

**The Perceptual Learning Style Preferences of  
Chinese Students of English  
as a Foreign Language**

**Thesis submitted for the degree of  
Doctor of Education  
at the University of Leicester**

**by**

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## ABSTRACT

This dissertation reports on an empirical study on perceptual learning style preferences of Chinese learners who study English as a foreign language in the People's Republic of China. The study attempts to identify perceptual learning style preferences of these learners and to find out the differences and relationships between perceptual learning style preferences and the following learner variables: educational level, field of specialization, and duration of native speaker instruction. The study also explores the factors that influence the shaping and change of learning style preferences.

Six hundred and eighty-two Chinese EFL learners from secondary schools and tertiary institutions participated in the study. Data were collected by means of a questionnaire survey and a retrospective writing activity. The questionnaire was an adapted version of Reid's *Perceptual Learning Style Preferences Survey*. Quantitative data from the questionnaire survey were analyzed using both descriptive and correlational techniques including frequency and mean counting, ANOVA, Scheffé test, and MANOVA. Results showed that this sample of Chinese learners strongly preferred visual and kinesthetic learning and reported less preference for auditory, tactile, group, and individual learning. Results from the ANOVA indicated that there were statistical significances between learning style preferences and the three learner variables under investigation. Results from the MANOVA revealed statistically significant interactions between learner variables and learning style variables.

Qualitative data from the retrospective writing activity was complementary to the questionnaire survey. Fourteen factors were identified to have an effect on the shaping of learners' learning style preferences. These factors were classified into *learner factors* and *non-learner factors*.

This thesis concludes with a discussion of implications from three perspectives, theory, practice and methodology and a consideration of recommendations for future research at both macro- and micro-levels.

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# **CHAPTER ONE**

## **INTRODUCTION AND OVERVIEW**

In this opening chapter, an overview of the thesis is set forth briefly. It covers the following central points:

- ♦ genesis and rationale of the study
- ♦ research questions
- ♦ existing assumptions
- ♦ significance of the research, and
- ♦ structure of the present thesis

### **1.1 Genesis of the Study**

Research efforts in second language teaching have shifted from an emphasis on the role of the teacher to that of the learner over the past two decades. Specifically, studies investigating individual differences in the learning process have focused on such questions as what makes a good language learner and why some learners learn more quickly and easily than others do (Bialystok, 1979; Chapelle and Roberts, 1986; Naiman, Frohlich and Tedesco, 1975; Rubin, 1975). In this more learner-centred approach, researchers have explored relationships between learners' learning styles and second language acquisition.

Various aspects of the cognitive dimensions of learning styles have been explored in relation to the second language learning process (Genessee and Hamayan, 1980; Hansen and Stansfield, 1981;

Ramirez, 1986; Reinert, 1976). Within the domain of cognition, second language researchers have studied the area of perceptual modalities. In this area, modalities are perceptual channels (auditory, visual, tactile and kinesthetic) through which an individual receives and retains information. Research in perceptual learning styles began with and focused on native speakers of English and children primarily (Carbo, 1984; Dunn and Dunn, 1978; Barbe and Milone, 1981). Research on learning styles with adult learners is much less developed (Cherry, 1981; Galbraith and James, 1984; Kolb, 1984). The first comprehensive study with adult ESL learners was conducted by Reid (1987). Reid's study is groundbreaking in that it investigates learning style preferences of ESL learners of nine native language backgrounds with regard to their various individual characteristics, their native cultures and their learning experience. The learning style preferences of these ESL learners are compared to those of speakers of English in the United States of America. Reid's study has provided baseline data on the perceptual learning style preferences of ESL students studying in American colleges and universities.

Before Reid's work, ESL classes were taught by teachers with limited awareness of learners' learning style differences (Stebbins, 1995). The fact that perceptual learning style preferences of adult non-native speakers of English were not investigated prior to Reid's study is surprising. This is because, firstly, Barbe et al (1979) have pointed to the vital role perception plays in the thinking process, and they have regarded sensory modes as 'the key of learning' (p.1). Barbe and Milone (1981) have added that within the cognitive domain, the process that is most intimately associated with learning is perception. A



few other researchers have postulated the important place held by perceptual modalities in learning style theory and the implications modality learning has for ESL instruction.

Furthermore, research into the other aspects of cognition such as field-dependence/field-independence has been conducted with diverse ethnic groups. These studies demonstrate that cultural, social and educational factors have a significant effect on learning style development (Gonzales and Roll, 1985; Ramirez and Castenada, 1974). These factors are seen to influence perceptual learning style development, too. This is also evidenced in the significant differences in modality preferences exhibited by the foreign and American college students surveyed by Reid (1987).

Reid's (1987) study opens up a new area for further investigations into the effect that cultural factors have in shaping patterns of adult language learning behaviours. Reid (1987) states:

If, indeed, learners outside the mainstream of American culture exhibit unique learning style characteristics, then ESL students may use most of their time and effort trying to adjust to their new learning situation. Therefore, identifying the learning style preferences of non-native speakers may have wide-ranging implications in the areas of curriculum design, material development, student orientation, and teacher training.

(Reid, 1987: p.89)

Even though cultural dimensions in learning style preferences of ESL/EFL learners have caught a great deal of attention from

researchers, educators differ in opinions about whether they should acquire more explicit knowledge about particular cultural values and expectations. Proponents (e.g. Reid, 1987) posit that such knowledge will enable educators to be more sensitive and effective with students of particular cultures. Others (e.g. Guild, 1994) argue that describing cultures has resulted in more stereotyping and stereotyping of learning styles of minority and other students is often easily oversimplified. They argue that misuse of the concept has led to labeling rather than the identification of educationally meaningful differences among individuals. Griggs and Dunn (1989) warn that no one should automatically attribute a particular sensory style to all individuals within a group because one consistent finding from research into culture is that within a culture group the variations among individuals are as great as their commonalities.

In the research literature into learning style preferences, although empirical evidence on culture-related learning behaviours is sufficient, research into variations among individuals within a cultural group is scarce. Obviously, this issue needs more attention. The present study is triggered by just such a consideration.

## **1.2 Rationale of the Study**

The rationale of the study is three-fold.

Firstly, the desire to make language teaching more responsive to the learner's characteristics and needs has been reflected in the trend towards a more learner-centred approach to language teaching. In

Tudor's (1996) discussion on implications of learner-centredness, he makes the point that language teaching needs to acknowledge and work constructively with the diversity and richness of human experience that learners bring with them to their language study. He gives an account of three components related to the term 'diversity', i.e. learning goals, subjective needs and cultural-based traditions of teaching and learning. As defined by Tudor (1996), the area of 'subjective needs' refers to the ways in which learners' psychological and cognitive characteristics interact with the language learning. He also proposes that within this area, there is a key aspect: learning styles.

In a similar vein, Willing (1988) maintains that in the realm of subjective needs, great importance has to be conceded to the learner's will and decision. According to him, the practical implication of subscribing to a learner's will and decision has meant a greater commitment to consulting the learner in setting learning objectives. Additionally and more importantly, it has meant a greater commitment to "consulting learners about their wants and expectations relating to the modalities of the learning process itself" (1988: p.5).

Perhaps the most important concept which has surfaced is the notion of 'learning style'. In a fundamental sense, the notion of learning styles carries an assumption that, for any given learner, there exists a comprehensive and coherent set of likes and dislikes relating to sensory preferences, social tendency, expectations about learning situation, about teacher behaviours and cognitive styles. In the present study, the area of sensory preferences is the focus of research.

Secondly, the Chinese classroom at all levels of study often involves the use of a lecture as a method of instruction. In this form of instruction with communication flowing primarily from a teacher to students, perceptually, students learn mainly through sense of sight by reading textbooks and sense of hearing by listening to the teacher, but the aural input is closely tied to textbooks or/and other reading materials. In addition to a heavy reliance on visual and auditory modalities, this approach to learning is characterized by dependency, separate behaviour, deductive reasoning, logical sequence, and reticence in interactions.

In contrast to the traditional approach, communicative methodology emphasizes an active use of talk, which calls for an entirely different set of behaviours. This approach to learning encourages interactive tasks, risk-taking, active participation in role-plays as well as pair and group work.

Since the focus of China's education system has been conventionally on the teacher and on the transfer of knowledge through teaching by lecturing, diverse learners' preferences are rarely considered. This is a significant oversight. Given the influence of learning style research and given the trend of considering teaching in response to the learner's characteristics and needs, an exploration of Chinese learners' preferences for language learning styles seems relevant, appropriate and useful. The results obtained in this study are expected to contribute to a deeper understanding of Chinese learners and to a creation of a more conducive atmosphere for learning and teaching in the classroom.

Thirdly, as discussed in the foregoing section, Reid (1987) concludes that the relationship between ethnic background and perceptual learning style preferences exists and she suggests the need for further research into the role that culture plays in the shaping of learning style preferences. In this research area, a wealth of research has investigated culture-related learning style patterns. But variations among individuals within a culture are often overlooked. The present study considers this yet insufficiently surveyed, but by no means unimportant issue. Since Chinese learners form one of the largest English learner groups in the world and also since Chinese culture has a history of more than 5000 years, it would be interesting to look into the learning styles that these learners prefer to use for learning English and see how these learners differ in their learning style preferences between and among subgroups such as educational level, field of specialization, and duration of native speaker instruction. The style preferences in general and different learning style preferences of specific subgroups are examined in view of the Chinese cultural as well as educational contexts.

