continues to present the results of this research, and will begin by introducing the qualitative data analysis procedures. Following that, the questions that guided this research will be presented and answered in this chapter.

As previously stated, the purpose of the study is to understand the relation between Saudi EFL students' preferred learning styles and the modes of instruction they choose, linking these to the use of technology in some pedagogical approaches. It was also among the aims of this study to explore the students' satisfaction, choices and experiences when learning in different modes. The preferred learning styles of the students were measured by the Perceptual Learning Styles Preference Questionnaire (PLSPQ) developed by Joy Reid (Appendix A). Students' perceived learning experiences, as well as changes in their attitudes and behaviors, were measured using interviews conducted during an EFL writing course. The questions that guided this research were:

1- What are the learning styles of EFL Saudi college students, as measured by questionnaire and student self-report? In conjunction with this,

1a. What aspects of learning styles seem to correlate with students' satisfaction, comfort and success in EFL classes in Saudi Arabia?

1b. What positive and negative learning experiences are cited by students, and do these fall into patterns according to the students' learning styles?

2- Do students' learning styles seem to correlate with their choices of online or traditional classrooms in connection with a writing course? If so, in what way? What relationships can be drawn between the two measures?

2a- What are the preferred learning styles of the Saudi EFL virtual learners (those who strongly prefer online instruction)?

2b- What are the preferred learning styles of the Saudi EFL traditional learners (those who prefer traditional classroom instruction)?

3. - What other regular differences in strategy use, motivation and confidence emerge between Saudi EFL virtual and traditional learners, judging from their perceptions about their learning experiences?

Since chapter 4 tackled the quantitative results, this chapter will present the qualitative data. This chapter begins with a discussion of how the interviews were conducted, and presents the learning styles of the interviewees who volunteered and were chosen for the interviews. Following this, reflections are made on the qualitative results of this study. Finally, the later section of this chapter will present the answers for the research questions through combining qualitative and quantitative findings.

Although the data that were collected from the questionnaire and presented in the previous chapter helped in providing some answers for parts of these research questions, they were insufficient to paint a deeper picture of the students' experiences and perceptions about their learning in this course, which formed the major part of the research questions. The questionnaire failed to present the students' views about their learning and their behaviors. The interview responses presented in this chapter formed the basis for answering the qualitative parts of the research questions.

The following section will reflect on the interviewees' background information and their learning style preferences before discussing the answers to the research questions.

The Learning Styles of the Virtual Interviewees

Table 14 provides the learning style preferences of the six students who represented the virtual group. These students are identified by pseudonyms. The four males and two females represented different learning styles and shared some major, minor, or negligible learning style preferences. Abdulaziz, for instance, represented the group and the kinesthetic learning style; Ali the visual; Faten the kinesthetic; Hamad the tactile (though he had a great enthusiasm for group learning as well); Maha the auditory; and Saeed was the only student who favored the individual learning style amongst all the interviewees.

Table 14
Demographics of the Virtual Interviewees

Name	Scores						Major Learning style	Minor Learning style	Negligible Learning style
	Visual	Auditory	Tactile	Group	Kinesthetic	Individual			
Abdulaziz	26	22	36	50	38	18	K G	V T	A I
Ali	42	26	24	28	14	16	V	A V	I K T
Faten	24	34	34	34	42	22	K	T A G	I V
Hamad	16	18	46	46	22	16	G T		I K A V
Maha	24	42	36	36	24	18	A	G T	I K V
Saeed	22	20	22	20	28	46	I	K	G A T V

Note. Major learning style = scores 38-50; Minor learning style = scores 25-37; Negligible learning style = scores 24 or less. (V= visual, A=Auditory, T=Tactile, G=Group, K=Kinesthetic, I=Individual).

The Learning Styles of the Traditional Interviewees

Table 15 gives some information about the learning style preferences of the other six interviewees who represented the traditional format of this class. Also identified by pseudonyms, these six students shared some major, minor, and negligible learning styles. In comparison to the online group, and due to the fact that fewer students chose the traditional format, it was harder to find students who represented the full range of six learning styles that are measured by the PLSPQ. In this group, Ameen favored the auditory learning style; Hassan and Wala the group; Khalid the kinesthetic; and Majed and Meshari the tactile learning style. In this group, none of the students who agreed to be interviewed represented the visual or the individual learning style preferences.

Table 15
Demographics of the Traditional Interviewees

Name	Scores						Major Learning style	Minor Learning style	Negligible Learning style
	Visual	Auditory	Tactile	Group	Kinesthetic	Individual			
Ameen	20	40	38	22	26	18	A T	K	I G V
Hassan	28	26	30	48	20	24	G	A T V	I K
Khalid	20	24	22	40	42	26	K G	I	A T V
Majed	18	20	46	14	18	14	T		I K G A V
Meshari	20	18	44	24	42	22	K T		I V A G
Wala	18	36	18	48	16	26	G A	I	K V T

Note. Major learning style = scores 38-50; Minor learning style = scores 25-37; Negligible learning style = scores 24 or less. (V= visual, A=Auditory, T=Tactile, G=Group, K=Kinesthetic, I=Individual).

Qualitative Data Analysis

As stated in chapter 3, the qualitative data analysis was based on the guidelines and the three-step model offered by Braun and Clarke (2006), and King and Horrocks (2010) for analyzing qualitative data. In the first descriptive step, parts of the interviews that were thought to have answered or be relevant to answering the research questions were gathered together. Within these parts, I highlighted areas that were very close to answering the research questions, and I wrote labels and comments close to each such excerpt, to ease grouping them later into one descriptive code. In

stage two, I grouped and clustered these descriptive codes into one interpretive code that went beyond the participants' exact words and focused more on my interpretations of the participants' ideas. Finally, I clustered these interpretive codes into major themes that can contain these codes and help answer the research questions.

An example of this process involves the factors students gave for chose their learning style. When asked about what they thought regarding their results on the PLSPQ, students gave reasons such as "when I was young I liked to watch TV a lot" and "I like pictures and drawings" (in support of visual style); they also offered more general comments such as, "I am a different person than my brother". These were gathered under a descriptive code called "personal reasons." These codes were then interpreted as "different personal traits" as an interpretive code. Based on these interpretive codes, the major abstract theme that came to be a major theme in deciding student learning styles is "personality".

The same process was followed with all of the interview transcriptions, and the themes distilled were used in answering the research questions. These themes, along with more in-depth explanation of the qualitative findings, are

presented in the following section. Different themes are presented in relation to each research question.

As was previously stated, the purpose of the study was to understand the relation between Saudi EFL students' preferred learning styles and the modes of instruction they choose, linking these to the predominant use of technology in one of the two pedagogical approaches experienced by the participants. It is one aim of this study to determine students' satisfaction, choices and experiences when learning in different modes. The preferred learning styles of the students were measured by the Perceptual Learning Styles Preference Questionnaire (PLSPQ) developed by Joy Reid (Appendix A). Students' perceived learning experiences, as well as changes in their attitudes and behaviors, were measured using interviews during an EFL writing course. It is the main stated goal of this chapter to introduce and present the qualitative results, through discussing the themes that emerged in the interviews with students. However, since these qualitative results must be interwoven with the earlier quantitative findings, I have arranged the following sections according to the research questions that guided this study. In this way, it is my intention to present a full response to these questions, while at the

same time presenting the qualitative themes for the first time.

Research Question 1

1- What are the learning styles of EFL Saudi college students, as measured by questionnaire and student self-report?

1a. What aspects of learning styles seem to correlate with students' satisfaction, comfort and success in EFL classes in Saudi Arabia?

1b. What positive and negative learning experiences are cited by students, and do these fall into patterns according to the students' learning styles?

This main question and its sub-parts will be discussed separately in the sections that follow. I will follow this same procedure in discussing the other questions in the subsequent section of the chapter. Portions of the quantitative data, as well as portions of the qualitative data, are relevant to the answering of each research question.

Question 1: Main Question:

1- What are the learning styles of EFL Saudi college students, as measured by questionnaire and student self-report?

The first part of the first question was aimed to be answered, in part, quantitatively. For the main part of this question, the results of the self-reported PLSPQ for the whole sample reported the learning styles of Saudi EFL learners. The tactile learning style preference was the most preferred learning style among the subjects of this study, regardless of the class format they chose. 25% of the sample (25 students) chose this modality as their most preferred learning style out of the six categories presented in the research instrument. The other modalities fell in the following order: auditory (19%), visual (18%), group (15%), kinesthetic (14%) and finally individual (9%). It must be noted here that the variation between the groups was not large. This may be influenced by the fact that all the participants are from the same geographical location and have undergone the same instructional orientation.

However, the students elaborated more in the area of self-reporting during our conversations. During the interviews, when asked about their preferred learning style, learners who preferred a certain modality gave different reasons for the choice of this modality. But often, in making these links, they veered off into comments that bring other factors than learning style into the picture. Based on

the qualitative data analysis model proposed for this study, the themes touched on in direct or indirect relation to this question can be classified under the following main themes: personality, culture, and the teacher's teaching style.