### **1.3 Purpose of the Study and Research Questions**

The overall purpose of this study is to explore the nature of perceptual learning style preferences exhibited by a sample of Chinese EFL learners in secondary schools and tertiary institutions. The study investigates the relationship between different groups of EFL learners and their perceptual learning style preferences with an intention to expand the existing data about Chinese EFL learners

produced in few other studies. The outcome of the study will add information useful for developing teaching methodology, suggesting appropriate teaching methods to cater for learner differences, and designing curricula for teacher training programmes as well as teaching materials reflective of learning style preferences of Chinese EFL learners.

Specifically, the study is undertaken to search for answers to the following four research questions.

1. What are the perceptual learning style preferences perceived by the sample of Chinese EFL learners who are students from different educational levels, from varied fields of specialization and who experienced different length of native speaker instruction?
2. To what extent are the perceptual learning style preferences reported by the sample of Chinese EFL learners related to the learner variables of educational level, field of specialization and duration of native speaker instruction?
3. In what way(s) do learner variables of educational level, field of specialization and duration of native speaker instruction interact with each other in relation to perceptual learning style preferences?
4. What are the factors that play a role in the shaping and change of learners' perceptual learning style preferences?

## **1.4 Existing Assumptions**

In undertaking this research, the researcher addresses three assumptions which underpin the above-mentioned research questions.

1. Culture has a tremendous influence on learning styles. It is one of the significant determinants. Other learner variables such as educational level, field of specialization and duration of native speaker instruction also influence perceptual learning style development (Nelson, 1995; Oxford, et al, 1992; Oxford and Anderson, 1995; Reid, 1987).
2. A learner's perceptual learning styles reflect both nature and nurture. Although perceptual learning style characteristics are biological, they are not immutable. They can be developed through experience. Learner adaptation does take place. (Dunn et al, 1989; Ellis, 1989; Reid, 1987, 1995, 1998; Semple, 1982).
3. Traditional classroom instruction is geared to auditory and visual learners. But it may not mean that years of experience in a restricted set of style use provide the best learning opportunity using these two modes. Neither may it mean that these modalities are what the learners prefer or what they feel comfortable with (Hodges, 1982; Reid, 1987; Su, 1995).

## **1.5 Significance of the Study**

This study is of importance from two perspectives.

This study looks into Chinese EFL learners' perceptual preferences for English language learning. From a research perspective, there is a need to focus on the homogeneous group of Chinese learners. So far, most existing studies into learning styles employ subjects of mixed ethnic and cultural background. While it is more convenient for these studies to do cross-context comparisons and to derive universal language learning principles, focusing on a homogeneous group builds in a measure of control in terms of learning context and learning culture. Such investigations could allow a clearer perspective on certain issues being investigated and could also help to solve specific problems faced by a specific group of learners.

A focus on the Chinese context is important. The field of second language acquisition makes a number of assumptions but short on empirical evidence when it comes to Chinese learners. Especially, there is as yet a small amount of evidence concerning perceptual learning style preferences of Chinese EFL learners. This study is a deliberate attempt to remedy the situation. It is hoped that the present empirical study into Chinese learners' perceptual learning style preferences together with its close scrutiny of these learners' perceptions of their learning style preferences can provide more insights in understanding the ways that Chinese learners prefer to learn English as a foreign language.



From a pedagogical perspective, learners' preferences and non-preferences for certain learning styles could be read as an indication of the learner's perceived needs. This information is seen to be of interest to teachers because it is valuable for them in designing classroom tasks responsive to the needs of different students. What signifies a major contribution of the present study is the inclusion, for the first time, of subjects from secondary schools. This group of students has been long ignored. Equally important, the present study is different from the previous studies with Chinese EFL learners in that it explores the interactions of learner variables and their effect on learning style preferences. The previous studies only examined individual learner variables in relation to learning style variables.

## **1.6 Structure of the Thesis**

The present thesis is organized into nine chapters followed by a bibliography and appendices. The nine chapters are:

Chapter One is the introductory chapter, which provides an overview of the study.

Chapter Two and Chapter Three present a review of literature in two parts. Chapter Two reviews the literature on developments in learning style theories, and Chapter Three reviews the literature on research studies that have influenced the current state of research on learning styles. These two chapters form the theoretical background of the present study.

Chapters Four and Five jointly provide the contextual background of the study. Whereas Chapter Four provides a description of the social, linguistic and cultural context of the study, Chapter Five offers a description of current approaches and practices of English teaching in the People's Republic of China where the research is undertaken.

Chapter Six details the methods and procedures used in the study. This chapter provides a description of the subjects, research instruments, procedures for data collection and data analysis. Descriptions on pilot studies and ethical measurements are also provided.

Results and discussions of the findings from this study are presented in two parts, Chapter Seven and Chapter Eight. Chapter Seven reports on and discusses the findings from the quantitative data, whereas Chapter Eight reports on and discusses the findings derived from the qualitative data.

In the last chapter, Chapter Nine, a summary of the major findings is presented. General contributions of the study are highlighted. Implications of the findings are discussed. The limitations of the study are noted and suggestions for future research are proposed.

## **CHAPTER TWO**

### **REVIEW OF LITERATURE (1)**

#### **LEARNING STYLE THEORY**

This chapter, as the first part of the literature review, examines the research topic in light of theoretical perspectives. It provides a theoretical and conceptual background to the present study. This chapter consists of four sections. The first section, *definition of learning styles*, reviews the various definitions of learning styles that have surfaced in the literature. It discusses differences in the operational definitions that researchers have used. It also indicates the definition that the present researcher prefers to use and explains the reasons for such preferences. The second section, *models of learning styles*, reviews key models of learning styles. It establishes the theoretical foundation on which the present study is based. The third section, *variables related to learning styles*, provides information about variables related to learning style preferences. It reports the extent to which these variables identified in the previous studies have been researched. The last section, *terminological issues*, defines and distinguishes a few key terms related to the research area.

#### **2.1 Definition of Learning Styles**

In reading through the literature on learning styles, one is often struck by the wide range of definitions that have been used to describe this concept. Because learning styles involve dimensions of perception, cognition, affect and behaviour, it is understandable that

various learning style definitions appear. With so many learning style definitions, confusions are inevitable. A dozen commonly cited definitions in the literature are presented in Table 2.1.

Table 2.1 Definition of Learning Styles\*

Researcher	Definition	
	What are learning styles?	What are learning styles for?
Claxton & Ralston (1978)	a consistent way	for responding and using stimuli in the context of learning
Keefe (1979)	cognitive, affective and physiological traits	that indicate how learners perceive, interact with, and respond to the learning environment
Gregore (1979)	distinctive behaviours	that serve as indicators on how a person learns from and adapts to his environment
Cornett (1983)	overall patterns	that give general direction to learning behaviours
Garger & Guild (1984)	a person's pervasive and stable characteristics	as one approaches a learning task
Kolb, cited in Dixon (1986)	an individual's preferred ways of	of grasping and transferring information
Willing (1988)	an inherent and pervasive set of characteristics	related to how learners prefer to learn and to deal with new information
Dunn et al. (1989)	a biological and developmentally imposed set of personal characteristics	that make the same teaching method effective for some and ineffective for others
Erhman & Oxford (1990)	preferred or habitual patterns	of mental functioning and dealing with new information
Scarcella (1990)	cognitive and interaction patterns	which affect the ways that students perceive, remember and think
Oxford (1992)	general approaches	to learn and to solve problems
Felder & Henriques (1995)	a person's characteristic ways	to acquire, retain, and retrieve information
Reid (1995)	natural, habitual and preferred ways	for absorbing, processing and retaining new information and skills

Note: All definitions in the table are direct quotations.

As seen in Table 2.1, there is not a consensus on the conception of learning styles. Different researchers approach their investigations from different perspectives. Some researchers such as Keefe (1979), Cornett (1983), Ehrman and Oxford (1990), and Scarcella (1990) emphasize that learning styles are some general higher order approaches to learning which govern the choice of specific actions. Other researchers such as Claxton and Ralston (1978), Garger and Guild (1984), Ehrman and Oxford (1990) use the term to refer to the trait-like consistency in a learner's approach to learning which is perceived as cognitive patterns. Still other researchers such as Kolb (1984), Willing (1988), and Reid (1995) use the term to include an individual's inclinational behaviours in a learning situation. This concept is conceived as using a learning-based approach.

Despite the differences, common themes on the nature of a 'style' are implied in these definitions. Firstly, a learning style is distinctive (characteristic), natural (biological, inherent), and habitual (consistent, stable). Secondly, it is a general (overall, pervasive), not specific pattern of behaviours in learning. Thirdly, it reflects an interaction between a person's learning behaviours and the learning environment where he/she studies. Although the term is defined in varied ways, four key concepts are seen to constitute the basic notion of learning styles. They are pattern, consistency, individuality and interaction with the learning environment.

The present study employs the definition by Reid (1995) as a working definition mainly for two reasons: 1) Reid's definition is the most recent and it is prevalent in the literature and research reports; and 2)

apart from the common themes of inherency and consistency of the nature of a style, Reid's definition addresses the theme of 'preference'. This feature fits the purpose of the present study specifically.

## **2.2 Models of Learning Styles**

Based on the various definitions of learning styles, numerous learning style models have been proposed (Reid, 1995, 1998; Oxford, 1992, 1994; see also Jonassen & Grabowski, 1993 and Willing, 1988 for summaries). Some models, for example, Reinert (1976) and Hill (cited in Dunn et al, 1981) stem from cognitive theory. They focus on perceptual and cognitive patterns related to learning. Other models such as Kolb (cited in Dunn et al, 1981), Schmeck et al (1977), and Willing (1988) are concerned with learning processes. These models reflect a great interest in the impact of individual differences upon pedagogical dimensions of learning processes. Still other models, for example, Dunn and Dunn (1978), Riechmann and Grasha (1974), and Reid (1987) are based on instructional preferences. These instructional preference-based constructs focus on environmental and individual factors in a learning situation. Of all the models, there are four major ones which play an important part in analyzing the characteristics that influence how learners approach learning.

The model by Dunn et al (1975, 1979, 1981) is an extensively researched model. This model takes into account multi-dimensions of learning styles. It encompasses environmental, sociological, emotional, physical and psychological areas and contains 18 sub-categories

which Dunn et al refer to as 'elements'. These specific learning style elements include environmental stimulus (light, sound, temperature, design); emotional stimulus (structure, persistence, motivation, responsibility); sociological stimulus (working alone, with peers, with an adult or in varied ways); physical stimulus (perceptual strengths including auditory, visual, tactile, kinesthetic, mobility, intake, time of day), and psychological stimulus (analytical/global, reflective/impulsive, and cerebral dominance). According to Rayner and Riding (1997), the model of Dunn et al is the basis of a diagnostic approach and it presents a good example of a construct which more properly describes a learning style repertoire. The repertoire is chiefly made up of learning preferences.

Keefe's (1988) model also provides a multi-dimensional view of learning styles. It centers on the notion of learning being dependent on the basic routine of information-processing, cognitive skills and the use of memory (Riding & Rayner, 1998). His model contains 24 key elements representing four dimensions: cognitive skills, study preferences, perceptual responses and instructional preferences.

Oxford (1992) puts forward a comprehensive model with four style areas, cognitive, affective, physiological and perceptual. The model comprises 17 style dimensions and later reduced to 13. Oxford (1994) asserts that the 13 style dimensions are most important for language learning. She maintains that, of the four main areas, the cognitive style includes preferred or habitual patterns of mental functioning, the affective style relates to attitudes and interests of the learner in learning situations, the physiological style involves

anatomically-based sensory and perceptual tendencies of the learner, and the behavioural style refers to a tendency to choose situations that the learner feels comfortable with.

Built on the above-mentioned three widely recognized models, Reid (1995, 1998) has attempted a succinct synthesis. She divides learning styles into three major areas; cognitive learning styles, sensory learning styles, and affective/temperament learning styles. In her model, sensory learning styles comprise three style categories. They are perceptual, environmental and sociological learning styles.

Another useful view on relating various learning style models is worth mentioning. Curry (1983) proposes an organization of models of learning styles into "strata resembling layers of an onion" (p.10) which is termed by herself as a 'style onion' (p.11). She uses an onion metaphor in which layers of the onion represent layers of learning styles. Curry's (1983) 'style onion' is further developed by Claxton and Murrell (1987). After their adaptation, the learning style construct in a metaphor of 'onion' can be briefly described as follows:

- basic personality characteristics form the core
- information-processing characteristics form the second layer
- social interaction characteristics form a third layer
- instructional preferences form the outermost layer

According to both Curry (1983) and Claxton and Murrell (1987), the core of the 'style onion' represents the most stable characteristics with each successive layer being progressively more amenable to



change. To put it in a more specific way, the innermost layer of the 'style onion' is made up of cognitive personality styles which are defined as an individual's approach to adapting and assimilating information. This adaptation does not interact directly with the environment. It is "an underlying and relatively permanent personality dimension" (Curry, 1983, p.11). The second layer next to the core is referred to as the information-processing style. This is considered as an individual's intellectual approach to assimilating information following the information-processing model. Because this processing is modifiable by learning strategies, it is expected that information-processing styles are less stable than cognitive personality styles. Social interaction and instructional preferences are the third and fourth outermost layers. They refer to an individual's choice of the environment pertaining to learning. Styles of social interaction address how a learner interacts in the classroom, whereas styles of instructional preferences address a learner's preferred environment for learning. Since these layers "are exposed to the environment, learners' expectations, teacher's expectations and other external features, they are the least stable and the most easily influenced levels of measurement in the learning style area" (Curry, 1983, p. 11).

The value of Curry's reconstruction of various style models into a 'style onion' to the present study is two fold. First, the 'style onion' usefully offers a model that emphasizes the notion of an individual's psychology and explains the formation of individual learning behaviours. The present study is related to an area which comprises social, interactional and instructional preferences. This area fits into the outer layer of instructional-preference models of learning styles in

Curry's model. Second, the 'style onion' creates a learning style continuum, from the most fundamental, stable or central to the most dynamic, variable and peripheral. In this light, the possibility of style alteration is explicitly stated. The present study intends to examine learning style alteration as part of the purposes as well.

## **2.3 Variables related to Learning Style Preferences**

Research studies that examine the variables related to learning styles are scattered over a large number of areas. Some areas such as culture and gender have been widely investigated. Other areas such as age and educational level are insufficiently researched. Still other areas, for example, affect and personality, are hardly explored in the existing literature. In the following subsections, research studies into six learner variables are reviewed. They are culture, gender, age (educational level), target language proficiency, field of specialization, and duration of native speaker instruction.

### **2.3.1 Culture and Learning Styles**

The relationship between culture and learning styles has been examined by numerous research studies. On the surface level, the concepts of 'learning style' and 'culture' appear to be contradictory. Reid (1987) posits that learning styles are the learning behaviours of an *individual*. She maintains that a basic assumption underlying the development of the learning style instruments is the existence of

*individual* learning style differences. Many learning style instruments have been developed and they are designed to distinguish one kind of learner from another. Cultural, on the other hand, refers not to what is individual, but to what is shared by a group of individuals. In other words, it refers to what is common to members of a group. A question, therefore, is raised: can cultural learning styles exist if learning styles differ from one person to another. In answering this question, Nelson (1995) raises the point that in addition to being shared, culture is also learnt through socialization in families and with friends. Nelson's statement echoes Cole and Scribner's (1974) elaboration that patterns of thought are closely linked to culture. Examples of this kind of analysis can also be found in the work of Hofstede (1986) in which she describes how differences in cognitive abilities, described in a similar way to what we call "learning styles and strategies" (noted by Oxford et al, 1992, p.440), are based on cultural needs and values.

The notion that a cultural pattern produces a way of thinking and acting suggests that cultural background affects learning style preferences. Empirically, early research on American minorities suggests that ethnicity plays a role in learning style differences among the groups studied (Cohen, 1969; Ramirez and Castenada, 1974; Hale-Benson, 1982). Recent research provides further information on the direct relation of culture to learning styles (Nuby, 1996; Scarcella, 1990; Su, 1995; Willing, 1988). Oxford and Anderson (1995) provide a summary of current research into the variations of learning styles by different cultural groups. In addition, many researchers have identified typical learning patterns of numerous cultural groups such as African Americans (Hale-Benson, 1982; Shade, 1989), Mexican Americans

(Ramirez, 1986), Asian Americans (Park, 1997a), Korean Americans (Park, 1997b), native Americans (Bert and Bert, 1992; More, 1990; Shade, 1989), Chinese (Dirksen, 1991; Su, 1995; see Section 3.2.2, Research into Chinese Learners, pp. 49-56 for further details), Japanese (Call, 1995), Indonesians (Djiwandono, 1998), Israelis (Katz, 1982), and mixed Asians (Goodson, 1993; Hansen-Strain, 1989; Mareena, 1998). Some researchers, for example, Reid, (1987), Rossi-le (1989), Stebbins (1995) and Willing (1988) have conducted cross-cultural studies of learning styles. Each of their studies involves multiple ethnic groups. Results of these research studies together with some more studies mentioned by Oxford and Anderson (1995) have shown that learning style differences exist among learners from different cultural backgrounds. They have also indicated that culture has a tremendous influence on learning styles. Oxford et al (1992) conclude that "although culture is not the single determinant and although many other influences intervene, culture often does play a significant role in the learning styles" (p.440).

However, the published literature suggests caution in applying knowledge about culture and learning styles to the classroom. For example, Cox and Ramirez (1981) posit that identification of culturally distinctive style patterns have both positive and negative effects in education. The positive effect is the development of an awareness of diverse learners and their cultural differences, whereas the negative effect is that the great diversity within a culture is often ignored. Guild (1994) supports Cox and Ramirez' view by stating that generalizations about a group of people have often led to naïve inferences about individuals within that group. He maintains that "although people

connected by culture do exhibit a characteristic pattern of style preferences, it is a serious error to conclude that all members of the group have the same style traits as the group taken as a whole" (p.16). According to Guild (1994), existing research studies on culture, both observational and data-based, have generated a consistent finding, that is, "*within a group the variations among individuals are as great as their commonalties*" (p.19). This viewpoint should suffice to explain the importance and needs for examining cultural learning styles and variations among learners within a cultural group as well.