Personality. The students' personalities, and the way they perceive themselves as EFL learners, seemed to affect the way they think about their learning styles. In what follows, several references are made, both in my own text and in citations, to one particular system for measuring personality type, namely the Myers-Briggs system, based on original categories developed by C.G.Jung. In this system, a person's type is expressed in a series of four letters, each of which represents a dichotomy, and each of which holds for a particular individual to a greater or lesser extent. For a brief overview of the Myers-Briggs system, see the discussion in chapter 2.

Many students reported that their personality type and traits did and do affect their learning behavior. Interestingly, their answers in this area at least sometimes tended to correspond or "fit" well with their learner type as identified in the survey. For example, in the case of those who preferred the tactile modality, when respondents were asked how they best learn, students showed interest in having the chance to experience things themselves rather

than being told about them. In this sense, Majed, who indicated a preference for sensory learning and favored this particular modality, states:

I know myself. I learn through practice and using my senses better than any other way. Rather than telling me what to do, which all my teachers do, ask me to do it and I will do it well. I like to experience things with as many senses as possible.

Wala, who described herself as an individual learner, reports:

My personality is different from my classmates. While they like to learn in groups and with each other, I tend to like to learn on my own and understand the basic concepts first before I go into bigger details. For this reason I think the individual learning style suits my personality.

Based on this quote, she seems to have an introverted personality. This type of personality is said to operate on a source of energy that is internal (within the self) and not external. She continued on a somewhat different note, criticizing the way teachers deal with learners today. Her contention is that teachers use methods suitable to their own (the teachers') styles, and not the students':

Teachers seem to understand nothing about us. We are different from them.

They teach us according to the way they themselves learned, but we are different. Students nowadays are different from yesterdays' students and teachers seem to ignore this fact. I hope they [teachers] understand our different personalities before they teach us. I like to work on my own and get feedback after. Teachers want us to follow their steps point by point.

Hamad, who showed a major preference for the tactile and group modalities, expresses a similar dissatisfaction when his preferences are not met. As the "tactile" category suggests, Hamad preferred active, "hands-on" learning:

I am totally fed up with teachers telling us what to do when we learn. I am tired of listening to abstract information that I have to absorb and reproduce in the test. I like to learn through hands-on and working with friends and classmates.

But he also stipulates the need to feel relaxed, which suggests he may show some signs of having a "feeling" personality, one in which learning might be seen as linked to the learner's emotional state. This is evident when he states, "When I am relaxed and not stressed, I learn better."

When asked about what hands-on activities he would like to see in the course that would match his preferences, Hamad responded by criticizing teachers who provide writing instructions in the abstract, rather than allowing students to explore and produce writing which can then become the material for learning and development:

For example, why would a teacher tell me about paragraph building, supporting details, and concluding my paragraph correctly while I can work on producing more and more pieces of writing and he can then judge my progress based on that.

This overall result, indicating the close relationship between the preferred learning style and the learner's personality type, is supported in the scholarly literature. For example, Ehrman and Oxford (1990) state that "effective foreign language learning appears to depend on mobilization both of the strategies associated with one's native learning style preferences and of the strategies associated with less preferred functions that are opposite of the four letters of a person's type" (p.323). According to Cooper (2001), this means that the learner's ability to utilize a wide range of learning strategies and styles that are already built within the personality defines the success in language learning.

Culture. Some students gave cultural-specific reasons for their choice of learning style, as well as their choice of preferred learning method. Similar to the results on personality as outlined above, the existing literature supports the belief that cultural beliefs and backgrounds may affect the way people prefer to learn or process information (e.g. Barmeyer, 2004; Earley & Ang 2003). Barmeyer (2004), for example, found that "persons from different cultural backgrounds, such as the French, the German and the Quebecois, may differ in the way they think and act" (p. 591); he concludes that "for optimal learning progress, instructors need to understand their students' learning styles ... and their culture" (p. 579).

The participants in this study showed a conscious sensitivity to this factor. For example, Khalid, Hassan and Ameen, who all indicated a high preference for the group modality, stated that they liked working and learning in groups since the Arab society favors working in groups and working with others rather than individually. This collective thinking is evident in Khalid's words when he says,

We are a very family-oriented society.
We like to have many friends and work
together with other colleagues when
completing an assignment. Yes, the
society is gender-divided but I still

can work with other males and will perform better than being alone.

Ameen, who preferred the auditory modality, gave another culture-specific explanation for his preference of this modality. In particular, Ameen's point is related to the way the learning experience normally occurs in the Saudi context:

Since the time I started school, I was raised listening mainly to the teacher and was not encouraged to speak or engage in any discussion. Even in my social life, age, gender, and social status affected when one was to speak and how one was to speak, and pushed me to act as a passive listener. In this way I became used to being a listener and favored this style of learning.

Another example of how cultural factors, including family beliefs, exert a significant influence on Saudi learners can be taken from Hassan's speech, as he showed some interest in the visual modality. Although Hassan begins here by talking in general terms about his own style, he adds an important factor about his family experience and the values he was raised with. He does not feel that his family would understand the idea of an online experience as a valid learning experience:

I like to learn through seeing. I am a visual person and I appreciate looking at the subject we are learning about better than using any other modality. In fact, I am a visual learner and I knew that before taking this survey. I know that the online class is much closer to my modality than the traditional class but I liked the traditional class more, simply because I had been used to it all my life. My family won't accept the fact that I can have a course over the Internet. I have to physically go to the class and do all the related activities or I will not be considered a university student.

Teacher's teaching style. Many students in this study reported that the teacher's teaching style is also an important factor in determining both their perceived learning style and the way in which they learn. As stated in the literature review presented in chapter 2 of this study, understanding teachers' teaching styles is probably as important as knowing and understanding the students' learning styles. Some students reported different views regarding their teachers' teaching styles and the way that these respective styles affect their learning.

In this regard Faten, who preferred the kinesthetic modality and chose the online section of the course,

emphasizes the importance as well as the consequences of the teacher's style. In particular, in a comment reminiscent of Wala's words cited earlier, she suggests that a teacher must go beyond the one style that may be most comfortable to his or her own learning:

The way teachers teach affects the way we learn. Teachers teach all the students as if they are all the same. They design the course materials based on their beliefs and experiences. They seem to ignore the fact that what works for one student may not work for the other.

She continues to report on her experiences during this course, particularly on how the teaching style of the course teacher affected her perception of her own learning style, possibly even helping her to become more flexible in her style:

I enjoyed the group activities that were presented during the course. I enjoyed working with others and sharing ideas. I did not believe I could learn in groups before, but this teacher proved me wrong. I believe the way the teacher teaches affected my idea of how I learn and the way through which I usually learn.

In accordance with what Faten said, Saeed agrees that the teacher's teaching style is an important factor in determining his perception of how he learns best. He argues:

I learn in many different ways. In fact I can say that I learn in different ways in different courses. When I take a course with a teacher who uses lots of visual cues, I tend to think that I am learning through looking at these materials. When I take a course with a teacher who only lectures all the time, I tend to think of my learning as auditory, and when I take a course with a teacher who uses a combination of different methods, I tend to think that I am learning through different modalities. For example, during this course, I could tell that I made use of different ways to learn, although I like to learn on my own.

The above-mentioned results about the teacher's teaching style and how it affects students' learning are supported by similar results many researchers have reported in similar learning contexts. For example, and in accordance with the changeable behaviors Saeed mentioned, Felder and Brent (2005) recommend that "The optimal teaching style is a balanced one that sometimes matches students' preferences, so their discomfort level is not too great for them to learn effectively, and sometimes goes against their preferences,

forcing them to stretch and grow in directions they might be inclined to avoid if given the option" (p, 62).

Question 1a: Factors in Student Satisfaction and Perceived Success

1a. What aspects of learning styles seem to correlate with students' satisfaction, comfort and success in EFL classes in Saudi Arabia?

The first subsidiary question under question one referred to the students' satisfaction, comfort, and success in Saudi EFL classes, and examined whether this has any relation to the students' preferred learning styles. When students were asked about their experiences in the current EFL course and the relation of these experiences to their satisfaction and success, two different themes emerged: self-awareness and convenience.

Self-awareness as a rare trait. The first theme that was distilled from the students' responses regarding the relation of their experiences to the idea of learning style is lack of self-awareness. Many students reported having until now paid no attention to the process through which they learn. Most denied having taken any type of learning

style inventory before, and the learning style identification seemed like a new kind of self-awareness exercise for most of them. Many of them were a bit surprised with the results of the PLSPQ. Meshari speaks of the positive results of having discovered his learning style:

I have never paid any attention to the way I learn. I usually attend classes, work through assignments and get the results at the end. I have had some good and bad learning experiences but have never asked myself about how I learn best. I think one of the best things I learned from this course is how important it is to know and determine how it is that I learn best. I think by paying attention to that I will improve my learning. I felt very much relaxed in this course because I learned something about my own learning style. From now on, I will be able to choose the activities that suit my learning style and will learn how to make the most from each learning experience I go through.

Unlike Meshari, however, Ali, who showed a preference for the visual modality, seems to have thought about his personal learning style:

I was not surprised that I liked visual learning. I always like to see pictures, diagrams, charts, and so on rather than hearing or learning about them. I tend to learn through looking and watching.