### **2.3.2 Gender and Learning Styles**

The relationship between gender and learning styles has been an intriguing topic among ESL/EFL researchers. Many studies have focused on sensory preferences as second and foreign language learning requires an integration of senses. Oxford (1993, 1995) provides a summarization of the results of the studies. She summarizes that the relationship between gender and visual preference in second and foreign language settings has not yet been determined. Linkage between gender and auditory preferences are not clear, but studies suggest that auditory preferences in learning a foreign language might be greater in females than in males. In addition, results seem to point in the same direction that tactile and kinesthetic learners are more often males than females.

Research findings from countries in Asia, in general, concur with the above tendency summarized by Oxford (1993, 1995). For example,

Hyland (1993) conducted a survey with Japanese ESL and EFL students. His study revealed that Japanese female students demonstrated stronger preferences than did their male counterparts in each style preference and used significantly more tactile learning than did male students. Two studies (Melton, 1990; Zhang, 2001) involving Chinese EFL learners looked at gender differences. Both studies showed females' greater preferences for kinesthetic and tactile learning than did male students. While in Melton's study the differences were statistically significant, the differences in Zhang's study were not. There are, however, inconsistent findings. In Zhang's study, females preferred auditory and group learning significantly more than males did. But Melton's study produced a different picture in that females were significantly greater auditory learners and males were significantly more group-oriented than their female counterparts. A study into tertiary level students in Singapore by Chew et al (1999) further complicates the picture. In their study, females reported greater preferences for auditory and tactile learning, but less preferences for kinesthetic, visual and group learning than did male students. But all these differences were slight and, as a whole, gender did not feature as a statistically significant factor.

Oxford (1993) postulates two possible sources for gender differences. The first source is socialization which "encompasses culturally defined gender role and moral value as well as exposure to particular courses of study and extracurricular activities" (p.68). Physiology is pinpointed as another source of gender differences.

Although gender is an interesting area to study, in the present study, this particular variable is not studied. The exclusion of this variable does not mean to downplay gender differences. Rather, the major concerns of the study are the pedagogical implications of the learning style preferences.

### **2.3.3 Age (Educational Level) and Learning Styles**

The age factor is noted as contributing to the formation of learning style preferences by many researchers. Most of these studies address perceptual learning styles. The research by Barbe and Milone (1981) illustrated that modality shifts occur in learning style preferences as individuals mature. According to them, in the primary years, the perceptual learning style strengths were well-defined with a dominant auditory modality. Specifically, from the first through the sixth grades, visual and kinesthetic preferences came to dominate. Sometime in adulthood, another shift occurred and by then visual learning remained dominant. But auditory modality became more important than kinesthetic modality.

The findings by Barbe and Milone (1981) are echoed by those of Semple (1982). The findings of both studies yield an important notion that modality shifts reflect the changing environment of learners. Specifically, young children interact with peers and adults primarily by speaking and listening. When they enter the school, the situation changes drastically. In schools, they are expected to read (using visual modality) and write (using tactile and kinesthetic modality). To students

in secondary schools, auditory modality becomes more important than the kinesthetic one. This is because schools at this level reinforce learning by teaching mainly through the auditory sense. Individuals in this environment gradually learn that the best way to get along is to learn through the auditory sense. According to Semple (1982), this may also be the result of maturation and the fact that tactile and kinesthetic modalities are less commonly used in the learning environment. Added to the studies by Barbe and Milone (1981) and Semple (1982), some other studies such as Cherry (1981), Galbraith and James (1984), Keefe (1987), Price et al. (1981) and Rossi-le (1989) have also identified visual dominance among adult learners. This finding is evidenced in Reid's (1987) study as well. In Reid's study, learning style preferences of older students are more clearly delineated with visual and auditory modalities being the strongest modalities. Still more, apart from the findings of visual dominance in adult learners, Barbe and Milone (1981) and Chew et al (1999) discover that maturation and experience contribute to integration of modalities.

#### **2.3.4 Target Language Proficiency and Learning Styles**

The relationship between target language proficiency and learning style preferences is explored by several studies (Reid, 1987; Djiwandon, 1999; Goodson, 1993; Hyland, 1994; Melton, 1990; Sy, 1991; Mareena, 1998). These studies reveal that learners of different target language proficiency levels vary in their perceptual learning style preferences. Findings of these studies also show that learners at higher English proficiency level demonstrate a stronger tendency towards



auditory styles than do the learners at lower level of English proficiency. These findings confirm the theory of perceptual modality, which postulates that as learners mature they develop from kinesthetic to visual and more to auditory learning styles (Barbe and Milone, 1981; Keefe, 1987; Price et al, 1981).

Apart from the environmental factor, the gradual shift in the perceptual modality can also be accounted for from the perspective of auditory short-term memory. Based on her data, Call (1985) posits that auditory short-term memory for language learning is limited, but it apparently expands as learners progress in their language proficiency. She gives an illustration as follows:

... short-term memory for target language words is often overloaded, causing words to be purged before they can be organized and interpreted. Thus, even though language learners may be able to recognize each word of an utterance as it is spoken, they may not be able to hold lengthy utterances in mind long enough to interpret them.

(Call, 1985, p.766)

The phenomenon captured in the above quotation applies particularly to beginning language learners. These learners, in order to compensate for the weakness in short-term memory, have to rely more on the visual information. According to Call (1985), as learners advance in their language proficiency, they also improve the capacity of their memory. With adequate proficiency in English, learners become more able to organize the incoming utterances into meaningful units. In the meantime, the auditory system can take up more syntactically complex utterances and process them more

efficiently as they reside momentarily in the short-term memory. By this stage, learners can learn better with oral directions and with interactions unsupported by visual means. With better auditory short-term memory, learners can memorize the coming utterances, process them rapidly, store the meanings and retrieve them while speaking. To those learners who have a limited English proficiency and who are still struggling to enhance their working memory capacity, this procedure will be a big challenge.

Several studies have confirmed this finding. For example, Djiwandono (1998) investigated English beginners and intermediate learners and Mareena (1998) examined the learners of elementary, intermediate and advanced proficiency levels. Both studies yielded the result that learners at higher English proficiency demonstrated stronger auditory style preferences than did learners at a lower proficiency level. Moreover, in Melton's (1990) study, the findings indicated that the longer period learners studies English, the more they preferred auditory styles. Hyland (1994) and Reid (1987) explored the same area from another perspective. Hyland (1994) showed that the longer period of time students study English in the United States, the more they preferred to learn through auditory means. In Reid's (1987) study, students who studied in the United States for more than three years report significantly more preferences for auditory learning styles than did the students who studied in the United States for a shorter period of time. The result by Reid (1987) corroborates another finding from the same study, that is, students with higher TOEFL (Test of English as a Foreign Language) scores had stronger preferences for auditory learning than did the students with lower TOEFL scores.

Although, in general, the findings from these studies are consistent with one another and are consonant with the perceptual modality theory, studies by Sy (1991) and Goodson (1993) reveal results that do not support the findings in general. One of the findings from Sy's (1991) study indicated that the longer period undergraduates study English, the less they preferred auditory learning. Sy's finding is echoed by the results from Goodson's (1993) study. Many factors may account for the differences in the findings of various studies. The discrepancies in the findings may have resulted from the nature of the subjects in the studies. For example, Sy (1991) surveyed undergraduate English majors exclusively. Goodson's (1993) data comprised Asian students who were from four different countries, who were at graduate and undergraduate levels, and who studied 12 different subject disciplines. Clearly, there is a need for more substantial research in this aspect.

### **2.3.5 Field of Specialization and Learning Styles**

It is commonly believed that learning different academic subjects demands different approaches. For example, the theoretical and abstract reasoning process utilized in science studies demands a different learning style from the holistic and pattern-anchored process used in arts studies. This is to mean that engineering students often learn best through kinesthetic and tactile modes, as they need to move about and use their hands to do laboratory projects and experiments. As engineering students are most familiar with learning through kinesthetic and tactile modes, people tend to presume that

such a situation could possibly predispose these learners to adopt the same learning style preferences when learning English as a second or foreign language. This is the basis of the assumption that field of specialization is related to learning style preferences. This area has been touched upon by a small number of researchers such as Chew et al (1999), Dirksen (1991), Goodson (1993), Mareena (1998), Melton (1990), Peacock (2000) and Reid (1987).

### **2.3.6 Duration of Native Speaker Instruction and Learning Styles**

This variable is potentially significant, especially in areas such as the P. R. China, where English is learned as a foreign language.

Education in the West, particularly in the United States, has developed along the lines established by John Dewey and other educational philosophers (Dirksen, 1991). These foundational philosophies have contributed to TESOL methodology, which sees the students, rather than the teachers, at the center and which focuses on the development of skills in language use, rather than on a mastery of linguistic knowledge. It is reasonable to assume that this radically different learning environment results in dramatically different approaches to teaching and learning. In Reid's (1987) study, this assumption is evident.

Reid's (1987) study demonstrates "an interesting trend" (p.95). It suggests that students who have been in the United States for more than three years show significantly more preferences for auditory

learning than do the students who have been in the United States for a shorter period of time. This finding brings about two research questions by Reid (1987). First, do students who have more "in country" experience with the target language become more comfortable with auditory learning? Second, do students become more auditory as they adjust to the academic classroom in the United States? These two questions address the issue of adaptation of learners' learning styles. For this issue, Reid (1987) calls for more research data and further analysis.

In view of the present study, the issue of adaptation of learning styles in an EFL context is different from that in an ESL context. In an EFL context, learners do not have "in country" experience. Instead, they have experience of receiving instructions by native speaking teachers for varied periods of time. A pertinent question to pose is: do learning styles of these learners change as they adjust to native speaking teachers' classes which, in most cases, reflect the teachers' preferences for communicative methodologies and, to great extent, their teaching is characterized by emphasizing the use of interactive and task-based activities. These teachers intend to help learners acquire language competence rather than to learn linguistic knowledge. Only a few studies have attempted to explore to what extent learning styles can be modified and adapted in relation to the variable of native speaker instruction (Dirksen, 1991; Melton, 1990; Hyland, 1994). With scarce research evidence, this relationship cannot be substantiated conclusively.

## **2.4 Terminological Issues**

Some terms in learning style literature can cause confusion. Therefore, it is important to distinguish between them. It is the intention of the sub-sections below to provide some clarification.

### **2.4.1 Cognitive Style and Learning Style**

In reading literature on individual differences and learning style, two terms, 'cognitive style' and 'learning style', are frequently encountered. In most cases, they are used synonymously. However, they should be distinguished.

According to Rayner and Riding (1998), there are two distinct traditions of style-based work in psychology. The first is the 'cognitive-centred' approach, which occurred during the period from the 1940s to the 1970s and involved the development of cognitive styles. Cognitive styles focus on mental phenomena and investigate areas of individual differences in cognition and perception. The second distinct tradition is called the 'learning-centred' approach, which began in the 1970s. The learning-centred approach seeks to encompass the mental, physical and affective realms to account for individual differences in learning (Willing, 1988). In other words, cognitive style concerns preferences for certain modes of information processing which is a person's typical way of perceiving, thinking and remembering (Messick, 1978). Learning style, on the other hand, looks at the totality of psychological functioning, which comprises cognitive, physiological,

sensory and affective differences of individuals. These are the dimensions that affect learning directly. Based on the above understanding, the impression formulated in the usage of the two terms implies, at least, two features: (i) 'learning style' seems to have emerged as a more common term, or a replacement for 'cognitive style' in the 1970s, and (ii) 'cognitive style' typically refers to preferred or habitual patterns of information processing or mental functioning. Theoretically, it skirts the issue of interests, attitudes, and motivations, which are affective elements. 'Learning styles' is pervasive and is a mixture of both cognitive and learning styles. Thus, 'cognitive style' is a sub-construct to 'learning style'. In other words, learning styles contain far more than just cognitive elements.

One main difference between 'cognitive style' and 'learning style' is the number of style elements considered. Whereas cognitive styles are mostly two distinctive categories, such as field-dependence versus field-independence and impulsivity versus reflectivity, learning styles entail many elements and are not 'either-or' extremes. For example, in the sociological dimension, there are elements of pair learning, group learning, self learning, peer learning and adult learning. One either has or does not have the element in one style and the absence of one element does not necessarily imply the presence of the other element.

#### **2.4.2 Learning Style and Learning Strategy**

Another pair of terms, 'learning style' and 'learning strategy', also appear in high frequency in discussions of ESL/EFL learning. There are

instances in which they are used interchangeably. It is important to define carefully the use of these two terms.

The theory underlying learning styles and learning strategies is that each person is a different individual, composed of a unique combination of personality traits, perceptual preferences and cognitive tendencies known as "individual differences" (Skehan, 1989). These differences, taken all together, form a particular style and there are specific goal-oriented behaviours related to that style (Oxford, 1994). Brown (1994) states that 'style' is a term that refers to consistent and rather enduring tendencies or preferences within an individual. 'Styles' are general characteristics of intellectual functioning (and personality type as well) that pertain to an individual especially and that differentiate one individual from another. According to Brown (1994) as well, 'learning strategies' are specific methods to approach a problem or task. They are modes of operation to achieve a particular end and they are planned designs to control and manipulate certain information. They are contextualized and might vary from moment to moment. Strategies vary individually. Each individual has a host of possible ways to solve a particular problem. An individual chooses one or several of the strategies when one has to tackle an encountered problem.

Distinctive differences between 'learning style' and 'learning strategy' can thus be summarized as follows:

(1) Whereas learning styles are usually general approaches to learning and understanding, learning strategies are typically specific steps or



actions taken by language learners to enhance any aspect of their learning: accession, storage, retrieval, and use of information (Oxford, 1990a; 1990c).

(2) Whereas learning styles represent unintentional or automatic individual characteristics, learning strategies are optional actions by learners. They are intended to facilitate learning. (Macintyre, 1994; Dixon, 1985; Oxford, 1990d; Cohen, 1990; Nyiko and Oxford, 1993).

(3) Although learning styles are usually assumed to be relatively stable and consistently applicable to a variety of learning tasks, this might not always be the case. Learning styles can be influenced by the situation and by a person's developmental level. On the other hand, learning strategies vary from time to time with situations and tasks. They can be learned and developed through training. (Riding and Cheema, 1991; Oxford, 1990b and 1990c).

Oxford & Crookall (1989) provide a summarization about relationships between learning style and strategies. They posit that people with different learning styles "often use different kinds of strategies" (p.414). Derived from her further studies, Oxford (1990a) adds that "it is likely that a strong relationship exists between individual preferred styles and their choice of language learning strategies" (p.105). She maintains that learning styles and strategies are intimately related (1992) and that learning styles are usually at the root of an individual's natural strategy preferences (1990b). Oxford's above-mentioned claims are supported by Cohen (1998). Cohen (1998)

asserts that strategies do not operate by themselves, but rather are directly tied to the learner's underlying learning styles.

In the literature, only a few studies have examined the relationship between learning styles and learning strategies. A well-known study is conducted by Erhman and Oxford (1990) who investigate such a relationship by means of a measure of strategy choice, the *Strategy Inventory for Language Learning* (SILL) and a measure of learning style, the *Myers-Briggs Type Indicator* (MBTI). The MBTI is used to measure learning styles in four dimensions, introversion-extroversion, sensing-intuitions, thinking-feeling, and judging-perceiving. They find a statistical link between students' second language learning strategies and the underlying learning styles. Their findings showed, for example, that extroverted learners used social strategies consistently and easily, that both introverts and judgers reported the strongest use of metecognitive strategies, and that intuitive learners liked to use compensation strategies most.

Apart from Erhman and Oxford's (1990) study, two studies explore the relationships between learning strategy use and sensory preferences. Rossi-le (1989) investigated the perceptual learning style preferences of adult ESL learners. Results of her study showed that significant correlations existed between perceptual learning style preferences and learning strategies employed by the learners. Other findings included that visual learners frequently used visualization strategies such as forming new words in mental images. Both tactile and kinesthetic learners reported heavy use of communicative strategies for authentic language use, for example, seeking out native

speakers and engaging others in conversation. Apart from this similarity between tactile and kinesthetic learners, they revealed differences in the use of metacognitive strategies. Tactile learners reported a stronger use of metacognitive strategies, whereas kinesthetic learners reported the least use of metacognitive studies. Another finding was that students who favoured group learning adopted more social and interactive strategies. These social and interactive strategies included working with peers, requesting clarification, and asking for correction.

Oxford, Erhman, and Lavine (1991) conducted a study on teacher-student differences in a cross-cultural tertiary setting. In looking at teacher-student style conflicts in the language class, they found that there were a strong relationship between learning strategies and sensory preferences. Their findings suggested that visual learners used strategies involving visual stimulations such as reading and watching movies, while auditory learners were more comfortable with aural input such as conversation in a noisy and social environment. Kinesthetic learners needed movement strategies like communication, role-play and presentations, while tactile students chose strategies concerning manipulating real objects.

Although most of the findings in the two studies support each other and suggest that the use of strategies is related to learning styles, the existing evidence is far from convincing. More robust empirical investigation to reveal the relationships between learning styles and strategies is needed.