He continues to explain how happy he is with his choice of the online section of the class, and he relates this choice to his awareness of his learning style:

Because of my prior knowledge of my visual preference I chose the online format of this class since I am sure it will meet my preference better than the face-to-face class. In fact I always go for this choice whenever possible. I am very relaxed in this class format and always enjoy the class and benefit from all the online materials.

This result indicates that, at least judging from testimony like this, the visual learning style positively correlates to satisfaction as online learners, while the same learning style may negatively correlate to satisfaction for students in regular face-to-face classes. This is consistent with what Henry (2008) found in the positive correlation between the visual learning style and courses that are presented partially or fully online.

By contrast, it is evident that the opposite is true for the tactile and kinesthetic learners in this study, as these learners preferred the traditional classroom to the online classroom. Their styles positively correlate to their choice of the traditional class format and negatively correlate to online class format. It may therefore tentatively be concluded that the learner's satisfaction and

success correlate with the mode of instruction used in Saudi EFL classes, since this fulfils the learning style preference of the learner.

Convenience. Another theme that emerged in relation to the students' success and satisfaction in this course, and its relation to their learning style, is convenience. Some students reported that when the instruction meets their desired learning style this saves them time, effort and resources, which in turn correlates to their success or failure. Ali addresses this issue of learning effectiveness:

During this course I think I benefited from my time. I began noticing the ways through which I learn and began focusing my attention on the ways that help me learn. I think when students are directed to their preferred learning method, they will enjoy learning.

Maha reveals another aspect of her own experience of convenience with this course when she relates it to her preferred learning style (i.e. group) as well as specifically noting that the online format neutralizes issues of gender:

I am very happy taking the online format of this course. I enjoyed how technology helped me to overcome the sex-segregated class. I joined in the class discussion

and shared my ideas with all the classmates regardless of their gender or location. I even submitted my writing assignments online and did not have to physically hand them to the teacher. I enjoy group work and I think I learn a lot from my classmates. I am sure my grade in this class will be higher than in other classes.

Research Question 1b

1b. What positive and negative learning experiences are cited by students, and do these fall into patterns according to the students' learning styles?

The second subsidiary question in question one dealt with the positive and negative learning experiences in the class, and examined whether these experiences fall into patterns according to the students' learning styles. In order to answer this question, responses from students who shared similar learning styles were gathered together and presented below in a search for similar themes. Five themes were found here: motivation to learn, retention, teacher's role, technology, and collaboration.

Motivation to learn. When asked about the positive learning experiences that students shared in this class, visual and auditory learners reflected on their increased

motivation to learn in the online format. Ali, who favored the visual style, reflects upon this when he states:

The online format motivated me to learn better. I was very happy to see the diagrams and pictures of the topics we were learning to write about, and that inspired me to write and produce more. I was able to see the visual cues that helped me learn better and illustrate more details in my writing. I was able to view some other examples of other people's writings. I am confident that this helps me develop. I think computers are very helpful for learners who prefer learning through looking.

Likewise, auditory learners such as Maha shared a similar positive experience in the course. Maha relates this experience to her learning style when she explains:

I like to listen to sounds when I am working on something that needs lots of time and concentration like writing. Computers help me fulfill this. I can listen to many audio examples, whether they are directly related to the task I am working on or even related to my favorite audio files.

Group learners, on the other hand, reflected positively on traditional classes, since these classes help them "work in groups" and "share similar thoughts". These learners also admitted that the electronic bulletin board in the online

course format gave a similar sense of collaboration to what they experienced in the classroom setting.

The only individual learner in this research reflected negatively on the classroom setting, since he saw it as “noisy” and felt that it did not fulfill his need for “privacy”. This further underscores the notion that collaboration tends to be a feature of the classroom format, and that learners uncomfortable with a high degree of interaction may feel dissatisfied with this aspect of the traditional environment.

Retention. Another positive factor students cited in this course was their increased retention. Interestingly, learners who favored the group learning style in both formats of the class (traditional and online) reported improved retention in the exercises they worked on within groups. Hamad, from the traditional section, and Hassan, from the online section, both reported better recall of the ideas they discussed in groups, and of the feedback they got from their classmates. Hamad states:

During the class I shared my writing with my friends; they reflected on it and handed me back my paper. I remember most of the remarks they gave me and can even tell who said what. That will help me in the future to not commit the same mistakes.

Teacher's role. A major theme in the students' positive and negative experiences in this study related to the teacher's role in both formats of this classroom. The perceptions of the teacher's role differed in the two groups, however. While students in the face-to-face format perceived the teacher's role as that of leader in the class, virtual learners perceived the teacher as more of a facilitator. This perspective is clear in the tactile and kinesthetic learners' feedback. Khalid, the kinesthetic learner who liked the traditional format of the class, says:

I like to move around the classroom. I hate to sit in one place all the time and I see the classroom better than the computer lab. Here [in class] I can move easier and the teacher moves around and gives feedback and ideas. I do not believe I would be able to study in a class where there is no teacher physically around ... That's not teaching. In this class, I enjoyed moving between groups; we physically presented our writing in front of the class and I got instant feedback on my writings from my teacher.

Ali, who is a tactile learner, reported that he did not enjoy the virtual class because he thinks that the physical proximity of the teacher makes a difference. He reports:

The teacher is a fundamental part of the classroom. His presence in the learning context makes the difference between

real learning, where students are really learning, and time-wasting, as I would call it, if there is no teacher there. Although it is true that the teacher can direct the online class from a distance, I feel that his presence is of a very important benefit.

Technology. Question 2 addresses the students' experiences in the online classroom vs. the traditional classroom. In fact, the broader issue of technology is included here as well, since this theme was cited among the things that correlated with the students' positive and negative learning experiences. While some students expressed their satisfaction with technology, others expressed some dissatisfaction.

Maha expresses her positive experience during this class and relates this to technology, citing a range of advantages:

Technology saved me time and effort. I was able to exchange ideas with people even outside of my class. I shared my assignment with a native speaker before I submitted my final draft. My writing improved significantly because I joined some online forums and blogs and other online users gave me feedback to improve my writing. I even now run a blog in both Arabic and English and write about different topics every day. Technology really helped me a lot.

A similar positive attitude towards technology was also reported by Saeed, who preferred the individual learning style. He mentioned some pros for using technology, especially for learners who prefer to learn on their own, and stated that he believes these pros can only be accomplished through the use of computers. Some of these pros are related to "accommodating different learners", "time management" and "individualized feedback".

Abdulaziz, who is among those who were pleased with the online experience, links his positive feelings to the novelty of the online environment:

I really enjoyed this class because I love technology. It really revolutionizes the way we learn. [I feel that] any course that involves any sort of technology is worth taking. This is probably because I was used to ordinary classrooms and not to online classes.

However, although he has this positive attitude toward technology, Abdulaziz joined the traditional format of the class. He describes this conflict in terms of problems with Internet access and technological resources at his university. Ultimately, these problems led him to avoid the online version in favor of the "safety" of the traditional class:

I did like technology, but I joined the regular class because I am not satisfied

with the technologies available in KSU. Outside of the computer lab, I [would] have to depend on myself to find suitable Internet access and reliable resources to access the course materials and submit the required assignments. This is why I preferred the safe face-to-face class.

One negative aspect of the online class emerged, and it is one that can be attributed to broader issues about technology. This is Ameen's statement that technology is sometimes promoted mindlessly:

Technology is nothing but a means to learning. It may help learning if used carefully and with very good planning. I feel sorry when I see people rush into computers just for the sake of being called high-tech or up-to-date.

Ameen is referring to the inappropriate overconfidence that some learners hold about technology, and how these learners will state that technology improves learning just for the sake of being perceived as technologically savvy.

Collaboration. Students' collaboration during this course was another area in which students cited both positive and negative experiences. While some students admired the idea of group work and feedback from their peers, others disliked the idea and mentioned some negative

aspects of group work, especially in the context of the study.

Group learners in this study were the first to mention their positive attitude towards working collaboratively with other students. Ameen, for example, mentioned many positive experiences for group work, such as "instant feedback", "support" and "help avoiding mistakes". However, those who held opposing views cited some legitimate reasons for their negative attitude towards group work. They mentioned concerns like "plagiarism", "time constraints" and "the students' ability to judge each other's work".

Wala refers to two of these concerns when she states:

We were not taught the methodology by which we should criticize each other's work. I am not happy if another student judges my work when he does not know what to look for. Plus we were not also taught the ethics of judging each other's work. I am afraid someone might plagiarize my work even without intention.

Research Question 2

2- Do students' learning styles seem to correlate with their choices of online or traditional classrooms in connection with a writing course? If so, in what way? What relationships can be drawn between the two measures?

2a- What are the preferred learning styles of the Saudi EFL virtual learners (those who strongly prefer online instruction)?

2b- What are the preferred learning styles of the Saudi EFL traditional learners (those who prefer traditional classroom instruction)?

As in question 1, question 2 will be answered using both quantitative and qualitative data. While it can be claimed that the main question can be answered quantitatively and the two subsidiary questions can be answered quantitatively, as the mixed method approach suggests, the questions will again be answered with a combination of the two. The main inquiry in this question addresses the relation of the students' preferred learning styles to the method of teaching preferred.

Quantitatively speaking, in order to answer this question, a projection of the participants' learning style preferences and their choices of the learning modes are presented in figure 6 below.

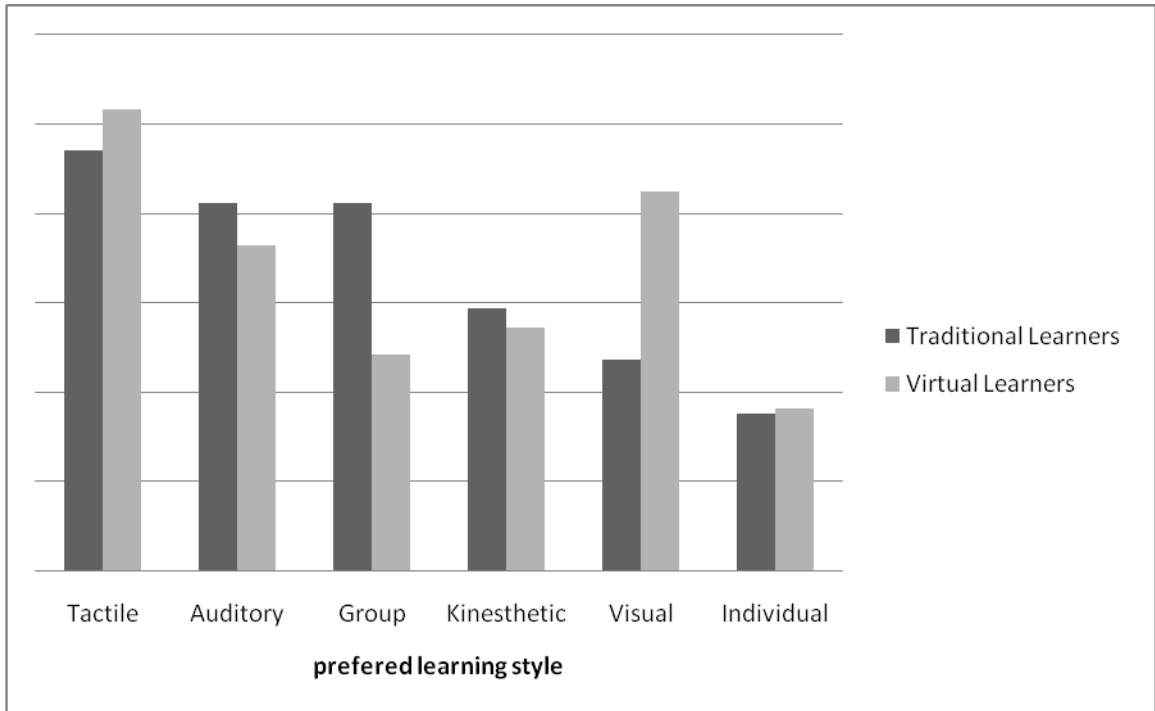


Figure 6: Difference in learning styles between the two groups of the study.

As shown in figure 6, and as presented in the figures given earlier in this chapter, the learning style preferences for the virtual learners fell in the following order, from most to least preferred: tactile, visual, auditory, kinesthetic, group, and individual. The traditional learners' learning style preferences, on the other hand, fell in the following order: tactile, group, auditory, kinesthetic, and visual, with the individual learning style again being highlighted as the least preferred learning style.

The ranking of the traditional group seems to some extent to be logical and expected. Since the traditional classroom involves regular interaction with other people in a real-life setting, one might expect tactile, auditory and group learners to favor this setting.

However, the virtual group ranking looks rather puzzling in some respects, as noted earlier; in particular, the online group's strong preference for tactile learning seems at odds with conventional understandings of screen-focused interactions. The student interviews in the following section shed some light on the reasons behind the order or preferences for the virtual group.

Many students claimed that their preferred learning style affected their choice of instruction mode. This was despite the fact that some of the students denied having taken any learning style inventory; regardless of this, the students still believed that their learning style did correlate with their choice of learning mode. Kinesthetic learners who chose the traditional classroom, for example, believed that the traditional learning mode suited them better, and therefore they favored this learning mode slightly over online classes. The reasons they provided for this choice centered around their perception that online learning has more of a static nature. They felt that online

learning is mostly static and does not involve interaction and movement, while traditional classes do provide some sort of interaction. For example, Khalid argues as follows:

In traditional classes we break into groups, we present in front of the class, we sometimes engage in pair work and so on. That involves some sort of engagement and interaction. I cannot see that happening in online classes.

Another piece of evidence that indicated students believed in a correlation between their preferred learning style and their chosen instruction mode was offered by the visual learners. These learners favored online classes more than traditional classes because they felt that these classes related directly to their mode of learning. In this regard Ali explains:

Computers help me learn through seeing. I can see everything on the computer and interact with many types of visual cues. This is not an easy task to accomplish in ordinary traditional classrooms.

Saaed provides another bit of evidence on the perceived correlation of learning styles to the mode of instruction when he explains his attitude towards online classes and his preference for the individual learning style. He states:

I like to learn on my own and in my own time. I like online classes because they

fulfill my preference. I can access the class materials anytime and submit my written assignment at any time. The computer can help me too with my spelling and grammatical mistakes.

However, as noted earlier, Figure 6 shows that a surprising percentage of the learners who showed preference for the tactile modality preferred to join online classes. This seems inconsistent with the idea that online classes are more static in nature, as was claimed by learners who preferred traditional classes. The interviews with some of those learners provided a proper explanation for this. The students' interview statements on this choice featured two main themes that helped to explain their choice of the online classroom, and may have served to override the natural tendencies linked to their learning style. These factors were the desire for change and the students' attitudes towards technology.

Desire for change. Many Saudi EFL learners expressed dissatisfaction with the traditional format of classes, and spoke of their desire to change by going to the relatively new format of online learning. Some of them emphasized that this choice of classroom offered them something that was different from what they had been used to. On this note, Wala reports:

I have been learning in traditional classes all my life. This course seems to me like a huge change not only in my learning, but also in my personality. Joining an online class and sharing my work via computers and getting feedback are great things I have never been used to. The change itself is worth a lot, even if it is nothing but working from my laptop rather than from notes.

This desire to change is also clear in Hamad's comment. He went into great detail in explaining how technology carries changes for all involved. He states:

We are in the 21st century and the world is changing. Technology is a great medium of instruction and it will change the way I learn. In some courses, I think I do not need a teacher. I can find everything I need online and can work myself through [the material].

Given such statements, one can see that the desire for novelty may have over-ridden the basic tactile preference, at least for some learners. It makes some sense that tactile learners may also be impatient learners, who seek variety and change.

Attitudes toward technology. Some students, especially those within the visual group, admitted that their choice of learning mode was not based primarily on their preferred learning styles. Rather, it seems that their attitudes

towards technology (whether for or against) played a role in their preference of learning mode. This is clear from all the interviews done with the virtual interviewees. They all showed a positive attitude towards the innovative nature of technology. Ideas like "innovation", "prestigious", and "being high-tech" were quoted by virtual learners when they answered why they chose the virtual mode of this class. In this regard, Saeed again stresses novelty as he expresses his preference for the technology-rich course:

When I noticed that there were two sections for the course, I chose the online section. I think it is better and newer. At least I will try something I have not used before.

Correspondingly, some traditional learners expressed negative attitudes toward technology, using terms like "difficult", "complicated", "no visible benefit" and "hard to change" as reasons for their dislike of the virtual classes and their preference for traditional classes.

Based on the students' interviews, it can be claimed that drawing a significant correlation between the students' learning and their choice of a specific delivery mode is difficult. The reason for this is that students seem to choose the learning delivery modes based on many other reasons besides learning style. In fact, as is clear from

the choices of students in this research, students may purposefully chose a delivery mode that either only accidentally fits their learning style, or even one that does not suit their learning style. They might do so for other legitimate reasons, like the fact that such a mode might better suit their time schedule or their personal interests. Two such factors have been identified here; however, others might emerge in a study specifically designed to fully account for students' choices.

In fact, the idea of correlating student choice with learning style has been controversial. Researchers like Saville (2005) found no correlation between learning styles and students' choice of learning modes, whether they were virtual or traditional. However, other researchers, such as Hruska-Riechmann and Grasha (1982), claimed that certain learning styles may be better suited to either traditional or virtual classrooms. In this last view, it would be expected that visual and auditory learners would be better suited to the virtual classrooms, while tactile and kinesthetic learners should fare better in traditional classrooms.

However, the participants in the study did not follow those expectations. Many tactile learners chose virtual classes, and this therefore indicated no significant

relation between the learning style and the delivery mode. This result also proved that other reasons, such as convenience or the desire for change, may determine learners' choice of learning mode both alongside or perhaps even instead of a particular learning style.

The two subsidiary questions in question 2 referred to the learning style preferences of the two groups in this study. I will now undertake a closer look at the data as they are relevant to these questions.

Research Question 2a

2a. What are the preferred learning styles of the Saudi EFL virtual learners (those who strongly prefer online instruction)?