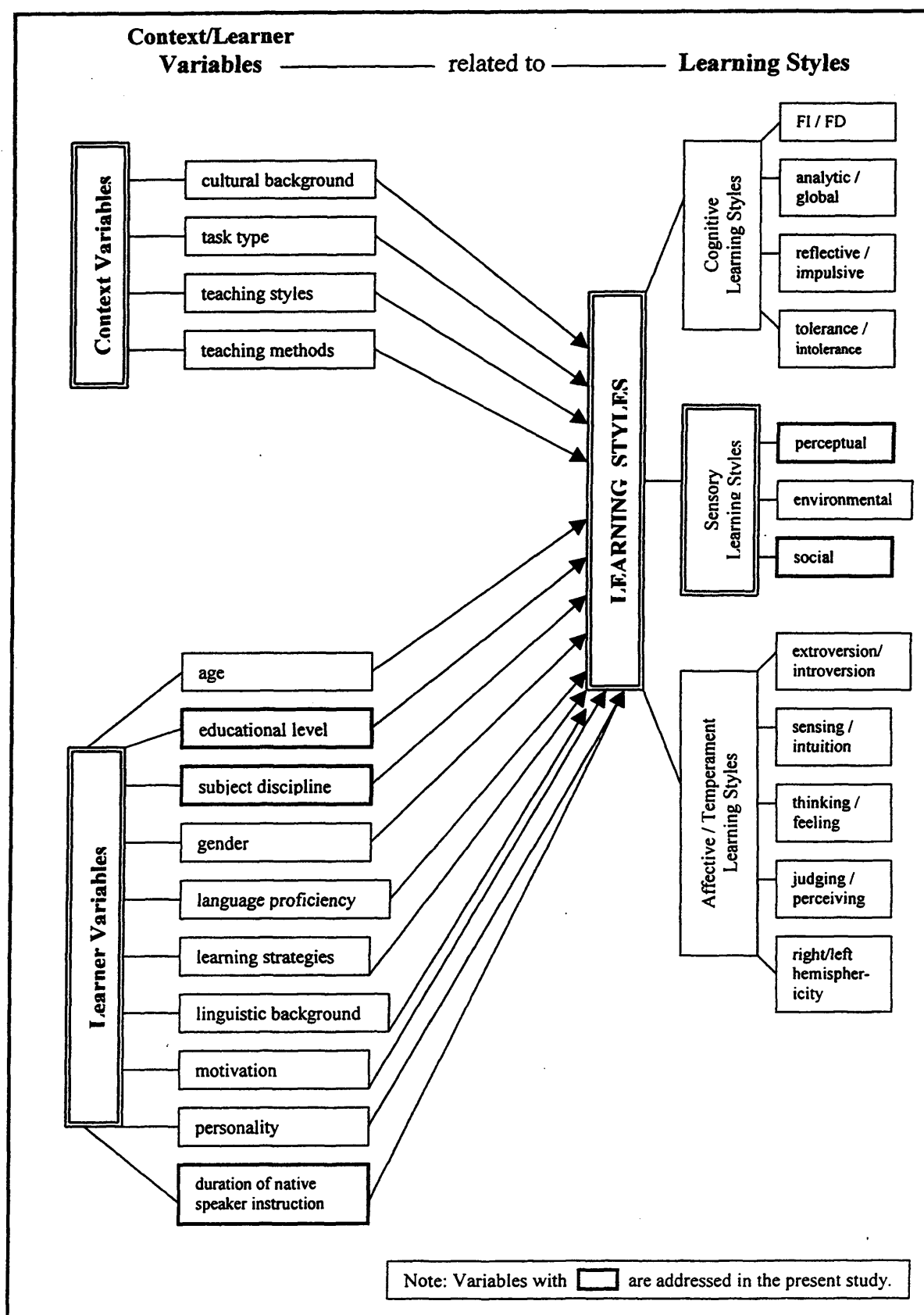
## **2.5 Summary**

In the above review of literature, major definitions and widely accepted models of learning styles are presented. Built on this knowledge, a working definition and justification of the selected model for the present study are discussed. Among the numerous factors that are considered to influence learning style preferences, six are looked into. Five of them, except for gender, are closely related to the present study. For example, the age variable is pertinent to the variable of education level in the present study. The variable of target language proficiency is related to English proficiency levels of the subjects. In this study, English majors are considered to be at a higher proficiency level than their counterparts of non-English majors at different educational levels. The assumption that field of specialization is amongst the factors that influences learning style preferences is discussed because empirical studies have produced inconsistent results, and also because this study attempts to examine this issue in three sub-groups: science, arts and English majors. Duration of native speaker instruction is also a factor to consider in this study. This factor is unique to an EFL setting and, as shown in the review, the relationship between this learner variable and learning style preferences has not yet been fully studied. After a discussion of the literature of these variables, a discussion of terminological issues follows.

To end this chapter, a conceptual framework is proposed. This framework, shown in Figure 2.1 on page 40, is provided for three reasons. Firstly, it serves as a working model with the assumptions established on the basis of the brief literature review in the present

chapter. Secondly, it is also the basis on which the research questions are formulated and developed. Thirdly, it highlights the focus of the present study by indicating the relevant areas in learning styles and learner variables, that is, the relationship between certain learner variables and perceptual learning styles.

Figure 2.1 Conceptual Framework of the Present Study



# **CHAPTER THREE**

## **REVIEW OF LITERATURE (2)**

### **LEARNING STYLE RESEARCH**

Closely related to the preceding chapter, this chapter focuses on empirical studies into learning styles. It starts with a general review of research into learning styles. It then moves on to a review of research into perceptual learning styles. Thereafter, it turns to a review of research on learning styles of Chinese learners in their EFL studies. The chapter ends with a discussion of the problems to be resolved in learning style research.

#### **3.1 A General Review of Research on Learning Styles**

Learning style research was not a research priority before the 1980s. Educational psychologists maintained interest through the years in the 1960s in the work on cognitive controls that had begun in the 1940s. But, as described by Keefe and Monk (1986), this work foundered when many psychologists concluded that cognitive style research was "unproductive" and "not a defensibly independent field of inquiry" (p.1). Consequently, exploration of learning styles did not result in a comprehensive research effort. According to Keefe (1987), educational practitioners discovered learning style technology at about the time when most psychologists had lost interest. They found that cognitive controls were intrinsic to information processing systems and were influenced by various motivational biases and environmental

preferences that individuals brought to learning. Keefe (1988) further put forward that "the gestalt of cognitive, affective, and environmental elements is what we term learning styles" (p.3).

Learning style research is closely related to research into second and foreign language education. The past two decades have witnessed, in second and foreign language education, a major shift in research focus from the teacher to the learner, from learning and teaching results to the learning and teaching process, and from searching for 'perfect' teaching methods to investigating learning styles and strategies in light of cognitive psychology and social-cultural studies. According to Brown (1994), this development is the result of a marked increase in our knowledge of second language acquisition during the 1970s when teachers and researchers acknowledged that no single method or research finding could ensure absolute and predictable success in teaching a language. In addition, it was noted that certain learners seemed to succeed despite teaching methods and techniques. Teachers and researchers also realized what teachers did in class was only part of the whole picture, the other part concerned what learners did to achieve successful learning. These realizations encouraged researchers, as well as teachers, to look more closely at learners themselves and see the importance of individual variations in language learning.

The foundation of research on individual differences is to examine the attributes on which learners vary and also to explore how such variations relate to language learning success. This area of concern entails some important conceptions such as aptitude,



intelligence, motivation, learning strategies and styles, age, gender, and personality. Learning styles, together with learning strategies, are important concepts at the heart of language learning research.

The mid-1970s was generally believed to be the starting point of research on learning strategies. Rubin (1975) first and, shortly after, Stern (1975) presented their studies on learning strategies of 'good' or 'successful' language learners. A basic assumption underlying the conception of the good learner was that, besides the well documented individual differences such as aptitude, intelligence and motivation (Carroll, 1965; Gardner and Lambert, 1972), learners differ in their conscious efforts to maximize their learning results. Focusing on learners' processes in learning another language, the work of Rubin (1975) and Stern (1975) drew the attention of the research world and triggered a large number of studies on language learning strategies. In the following two decades since then, there have been quite a number of strategy studies of learners and learning environment. These include Bialystok (1990), Chamot et al (1987), Cohen (1987, 1990), O'Malley (1985), Gu (1994), O'Malley and Chamot (1990), Oxford (1990d), Oxford and Nyikos (1989), Politzer (1983), Wenden (1986), and Wenden and Rubin (1987).

Research on language learning strategies has resulted in detailed descriptions of what learners do in learning another language. During the 1980s, learning strategy studies developed from good learner strategies to learning styles of learners both as individual and as cultural groups. Unlike research on learning strategies which look into specific actions learners take or should take for desired results in

learning, research on learning styles explores more general aspects of how and why learners have certain behaviours in their learning, that is, to examine the patterns of learning behaviours and affective factors of these patterns (Galloway and Labarca, 1990; Oxford et al, 1992; among others). The linkage between research into learning styles and learning strategies is that studies of learning strategies are to help second and foreign language learners to learn the language better, whereas, studies of learning styles are to help ESL/EFL teachers understand their students better and thus to design more appropriate teaching plans to meet students' specific needs.

Research into learning style is also closely related to cultural studies. Culture studies for second and foreign language learning have a long history. It started with teaching the culture of the target language known as 'cross-cultural understanding'. Cultural study in this respect aimed at helping learners to learn the language with proper knowledge about the context in which the language is spoken. At the end of the 1980s, the interest of cultural study shifted from L2 to L1, that is, from the culture of the target language to the culture of the learner. The study of the culture of the learner is intended to provide teaching with a better understanding of the learners (Buttjes, 1990; Prodromou, 1992). Following the cultural studies for motivational research by Gardner (1985), a significant shift has been seen with the studies on language learners' preferences for learning strategies and styles in relation to their cultural background.

The direct relationship between culture and learning styles is explored by a number of studies. The frequently cited ones in the

literature include Hofstede (1986), Harshbarger et al (1986), Reid (1987), Oxford et al (1992), and Willing (1988) among others. Findings from these studies indicate that certain learning styles are preferred by learners from different cultural backgrounds rather than other learning styles. For example, according to one study, Hispanic ESL students are more global than analytic in learning styles. They are highly field-dependent rather than field-independent and they are more feeling-rather than thinking-oriented (Harshbarger et al, 1986). Arabic-speaking ESL learners are typically verbal and interested in an extroverted mode of instruction (Willing, 1988). Korean students are the most visual learners, while Japanese students are the least auditory in their perceptual preferences (Reid, 1987).