Subsidiary question 2a asked about the learning style preference of the virtual learners that preferred to join the online format of the class. As is evidenced in table 7, and Figure 6 above, an overwhelming number of students (66%) chose the virtual classroom compared to about one-third (34%) of the sample who chose the traditional format. As seen in table 8 above, a quarter of those virtual learners (25.8%) favored the tactile learning style. Almost another quarter (21.2%) of the learners favored the visual learning style. The auditory learning style was favored by 18.2% of the virtual learners, compared to 13.6% who favored the

kinesthetic style. The last two styles that were favored by the virtual learners were the group style, with 12.1% of the sample, and the individual style, with 9.1% of the virtual learner sample.

The individual style was therefore the least favored learning style among this group. This unpopularity of the individual style may be attributed to cultural factors, as Arabic culture does not favor individuality. This result can be supported with what other researchers found when measuring the learning styles of Arab students (e.g. Reid, 1995). The fact that both groups in this study indicated a low preference for the individual learning style further suggests the presence of a prominent cultural factor.

Research Question 2b

2b- What are the preferred learning styles of the Saudi EFL traditional learners (those who prefer traditional classroom instruction)?

Subsidiary question 2b asked about the learning style preferences of the traditional learners, those who preferred to join the traditional format of the class. Table 9, as well as Figure 6 above, quantitatively present the percentages of learners' style within the traditional group. About a quarter of this group preferred the tactile style

when learning, a preference that is also shared with the virtual group of this class. Roughly another quarter of this group chose the auditory style. Similar to the online learners, a third quarter of this group chose the group learning style as their favored style. Kinesthetic and visual learners formed about one-third of learners within this group, leaving the individual modality again as the least favored style of learning among those students who chose the traditional, face-to-face classroom mode.

It raises an interesting issue to note that the most and least favored style were the same for both groups, with tactile style rating highest and individual style lowest. This result might suggest that Saudi EFL learners have stable learning preferences regardless of the type of instruction they experience or prefer. It might also be partly explained by the fact that the subjects of the sample came from the same geographical location and shared similar backgrounds. The most important thing this result reveals in regard to this question is that no overall clear correlation between the students' learning style and their choice of learning delivery method can be drawn, though the relatively high percentage of visual style among online learners indicates that partial correlations may occur for some learning styles.

Research Question 3

3- What other regular differences in strategy use, motivation and confidence emerge between Saudi EFL virtual and traditional learners, judging from their perceptions about their learning experiences?

The participants in this research cited different views that relate to this question. The relevant comments are presented in the following section and are divided into three main areas: learning strategy, motivation, and confidence.

Learning styles and learning strategies. It is unfortunate that no research has been reported on the relation between the students' learning style preference and their use of learning strategy in the EFL Saudi context.

Research indicates that one of the most important factors affecting students' use of learning strategies is their learning style (e.g. Oxford, 1990). In the case of this study, this proved true regardless of the mode of learning used, whether virtual or traditional. Taking into account the three main categories of strategies that Oxford presented in the Strategy Inventory for Language Learning (SILL), we can see how students in this research used these

strategies in both formats of this class. SILL divided language learning strategies into three main categories: direct ones (those that involve L2); indirect strategies (those that do not involve L2 but are essential for L2); and social strategies (those that facilitate interaction with others).

When the research participants were asked to report freely on what strategies they used in this course, they revealed equal numbers and types of strategies employed in both sections of this class.

In relation to the direct strategies, for example, students in both sections reported using strategies such as "reviewing", "putting things in order", "recombining" and "making associations". In this regard, Wala, from the traditional section, reports:

I like to write and rewrite and revise many times before I finish my writing task. I sometimes start with some sort of free writing, where I collect as many ideas as possible that are related to my topic. I then go back and revise what I wrote, and rearrange ideas. I do not remember writing my final paper all at once, from the first draft.

The same idea is quoted by Maha from the virtual section when she states:

I like to plan my writing before I begin to write. I write many ideas related to my topic of writing, then I cut and paste ideas in order and revise my writing until I get to the final version of my writing. Word helps me edit my writing and saves me time in cutting and pasting.

Visual learners in both formats of the class also reported using other direct strategies. For example, Ali, the visual virtual learner, reports:

I used to highlight text when I wrote. I like it when the teacher highlights or underlines any mistakes I do. That will help me learn better. Even within the online class, I liked when the teacher used the reviewing comments, shapes and cues. That helps me remember the information better and faster.

He continues, reporting how technology helped him use strategies that are relevant to his learning style:

As I said, MS Word reviewing cues can help me mark some certain areas that I should focus on in my assignment. I can use different colors and color coding to mark my writing and my friends' writing. I can also use visual characters to indicate weaker or strong points that I should pay attention to. I think the computer helped me a lot with this.

Traditional visual learners, in fact, reported a similar pattern of strategy use in the traditional format.

Meshari reports:

I like to plan my writing before I start to write. I usually tend to write some sort of a map and put all my ideas down on paper. I then reorganize my ideas and thoughts, put them in a logical and good order and then start working on my writing assignment based on this map. I can use a marker to underline and highlight some areas that need some focus.

Students also reported using the second strategy type, the indirect strategy, in both sections of this class. Participants reported using strategies like "organizing their work", "planning for the writing task", "identifying the purpose of the task", "listening to audios while writing", and "rewarding myself".

An example of this sort of strategy is provided here by the traditional learner Majed:

When I need to write I like to set the mode first for this type of task. I choose a quiet place, I arrange the table, put my papers, pens and computer in a certain order, turn off my mobile phone and have a glass of tea by my side. That way, I feel relaxed and focused.

The third type of strategy language learners use is the social strategy, which can be broken down, as noted above, into subcategories. These strategies were also used by the students in both sections of the class. Social strategies

used in this class included "cooperation with others", "asking for corrections", "asking for feedback", "being aware of others' strengths and weaknesses" and "becoming aware of others' feelings and "thoughts"". .

Although it can be claimed that social strategies are better suited to a traditional classroom, where students are physically close to each other, it was somewhat surprising to discover that virtual students also reported on their use of these strategies. Abdulaziz, from the virtual class, explains:

I put my final paper on Google docs and shared the link with two of my colleagues, and we decided to work on each other's papers in the same way. I enjoyed Waleed's [a classmate] remarks as I know he is a very good writer, and was waiting for his feedback. I think I benefited from this method, and the other two friends liked it too.

In conclusion, in regard to clear differences between virtual and traditional Saudi EFL learners in their use of learning strategies, it is evident that clear differences between the two groups cannot be easily drawn. This is because learners seemed to perceive learning in similar ways, even though each of the two contexts was a different experience. This is supported by the fact that learning strategies are conscious behaviors that learners control and

select. These learning strategies stand in contrast to learning styles, which seem to work unconsciously to a certain degree, although they can also be developed and trained (something that had not occurred for the participants in this study).

Learning styles and motivation. Participants in this research in both class formats reported on their motivation during this course. As has been reported in the previous section, some participants considered motivation to be one of their positive experiences during this class, and they related this factor to their learning styles.

However, when looking into differences between virtual and traditional participants in regard to their motivation, students cited different views.

Visual, auditory, and individual learners reported increased motivation in the online class. Tactile and kinesthetic learners reported increased motivation in the traditional format. Group learners reported equal motivation in both formats.

An example of increased student motivation in the online format of this class is evidenced by Saeed, who reports on his feeling motivated by the independence of the online format:

I like to learn on my own. I like to choose my time, location, mode, and work separately. Writing is an activity that needs concentration and full attention. The computer helps me with this. I can work on my own, at a time I like and with no interruption of any sort.

Learning styles and confidence. In general, students reported being confident in their choice of instruction mode for the class. Although they gave different reasons for this choice, as has been described in the answers for question 1, ultimately the students interviewed believed that they had chosen the best medium of instruction. The students, particularly those in the virtual group, also reported on their increased confidence in their learning. Some virtual learners reported on how they improved their "self-efficiency" and "independence to learn". This element of increased confidence among the virtual learners is expressed by Wala as autonomy when she says,

In the virtual class I feel I am responsible for everything. I am not only responsible for getting the information; I am also responsible for making sure that I am getting the right information. The teacher is there to help, but I am the leader.

Other virtual participants gave two kinds of evidence of their increased confidence: grades and quantity of writing.

Grades. Virtual learners expressed their increased confidence in learning in online classes since they felt that they were able to perform better in their writing assignments. Virtual group learners explained quite explicitly how they had come to trust that there had been an increase in their achievement, and how this consequently affected their learning. In this regard, Abdulaziz, who shared his paper with two of his classmates, explains how they all noticed their improved achievements:

When I got the results for the first writing assignment, I noticed that my grade was much higher than my expectation. The teacher's feedback was also less than before. Even my other two friends got better grades.

Quantity of writing. Another piece of evidence that virtual learners mentioned with regard to their increased confidence was their observation of the quantity of their writing. They reported an increase in the quantity of their writing during this course.

I used to write less in the previous courses. During this course, and with the help of technology in writing and

rewriting my assignment, I was able to produce larger pieces of writing.

In contrast, some of the traditional learners were not confident in their learning, since they believed, like Khalid, that "nothing [had] changed":

I do not think I am more confident now to write better. In my previous writing classes, I used to write and get feedback from my teachers about my writing. I believe some of the feedback [comments] I heard before were still repeated in this course. For example, last semester, my teacher was asking me to think about the cohesiveness of my writing, and it was the same remark I got in my first assignment this semester. I think this has something to do with being always taught in the same way and nothing has changed that much.

Based on the participants' views, it seems that the students' confidence increased in the online formats due to the change in the medium of instruction they experienced. In contrast, the traditional learners' perceptions of their confidence did not change, possibly since they had not felt there was any change in their classroom mode or teaching instructional style.

Conclusion

This chapter has presented the results of the study as they relate to the research questions. The chapter began

with explanation and exploration of the qualitative results, and from there clarified examples and individual stories of the participants in question. The goal was to present an overall picture based both on the quantitative results of the PLSPQ and the qualitative data that emerged in the interviews. The next chapter will examine the implications and recommendations that can be presented based on these results.

CHAPTER VII

SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

Introduction

The purpose of this chapter is to summarize, discuss and elaborate on the findings and results of this study in light of the research questions. The aim is to draw out the implications behind the study's results, recommend best practices in the Saudi EFL classroom, and present suggestions and recommendations for future research.

Summary of the Study

A review of the literature on learning styles and the relation of this to the students' learning and success in the language classroom reveals many common themes: the importance of the learning styles theory; the importance of students knowing their own preferred style of learning; and the relation of this knowledge to the learner's experiences in the classroom. However, very little of this literature has looked specifically at these issues within the Saudi EFL context. The present research study was conducted to fill this gap in the literature and was guided by several goals.

The first aim of the study was to identify the preferred learning styles of the Saudi EFL learners. In conjunction with this, the study undertook to examine the

relation between these preferred learning styles and the students' preferred choice of class format, whether traditional (face-to-face) or virtual (online). The second aim was to study any correlation between the students' perceived reasons for success and comfort in their classes and their knowledge of their learning styles. The third aim was to identify the preferred learning styles of virtual and traditional Saudi EFL learners, and identify any correlation between the students' choice of the class format and their preferred learning styles. The fourth and last aim was concerned with discussing any differences in the use of learning strategies and motivation of the learners, especially with relation to their learning styles.

In order to reach the aims of this research a set of research questions were formulated to direct the study. These questions were presented and answered in the previous chapter.

In order to answer these questions, a mixed-method methodology was proposed. The aim behind using a mixed method was to obtain a deeper understanding of the students' preferences of learning styles in different class formats, and determine how their understanding of their own learning styles affected their learning and experiences. The research design consisted of a questionnaire and a set of interviews

that were done at the study site (King Saud University). The questionnaire was distributed to 100 college-level Saudi EFL students enrolled in the Writing III course at the university, which is offered in two formats: online and traditional (classroom-based). Data gathered by the questionnaire were analyzed through SPSS to determine patterns involving the demographics of the group, as well as the means and frequencies of learning style preferences among the participants. Frequencies of major, minor, and negligible learning styles were also determined through basic quantitative analytical methods.

The interviews were conducted with 12 students randomly selected from the 100 students who filled out the questionnaire and volunteered to be interviewed. The interview data were analyzed through the model proposed by Braun and Clarke (2006) and King and Horrocks (2010). These researchers provided a three step qualitative data analysis model that consisted of the following: descriptive coding that labeled all the relevant data within the participants' responses; interpretive coding that clustered the descriptive codes and interpreted them; and finally the theme coding that looked at finding the main themes to answer the research questions.

Conclusions

This study aimed to examine the learning styles of Saudi EFL learners, and the relation of these learning styles to the learners' choices of instruction type in a course on English writing. As time progresses, and as the need to learn and use English is increasing globally alongside the global growth in technology use, this need to understand the students' characteristics and choices is taking on new importance. This study confirmed the importance of understanding the students' learning behaviors and experiences, as it provided insights from the students' own testimony that would not have been available without the type of research presented in this analysis. In this section, I will elaborate on some of the points that emerge from or are related to the study's results.

The Complexity of the Learning Experience

The study results make it clear that, like learners everywhere, Saudi EFL learners exhibit different learning styles, though they exhibit a preference pattern that is particular to their own cultural group. Saudi EFL teachers need to pay careful attention to diversifying their teaching in order to accommodate all of these styles.

However, the study results remind us that learning style alone does not determine the outcome of a learning

experience. This study basically supported the existing literature on the complexity of the field of learning styles, as well as further underlining the difficulties in understanding how we learn (Coffield et al. 2004). However, the study also underscored the fact that learners' choices and experiences may not be influenced solely by their learning styles, either as they perceive them or as measured by surveys. Many other factors enter into the complex choices and experiences involved in a learning experience. The study, in fact, supported the claim that many reasons affect learners' choices of instruction, mode, and class format. These reasons can be personal, cultural, organizational, and much more. Examples of these reasons sensed during the interviews included, but were not limited to, ease of accessing class materials, location of classes, and timing of such classes.

In fact, in reflecting on the study's results, it is important to consider the meaning of some paradoxical results, such as the potentially conflicting views of online learning, as either supporting group learning or individual work. These differences in perspective again point to the complexity of the learning process, and in particular of the online learning environment.

On a positive note, the study's results also suggest that all learning styles can be accommodated in both virtual and traditional classes as long as competent, well-planned instruction is provided. Learners, especially those in higher education, appreciate the outcome they get from a class regardless of the way through it was obtained. This fact is supported by scholars like Wright (2003) who reported on students' ability to learn regardless of the learning context.

The Potential for Online Learning

In spite of the point made at the end of the previous section, it is important that, as teachers plan their class activities, they take advantage of whatever opportunities are available in the class format in which they will be teaching. In particular, the online format is still new to many educators, and it is important for teachers to be aware of the best way to design online learning experiences. Building on learning style preference theories and the Saudi EFL learner preferences as indicated in this study, it is evident that online learning can potentially provide many important payoffs. Yet one cannot simply link students' preference for this type of learning to their learning style, as it seems that there are other factors that influence both their choice of course format and their

success as they engage in online learning. In the long run, sufficient planning before introducing the students to this type of instruction will prove beneficial for learners and their learning.

Recommendations

With the above reflections in mind, a number of suggestions can be made for pedagogical practice. These are presented here under six headings:

1. The links between format and learning style were fairly minimal in the present study; moreover, as noted in the review of literature in Chapter 2, there is little agreement on the best way to approach learning styles. As I note later in this chapter, some educators are even wary of the whole enterprise of labeling students using systems such as the one adopted for this study. Still, the interviews did strongly suggest that learning style fits into the educational process in a way that is viewed as important by students. Teachers, and educators in general, should be aware of students' preferred learning styles. At the least, students can only gain if they work to develop awareness of their learning process.

At its best, a curriculum designed with learning styles in mind may make the learning processes very fruitful and beneficial. EFL teachers should first try to understand their students' learning behavior; but more important, educators should equip students with a variety of learning strategies that will help them learn English better and consequently improve their writing skills.

2. As discussed briefly in the previous chapter, the results from the survey were fairly consistent with previous results on the learning styles of Arab students (Reid, 1997). Arab learners disliked individual learning styles and favored group learning more, similar to what the participants in this study revealed. This should be taken into consideration when dealing with such learners through supporting more group based activities.
3. Teachers need to understand their own teaching style, so that they will be able to meet the needs of their diverse students, adjusting their natural style as needed in the

classroom. A war of styles might occur when teaching occurs in a certain style which is different to that which some students use to learn. Again, even if research has not come up with universally accepted ways to label teaching and learning styles, the interviews showed that students do think in these terms, and it is likely that they (the students) are intuitively sensing something very real when they speak of teaching and learning styles as they understand them. Participants in this research related some of their positive and negative reactions to whether they felt that their respective teachers' teaching style matched or mismatched their own styles.

4. It became clear in the course of the study that most students had not had their learning style assessed. Most of the participants in this research were not aware of their learning styles and of those that were, some did not have a clear understanding of how their style might relate to either the course choices they make or the strategies they use. Students need to have a sense of their own preferred

learning styles, and in particular, to engage in the kind of reflective thinking that is fostered by increasing their awareness of how they learn. This will help them save time and effort in their learning journey, and allow them to take full advantage of their learning preferences. It could also make their learning journey more enjoyable and effective. Students need to be given the chance to discover their learning styles either prior to entering into higher education, or at the beginning of their courses. In fact, ideally, this kind of awareness could be fostered much earlier in the learning process, at middle or high school ages. Once established, this awareness could ultimately help the students make better judgments about their learning and enable them to choose better learning methods.

5. Participants reflected positively on learning activities that engaged them more in learning during the course. In order to ensure this full engagement from all the learners, the curriculum should be built in such a way as to take advantage of learners' different

learning styles. This will make the curriculum goal efficient.