In examining culture as one of the determinants of learning styles, two research studies are most influential. Reid's (1987) cross-cultural study on perceptual learning styles involves learners of many languages and ethnic groups who attend universities in the United States. Data from the study are statistically analyzed to identify the relationships between learning style preferences and learner variables such as language background, major field of study, level of education, English proficiency, age, gender, period of time in the United States, and so on. Findings from this study generally indicate that ESL students often differ significantly, in various ways, from native speakers of English in perceptual learning style preferences. The findings also conclude that ESL students from different language (and by extension different educational and cultural) backgrounds sometimes differ significantly from each other in their learning style preferences.

The second influential study was conducted by Oxford et al (1992). They conducted case studies in which data were collected in the form of free-form essays with the topic on conflicts between teacher and student styles. Based on these data, Oxford et al (1992) asserted that different learning styles of ESL/EFL students typically reflected their cultural differences and that valid generalization about learning styles could be related to various cultural and ethnic groups as a whole, although culture was not the only factor that played a role in the development of learning styles.

Oxford and Anderson (1995) synthesized learning style research related to cultural differences. In this state-of-the-art article, using cross-cultural examples from various studies, the authors not only depict cultural influences on the formation of learning styles but also provide instructional and research-relevant implications. Of the studies cited in this overview article, the majority of them are on ESL learning. This means cultural influence is mainly studied in the ESL environment rather than in the learner's own cultural environment. How a learner's home culture influences his/her learning within that culture, that is, in an EFL setting, is not yet fully clear. However, this is the focus of the present study.

### **3.2 A Review of Research on Perceptual Learning Styles**

In this section, a brief overview of perceptual learning styles is presented first. It is followed by a review of four separate studies with Chinese learners.

### 3.2.1 Research on Perceptual Learning Styles

As noted in the preceding discussion, a learner receives and organizes information through his or her perceptual sensory channels. French (1975a & 1975b) conceptualizes these perceptual sensory channels into a model that is composed of seven perceptual learning styles. According to him, perceptual learning style is the approach an individual learner uses in gathering information and knowledge through the five senses. The seven perceptual styles are defined as follows:

- Print style: gathering information primarily through written words
- Aural style: utilizing listening
- Interactive style: involving interaction with others
- Visual style: involving seeing pictures, objects and activities
- Haptic style: involving touching, holding and grasping
- Kinesthetic style: involving body movement
- Olfactory style: involving smelling and/or tasting

Based on the model of French, Gilley (1975) has developed an instrument known as *Multi-Model Paired Associates Learning Test* (MMPALT). This instrument measures actual strengths of six (out of seven) of French's perceptual learning styles. Gilley's (1975) instrument is revised and refined by Cherry (1981) into two instruments. One is MMPALT-II and the other is a self-report instrument, the *Perceptual Modality Preference Survey* (PMPS). The latter, PMPS, measures preferences of perceptual learning styles. Cherry's (1981) two instruments are intended to measure actual strengths as well as preferences of learning styles of learners. Her instruments are used and

examined by several other researchers such as Galbraith and James (1984), James (1984), James and Galbraith (1985), and Schaiper and Jayni (1985).

Building upon the existing models of others and her own research, Reid (1995, 1998) proposes a model of three major categories: cognitive learning styles, sensory learning styles and affective/temperament learning styles. In her model, the category of sensory learning styles is subdivided into perceptual learning styles, environmental learning styles, and sociological learning styles. These three subcategories of learning styles cover 17 learning style elements. Table 3.1 gives an overview of Reid's category of sensory learning styles. In this overview, the 17 elements and the existing instruments for measuring them are provided.

Table 3.1 Sensory Learning Styles and Instruments for Measuring Them

<b>Sensory Learning Styles</b>		<b>Existing Instruments for Measuring Them</b>
learning style	category	learning style element
<b>Perceptual Learning Styles</b>		visual
		auditory
		kinesthetic
		tactile
<b>Environmental Learning Styles</b>		haptic
		sound
		light
		temperature
<b>Sociological Learning Styles</b>		class design
		food intake
		time
		mobility
		group
		individual
		teacher authority
		team
		pair

Source: Reid, 1998

As shown in Table 3.1, there are several instruments to measure perceptual learning styles. Of these instruments, Reid's (1987) Perceptual Learning Style Preferences (PLSP) survey is the most widely used. This questionnaire allows the respondents to self-identify their preferred learning styles among six sub-categories. It is the only instrument that is geared to cultural and linguistic differences (Kroonenberg, 1995, p.75). In a search through the available literature, 32 studies have been found to investigate perceptual learning styles. Of the 32 studies, 22 replicate Reid's work. These studies have surveyed nearly 7,000 students in a dozen countries including the United States, China, Taiwan, Japan, Indonesia, Singapore, Malaysia, Egypt, Spain, Hungary, and Russia. An overview of the 32 studies on perceptual learning style preferences is provided in Appendix A. This overview provides information about researchers, date of study, samples surveyed, instruments used and learner variables addressed. Among the 32 studies, four of them surveyed Chinese EFL learners. These studies are looked into in the forthcoming section.

### **3.2.2 Research into Chinese Learners**

Four research studies on Chinese learners studying English within China have been located. Since the present study investigates Chinese EFL learners, a review of the previous studies on learners in this group is felt to be necessary and relevant. It is believed that these studies form the backdrop against which findings of the present study will be compared and contrasted.

The four studies under review are different to one another in terms of the sample size and instruments used. Despite the differences, there are commonalities. Firstly, the four studies investigate the students at the same educational level: the tertiary level. Secondly, learner variables addressed in the four studies mostly overlap. They are variables of gender, grade level in the university, years of English study, field of specialization, and duration of native speaker instruction. Thirdly, the methods for data collection are similar in that they used questionnaire surveys. Fourthly, their data analysis procedures are similar, too, in that, they used frequency counting and ANOVA.

The four studies employ three questionnaire instruments. Two studies use Reid's instrument, *Perceptual Learning Style Preferences*, which investigates four basic perceptual learning styles: visual, auditory, tactile, kinesthetic and two sociological styles: group and individual. The second questionnaire is *Learning Style Survey (LSS)* designed by Wichita Public Schools, the United States. The questionnaire determines learning style preferences in the area of visual, auditory, kinesthetic, group and individual learning as well as oral expressiveness and written expressiveness. In this instrument, tactile style is not singled out as a specific style category. The third questionnaire instrument is a composite one which assesses both perceptual learning modalities and cognitive styles. The perceptual learning styles assessed include visual, auditory, tactile and kinesthetic modalities. A brief discussion of each of the four studies on Chinese EFL learners is provided as follows.



### **3.2.2.1 Dirksen's study**

Dirksen (1991) conducted a survey involving 1,076 tertiary EFL students in 16 universities in mainland China. The study addressed three learner variables: 1) student classification, which comprised three groups: undergraduates, postgraduates, teachers-in-training, 2) major field, where the participants were generally grouped into English majors and non-English majors, and 3) duration of native speaker instruction. In Dirksen's research, a composite instrument on perceptual and cognitive styles was used. Frequency counting was employed for data analysis. Results of the study showed that of the four perceptual learning styles assessed, Chinese EFL learners in general strongly prefer kinesthetic learning (73%) and they had limited enthusiasm for auditory learning (28%). In terms of learner variables, the findings included: postgraduates exhibited the most preferences for auditory learning, whereas teachers-in-training had the most visual preferences; there was little difference between English majors and non-English majors in the four perceptual styles; and students who had received native speaker instruction showed more preferences for auditory learning than did the students who had received no native speaker instruction. Dirksen's study is the first large-scale research that examined learning style preferences of Chinese students in their homeland.

### **3.2.2.2 Melton's study**

Melton (1990) conducted a follow-up study of Reid's original research. Using a Chinese version of Reid's *PLSP Survey*, Melton

surveyed 331 university students from five universities. Her data analysis addressed six learner variables: language of the questionnaire, gender, grade level in the university, years of English study, duration of native speaker instruction, and field of specialization. The profile of Chinese English learners' learning style preferences emerging from Melton's study concurred with Reid's conclusion that Chinese learners appeared to have multiple major learning styles. The results also indicated that Chinese learners preferred kinesthetic, tactile and individual learning as major styles. Their visual and auditory learning were considered as minor styles and they perceived group learning as a negligible learning style. Other findings pertinent to the present study were: graduates showed fewer preferences for kinesthetic and individual learning than did undergraduates; science majors were the least auditory learners compared with arts and English majors; and there seemed to be a trend that the longer students were taught by a native speaking teacher, the more they prefer kinesthetic and auditory learning.

#### **3.2.2.3 Su's study**

Su's (1995) doctoral research investigated the relationship between Chinese students' learning strategy and style preferences and their cultural beliefs about learning English. A total of 369 Chinese university EFL students participated in the study. As part of the study, Su used a questionnaire of seven learning styles to determine learners' learning style preferences. His quantitative data analyses addressed four learner variables: field of specialization, gender, age, and years of

English study. Results from frequency counting indicated that these Chinese learners had strong preferences for individual and kinesthetic learning. Their responses to the remaining styles were not strong. These minor styles were visual, auditory, group, oral expressiveness and written expressiveness.