6. Educators, especially those in higher education, should take advantage of what technology can introduce and offer and invest in providing the learners with the best learning opportunities. One of the most important advantages of technology is that it can help support students' autonomy. The ability to encourage learners to be self-motivated and self-directed is one of the most crucial benefits of technology. Participants in this research revealed that some learning activities they used online cannot be used in the traditional format. Among these, they cited their view that they were able to overcome some of the problems associated with face-to-face classroom dynamics when working online. When interacting online, they did not experience problems with speaking up, speaking out, asking questions, engaging with peers, or monitoring and reflecting on learning. They also expressed appreciation for the fact that, when a course was offered online, they were

able to access course data and information at any time. EFL teachers, especially in contexts where English is not practiced easily, should direct the learners to the opportunities technology can offer that cannot be offered elsewhere.

7. Students' enthusiasm in online learning is very much affected by their ability to have a reliable access to technology. Some participants in this research reported limited enthusiasm to online classes due to limited technology access.

8. Community learning and awareness about the use of technology in learning can affect the students' perceptions. Some participants in the research reported some misunderstandings about online learning in the Saudi society.

Recommendations for Future Research

Many important issues were not touched on in this study, but should be explored in future research, in the interest of achieving a fuller understanding of the kinds of learning that were explored here. Following are some recommendations for future investigations within this area:

1. The scope of the present study was limited in terms of both the number of participants and the research site chosen. Repeating the study with a larger sample and from different geographical locations will help in increasing the validity and reliability of this research, as well as strengthening the research into the Saudi EFL context.
2. The relationship of the learners' preferred learning styles in relation to the students' age, academic major, and gender as well as other demographical information is worth investigating, especially in the Saudi context.
3. There is a need for a comparison study that looks into the correlation between students' preferred learning styles and their use of learning strategies. This will help to further explain how the learning styles shape the students' understanding and use of learning strategies.
4. A cross-cultural study that compares the Saudi EFL learning style preferences to those of learners from other cultural backgrounds would

be beneficial in showing the cultural dimension of the inquiry and in examining how cultural identity shapes the way that students learn and perceive their learning.

5. More research is needed in the future to explore the teaching and learning opportunities that are adoptable to each learning style, especially in the Saudi EFL context.
6. A cross-examination of factors like language learning beliefs, cultural beliefs, and learning styles might help yield some information about how Saudi EFL learners think about learning and how they like to learn best.
7. As technology is rapidly changing and changes the way people learn, more research is needed into different technologies and how they change the approaches to and materials of learning. How learners also use these technologies, and how their respective learning styles affect their interaction with these technologies are good research

opportunities for further investigation and explanation.

8. EFL writing is very important, yet is perceived to be difficult by most Saudi EFL learners. Research into the perceived difficulties of writing in the Saudi context will hopefully help improve the EFL writing instruction in Saudi Arabia.
9. The skill that is intended to be developed affects the learners' use and benefit of the learning context. Since the course focused on in the present study was a writing course, some learners believed that huge differences would appear if the course had been, for example, a listening or speaking course. Research on such courses in online and traditional formats should be undertaken to explore this idea.
10. Participants in this study showed a strong preference for the online version of the class regardless of their learning style preference. They also reported a correlation between their satisfaction and comfort and the online version of the class. It is therefore worth

undertaking an investigation into the reasons behind this preference for online courses. Such an investigation might reveal some reasons that would help teachers and educators create more authentic learning opportunities in different class formats.

11. By contrast, students showed a relatively weak preference for the traditional format for the Saudi EFL classes. It is therefore worthwhile to undertake an investigation into the perceived barriers to learning in this particular context. Such an investigation will hopefully point out areas that need to be improved in order to maximize the students' learning opportunities and overcome other difficulties.

12. The differences between the two learning environments (online and traditional) as viewed by the learners themselves are worth researching. To what extent, and in what ways, are learners aware of these differences? How do they view them? How do they feel their learning changes based on these two different environments? Finally, in this regard, are the

students' strategies liable to change from one environment to another?

13. Some participants cited an increase in their learning abilities in the online format. A detailed study of actual student writing could show how the students' writing behavior online differed from that which was exhibited in the traditional classroom.

14. The correlation of teachers' teaching styles to the students' learning style is also worth investigating. How one affects the other is a potential area for investigation.

15. Finally, further research is needed to establish firmer and more widely accepted systems for thinking about learning styles. The present study adapted a system that, upon close inspection, emerged as the most appropriate one available at this time. However, further research could help to refine this theoretical background for future research.

Limitations

The limitations related to the design of this study include the following:

1. The interview participants were selected from the group of individuals who voluntarily completed and returned the questionnaire. Females were invited to participate in the study, but only a few accepted, and as a result the final group of participants was both self-selected and predominantly male.
2. Having the previous note in mind, the interpretations presented in this study were dependant on what was said by the people who were interviewed. Therefore, other students, who were not interviewed, might have responded quite differently. This might affect the generalizability of the results.
3. This research was focused on capturing the effect of learning styles on the students' learning and progress; therefore, attention was not directed to other factors which may have contributed to their decisions and choices. I acknowledge that there are other factors that may affect the students' choices of the medium of instruction. These may be

social, economical, academic, or more broadly cultural factors that are beyond the scope of this research.

4. Although the responses I obtained from the participants were candid and truthful, cultural influences might have caused participants to provide particular answers. Within the Saudi context, the teacher is looked upon as a figure of authority, and although I was not the instructor for their course, they would inevitably have viewed me as a faculty member, which could have influenced their responses. In addition, the students might have known about my enthusiasm for technology, which may in turn have had the effect of encouraging the participants to favor any technology-related approach.
5. The time constraints placed on the interviews and their responses may have restricted the responses.
6. The research findings are limited to those students who agreed to participate in the study. Although King Saud University students come from all over the Kingdom of Saudi Arabia, the research findings cannot be generalized, as the sample may

not represent all the Saudi students in the EFL context.

7. The instrumentation was developed in English to avoid the problems of translation and retranslation. In that sense, it must be noted that the participants' choices may have been affected by their understanding of certain terminology and certain concepts. In addition, their limited proficiency in English may have prevented them from expressing their views as fully as they might have done in their first language.

Concluding Reflections

The aim of this research was to add to the body of knowledge regarding the relation of students' learning styles and their experiences in different learning environments. Participants in this research spoke candidly and openly about their learning experience in this course. As has been presented in the preceding chapter, some of the participants revealed that the concept of learning style is new to them. This seems to agree with what Reid (1987) said when she mentioned the differences between native speakers' and non-native speakers' understanding of learning styles:

For NNSs, the concept of learning style preferences may be completely new. The fact that students learn in different ways and the possibility that students can adapt to a variety of instructional modes may come both as a surprise and a relief. Students whose previous education differed radically from the U.S. academic environment may benefit particularly from a discussion of learning styles, a self-assessment instrument, and experience with alternative styles that will help them function better in a university classroom. (p. 101-102)

This excerpt highlights a notable difference between the Western and Saudi culture. While the concept of learning styles is fully matured and easily understood in Western culture, it is still emerging in the Saudi culture and learners are therefore still learning about it. Although it was not an explicit goal of the study to promote this learning process, I hope to have contributed in a small way to the growing awareness of learning styles in Saudi Arabia.

A second reflection relates to the link between the present and the future of Saudi EFL instruction in general and Saudi Higher Education in particular. The findings of this study highlighted the importance of understanding learners' views about learning and how they learn in different learning contexts. This point is very important in ensuring the learners' progress and their achievement in

their learning process. As the adoption and implementation of new instructional practices, as well as the importance of English language, increase, the need for understanding the learners' characteristics and views should go hand in hand with improving instructional practices. Thus, again, the present study represents part of a much-needed trend in Saudi Arabia.

A third reflection relates to the debate over the complexity of measuring learning styles and the way research has dealt with this are in recent years. Learning styles have been investigated as fixed personal traits that do not change. Learning styles measures were invented to measure certain traits and provide researchers with reliable ways to measure learners' learning styles. However, many researchers have questioned both the reliability of these measures and the wisdom of using them overtly in educational systems. One claim, for instance is that learning styles are not as fixed as they have been perceived to be. Yet another is that the measures themselves, though valid, may be measuring something rather different from what the designers intended (see, for instance, Willingham, 2009, who questions the link between having a good visual memory and learning well through visual presentation). It is important here to stress that these measures should be used with care.

This last point leads me to end this dissertation on a note of caution. Valuable and important as they are, learning styles theory and instruments do not constitute an infallible system. These materials should not be used to label people or cultures with stereotypes or rigid labels about the way they learn. This is due to the consequences this labeling can carry for those who bear the labels. In addition, too strict an emphasis on any one factor, including a learner's identified "style," can also lead to neglect of the complexities of the learning process.

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APPENDICES

Appendix A

Cover letter

Dear student,

You are kindly invited to participate in this study. This study will explore the preferred learning styles of Saudi English as a foreign language college-level students and their relation to the type of instruction used; whether virtual (online-based) or traditional (class-based). More precisely, you will be asked to complete the Perceptual Learning Style Preference Questionnaire and decide what your major and minor preferred learning style(s) are. Your demographic information (e.g. age, gender, and years of study) will also be obtained during the same class. After your preferred learning styles are determined, you may be contacted by the main researcher for a face to face interview

Your participation in this study is voluntary and all your information will be kept confidential. No part of your responses will be shared with anybody and you may choose not to participate or withdraw at any time. This will NOT in any way affect your class grade. As there is no inherent risk to this study, there are also no immediate benefits for joining this study. The outcomes of this study may prove beneficial in improving the learning and teaching of EFL in Saudi colleges in the future. All personal information will be kept anonymous.

By returning the completed questionnaire, you agree to participate in this study and NO more consent is needed. For more questions, comments or concerns, please contact the researcher:

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This project has been approved by the Institutional Review Board (IRB) for the Protection of Human Subjects at Indiana University of Pennsylvania. (724) 357-7730

Background Information

Please fill in the suitable information:

1. Name (optional):
2. Age:
 - a) 18-25
 - b) 26-30
 - c) 31-35
3. Gender:
 - a) Male
 - b) Female
4. Level of EFL study:
 - a) Beginner
 - b) Intermediate
 - c) Advanced
5. Using English outside of the classroom:
 - a) Always
 - b) Sometimes
 - c) Never
6. How long have you been studying English? -----

7. What year of study are you in? -----

8. Which section of the course would you like to join?
 - a) online-based
 - b) class-based

The perceptual learning style questionnaire

This questionnaire has been designed to help you identify the way(s) you learn best. The ways you prefer to learn. Read each statement on the following pages. Please respond to the statements as they apply to your study of English. Decide whether you agree or disagree with each statement. For example, if you Strongly Agree mark:

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
√				

Please choose only one answer to every question and respond to each statement quickly, without too much thought. Please answer all the questions. Please use a pen to mark your choices.

SA	A	U	D	SD
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

	SA	A	U	D	SD
1. When the teacher tells me the instruction I understand better.					
2. I prefer to learn by doing something in class.					
3. I get more work done when I work with others.					
4. I learn more when I study with a group.					
5. In class, I learn best when I work with others.					
6. I learn better by reading what the teacher writes on the chalkboard.					
7. When someone tells me how to do something in class, I learn					

better.					
8. When I do things in class, I learn better.					
9. I remember things I have heard in class better than things I have read.					
10. When I read instructions, I remember them better.					
11. I learn more when I can make a model of something.					
12. I understand better when I read instructions.					
13. When I study alone, I remember things better.					
14. I learn more when I make something for a class project.					
15. I enjoy learning in class by doing experiments.					
16. I learn better when I make drawings as I study.					
17. I learn better in class when the teacher gives a lecture.					
18. When u work alone, I learn better.					
19. I understand things better in class when I participate in role-playing.					
20. I learn better in class when I listen to someone.					
21. I enjoy working on an assignment with two or three classmates.					
22. When I build something, I remember what I have learned better.					
23. I prefer to study with others.					
24. I learn more by reading than by listening to someone.					
25. I enjoy making something for					

a class project.					
26. I learn best in class when I can participate in related activities.					
27. In class, I work better when I work alone.					
28. I prefer working on projects by myself.					
29. I learn more by reading textbooks than by listening to lectures.					
30. I prefer to work by myself.					

Self Scoring Sheet

Instructions:

There are 5 questions for each learning category in this questionnaire. The questions are grouped below according to each learning style. Each question you answer has a numerical value:

SA	A	U	D	SD
5	4	3	2	1

Fill in the blanks below with the numerical value of each answer. For example, if answered Strongly Agree (SA) for question 6 (a visual question), write a number 5 (SA) on the blank next to the question 6 below:

Visual
Q. 6 - 5 points

When you have completed all the numerical values for visual, add the numbers, multiply the answer by 2, and put the total in the appropriate blank.

Follow this process for each of the learning style categories. When you are finished, look at the scale at the bottom of the page, as it will help you determine your major learning style preference(s), your minor learning style preference(s), and those learning styles that are negligible.

If you need help, please ask the teacher.

VISUAL

6- _____
10- _____
12- _____
24- _____
29- _____
Total _____ * 2 = _____ (Score)

AUDITORY

1- _____
7- _____
9- _____
17- _____
20- _____
Total _____ * 2 = _____ (Score)

TACTILE

11- _____
14- _____
16- _____
22- _____
25- _____
Total _____ * 2 = _____ (Score)

GROUP

3- _____
4- _____
5- _____
21- _____
23- _____
Total _____ * 2 = _____ (Score)

KINESTHETIC

2- _____
8- _____
15- _____
19- _____
26- _____
Total _____ * 2 = _____ (Score)

INDIVIDUAL

13- _____

18- _____
27- _____
28- _____
30- _____
Total _____ * 2 = _____ (Score)

Major learning style preference	38-50
Minor learning style preference	25-37
Negligible	0-24

Explanation of learning style preferences:

- Visual major learning style preference:

You learn from seeing words in books, on the chalkboard, and in workbooks. You remember and understand information and instructions better if you read them. You don't need as much oral explanation as an auditory learner, and you can often learn alone, with a book. You should take notes of lectures and oral directions if you want to remember the information.

- Auditory major learning style preference:

You learn from hearing words spoken and from oral explanations. You may remember information by reading aloud or moving your lips as you read, especially when you are learning new material. You benefit from making tapes to listen to, by teaching other students, and by conversing with your teacher.

- Kinesthetic major learning style preference:

You learn best by experience, by being involved physically in classroom experiences. You remember information well when you actively participate in activities, field trips, and role-playing in the classroom. A combination of stimuli-for example, an audio tape combined with an activity- will help you in understanding new material.

- Tactile major learning style preference:

You learn best when you have the opportunity to do "hands-on" experiences with materials. That is, working on experiments in a laboratory, handling and building models, and touching and working with materials provide you with the most successful learning situation. Writing notes or instructions can help you remember information, and physical involvement in class related activities may help you understand new information.

- Group major learning style preference:

You learn more easily when you study with at least one other student, and you will be more successful completing

work well when you work with others. You value group interaction and class work with the other students, and you remember information better when you work with two or three classmates. The simulation you receive from group work helps you learn and understand new information.

- Individual major learning style preference:

You learn best when you work alone. You think better when you study alone, and you remember information you learn by yourself. You understand new material best when you learn it alone, and make better progress in learning when you work by yourself.

- Minor learning styles:

In most cases, minor learning styles indicate areas where you can function well as a learner. Usually a very successful learner can learn in several different ways.

- Negligible learning styles:

Often, a negligible score indicates that you may have difficulty learning in that way. One solution may be to direct your learning to your stronger styles. Another solution might be to try to work on some of the skills to strengthen your learning style in the negligible area.

Appendix B

Email permission to use the survey

Dear Dr. Joy Reid,

My name is Mubarak Alkhatnai. I am doing my dissertation on the perceptual learning styles of the EFL Saudi students and their relationship to the type of instruction used in Saudi EFL classrooms whether online or class-based.

I am emailing to ask for your permission to use the perceptual learning style preference questionnaire you developed in my study. I also want to get your permission to change some of the elements that may work better with the sample of students I am studying.

Thank you for your help.

Mubarak Alkhatnai

PhD Candidate at Indiana University of Pennsylvania
ymrk@iup.edu

From: Joy M Reid <joyreid@hawaii.edu>
Subject: Re: RE: Asking about the PLSPQ (Very Important)
Date: Wed, 01 Oct 2008 11:47:37 -1000 (HST)
To: Mubarak Alkhatnai <ymrk@iup.edu>

Dear Mubarak Alkhatnai,

My sincere apologies for not answering you sooner. I had to leave my classes in April and have spent the ensuing months solving various medical problems. Because medical care here on Maui is not good, I have been in Maryland for most of the time, at Johns Hopkins Medical Center. I'm not teaching this semester but hope to return in January. Only today am I tackling the hundreds of emails I've received. Below is my permission letter to use my survey.

Thanks for writing to ask permission to use my Perceptual Learning Styles Preference Survey (PLSPS). Please consider this email as my formal permission to use the PLSPS with One caveat: as you probably know, the target audience for my survey was international ESL students in intensive English language programs in the U.S. The survey has been normed for that population. If you use the survey on another population, the results may be unreliable and invalid. At most, you will want to re-norm the survey on your target audience (see my "Dirty Laundry" article in the Forum section of the TESOL Quarterly in 1990 for my norming processes). At least, if you are publishing your results, you will need to indicate that the survey was not normed for your population.

You might be interested to know that my first edited anthology is out of print, so I have regained the copyright. Neil Anderson at BYU has had the entire book on the WWW. So everyone can access it, for free, at:

<http://linguistics.byu.edu/classes/ling677na/learningstylesbook.pdf>

If you intend to do statistical analysis on your data, and if you intend to do any comparisons with my original data, I need to tell you about the re-scaling I did on my original data. Although the students answered the survey on a 1-5 scale (strongly disagree to strongly agree), my statistics mentor suggested that we rescale to 0-4 for ease of doing the statistical analysis. If you decide to rescale, that will not change the trends of your results, only the numbers. If you decide not to, and you want to compare your data with mine, you need to know that the trends might be similar, but your numbers will be higher.

Thanks again for writing. I'd be happy to hear about the results of your research, so stay in touch, please. And I hope that your students find the information as helpful as mine have.

Joy Reid