#### **3.2.2.4 Zhang's study**

Zhang (2001) replicated Reid's survey with her own 186 undergraduate students. She examined style differences related to such learner variables as gender, years of English study, students from urban and rural areas and from coastal and inland areas. Like the results from Melton's study, results from Zhang's study lent support to Reid's findings in that Chinese learners had multiple major styles. In Zhang's study, kinesthetic, visual and tactile learning were major styles. The rest, auditory, group and individual learning were minor styles.

The above discussion of the four studies on Chinese EFL learners is presented according to the researchers. Table 3.2 on the following page presents a summary of the four studies in a different way. It is organized according to the four basic perceptual learning style categories and two sociological learning styles. Only the findings related to the present study are presented.

Table 3.2  
A Summary of Four Studies into Chinese Learners

Learning Style	Finding	Source
Visual	a major style	Zhang, 2001
	a minor style	Melton, 1990; Su, 1995
Auditory	a minor style	Melton, 1990; Su, 1995; Zhang, 2001
	- Science majors are least auditory learners.	Su, 1995
	- Postgraduates prefer auditory learning most.	Dirksen, 1991; Melton, 1990;
	- The longer exposure to NS's instruction, the stronger preferences for auditory learning.	Dirksen, 1991
Tactile	a major style	Melton, 1990; Zhang, 2001
Kinesthetic	a major	Dirksen, 1991; Melton, 1990; Su, 1995;
	- undergraduates have stronger preferences for kinesthetic learning than postgraduates.	Melton, 1990
Group	a minor style	Su, 1995; Zhang, 2001
	a negligible style	Melton, 1990
Individual	a major style	Melton, 1990; Su, 1995
	a minor style	Zhang, 2001
	- Undergraduate have stronger preferences	Melton, 1990
	for individual learning than postgraduates	

To a certain extent, results from the four studies are inconsistent. This indicates the necessity for more empirical research on learning style preferences of Chinese learners in their home cultural environment. Only with more information within and across populations, can a thorough understanding of the influence of Chinese culture on these learners' learning style preferences be obtained.

Methodologically, there are weaknesses in the four studies. Firstly, in terms of sampling, the researchers did not provide sufficient information about their accessible populations and their specific subjects. Without this knowledge, the reader could neither determine if the sample was adequately representative of the population, nor

could they go further to make the judgment about the appropriateness of the subjects to their local situations.

Secondly, as mentioned earlier, three different questionnaires were used in these studies. Except for Reid's PLSP Survey, little knowledge was given about the theoretical constructs of the other two questionnaires and about whether the questionnaires were originally devised for EFL learners. Moreover, in the four studies, translated and modified versions of the questionnaires were used. But the researchers overlooked the need to re-establish the reliability and validity of the 'new' instruments. Insufficient information of this sort may undermine the results of the studies.

Thirdly, all the four studies employed a single questionnaire method to get data and the questionnaires used were highly structured. Although findings from the four studies could be used to confirm one another, the frailty of the results lies in that data are from one method which represents a single perspective and which is often inadequate for a full comprehension of the issue being studied.

To overcome the weaknesses pinpointed in the above-mentioned four studies, the present study provides sufficient information on sampling, the instrument used, and methods of data analysis. Most importantly, the present study employs a triangulation approach which makes data available from multiple sources. This study is the first survey involving Chinese EFL learners to use data collected by multiple methods. The use of multiple data will enable a broader perspective and deeper interpretation of the issues investigated. It will

also enable new information to be added to the present state of knowledge concerning learning style preferences of Chinese EFL learners.

### **3.3 Issues and Problems in Learning Style Research**

Learning style theory concerning ESL/EFL students encompasses a number of controversies. One of the major controversies is the issue of cultural learning styles (Guild, 1994; Nelson, 1995; Oxford and Anderson, 1995).

One reason that the linkage between culture and learning styles is controversial is that there is a difference between identifying typical behaviours and preferences and overgeneralizing trends into stereotyping students according to widely held socio-cultural assumptions. Nelson (1995) states that tendencies in classroom behaviours are culturally based and are identifiable in groups of students. For example, Japanese EFL students have often been described as reserved (quiet and reticent), formal (fond of highly structured class and deductive approach), cautious (more thinking than feeling, not talking quickly) and consensual decision-making (more group-oriented, individual opinion is not valid) (Call, 1995; Nelson, 1995; Oxford et al, 1992; Anderson, 1995; Reid 1998). In direct contrast, the characteristics of North Americans seem to include self-reliance, frankness, informality, spontaneity and talkativeness (Dunn & Griggs, 1990).

Although many syntheses and surveys have discussed the inter-dynamics of different cultures and ways of learning, each of them focuses either on a specific learning style model or a particular cultural group. No work, to the present researcher's knowledge, claims to be comprehensive on the topic of culture and learning styles. In general, researchers have reported two kinds of information about culture and learning styles. The first is the set of observation-based descriptions of learners. This is provided by people who are familiar with each cultural group. These people write these descriptions about the experiences of learners inside the culture to sensitize people outside the culture. For instance, researchers have often contrasted other students' learning patterns with those of mainstream white American students.

The second set of information about culture and learning styles is data-based descriptions of specific cultural groups. In this class of inquiry, researchers administer learning style instruments to produce profiles of learner groups (usually cultural groups) and compare the results between and among cultural groups or compare the findings with those from previous studies. Researchers also use other data such as having students write about or discuss their learning styles, interviewing students to detect differences in learning styles. Most of the formal learning style instruments measure learning style preferences. Respondents to these instruments usually self-report their preferred approaches to learning.

Using learning style instruments is not without problems. A lack of accumulated evidence for the reliability and validity of measurements is pinpointed by Curry (1990), DeBello (1989) and Rule & Grippin (1988).

This weakness, together with a few issues in the use of learning style instruments, is a pervasive problem surrounding learning style research. A few issues related to this problem are critically examined as follows.

Firstly, an important standard for interpreting educational research concerns reliability and validity of the measurements. Users of learning style instruments usually expect a measurement to indicate that the instrument meets standards for use and interpretation. Instrument developers, in turn, expect to collect various types of evidence to support their conceptualizations and measurement systems. Strictly speaking, in using an instrument, when adaptations are made such as deleting, adding, rephrasing the statements, or translations into another language, the original validity and reliability of the instrument is distorted. In any of these cases, there is a need to re-establish reliability and validity of the new instrument. Many researchers use adapted and translated versions of existing instruments, but they overlook the need to re-examine the quality of the 'new' instruments. For example, none of the four studies with Chinese learners reviewed in the preceding section (pp. 43-48) provide the reliability results of the adapted and translated instruments.

Secondly, an important fact about learning style instruments is that they are language- and cultural specific. Existing instruments are valid for selected populations. Some of them target native speakers of English whereas others target ESL or EFL learners. Moreover, some instruments address ESL/EFL learners with different levels of language proficiency, or different age groups, or at different educational levels. For example, Reid's PLSP questionnaire is purposefully designed to



identify perceptual learning style preferences of adult ESL learners. But can this questionnaire be transferred satisfactorily from an ESL setting into an EFL setting? This question could be raised simply because questionnaire respondents in different sites often differ in how they interpret the statements in the questionnaires.

The interference of differences in concept is a formidable obstacle when attempting to use an existing instrument cross-culturally. In other words, when questionnaire respondents respond to specific words, they interpret the words through cultural experiences. For example, in Reid's questionnaire, the statement "I learn better in class when the teacher gives a lecture" may be problematic for mainland Chinese EFL learners because the concepts 'class' and 'lecture' in Chinese school culture are different from those in the West. 'Group work' might be another example of connotative differences between native English and EFL learners who study English in the P. R. China. Making a meaningful choice in a questionnaire demands knowing not only the dictionary meaning of the words or idioms but also the connotations they have. Respondents may also interpret the meanings of the statements based on their past learning experience.

Translating an instrument into a second language is a way to eliminate language problems inherent in a questionnaire survey. But translation is not without its own difficulties. The interference of vocabulary is often an obstacle. Taking an example from the researcher's own experience, some words may not have a practical equivalent in the native language of the respondents. For example, in Reid's PLSP survey, in the statements "*I enjoy making something for a*

*class project*" and *"I prefer working on projects by myself"*, the word 'project' is problematic because a literal equivalent in Chinese makes no sense in this particular linguistic context.

A good measure to ensure the accuracy of a translated version is to conduct a blind back-translation, that is, to have a native speaker in the intended respondents' language translate the instrument back into English without having seen the original English version. A problem with Melton's (1990) and Zhang's (2001) studies is the lack of information about whether the translated versions used in their studies are tested by a back-translation. Insufficient information of this sort may result in the reader's uncertainty about the quality of the translated version, which, in turn, leads the reader to treat the results with a certain degree of caution.

The discussion above deals with the quality of a questionnaire instrument. In a questionnaire survey, if careful consideration is given to the reliability and validity of the instrument and cautious steps are taken to eliminate difficulties in translation and modification of the instrument, the assessment tool, be it a ready-made one, an adapted one or a translated version, can be used with confidence.

### **3.4 Summary**

This chapter provides a review of empirical studies into learning styles with specific reference to perceptual learning styles. In this review, the notion of learning style and specification of perceptual

learning styles are explored first. The review moves on to look into cultural impact on learning styles. This is an area which is covered in some depth in the literature. A discussion is provided on various studies and implications of the findings of the studies are discussed in a variety of different educational settings.

As mentioned in the review, Reid's study (1987) plays an important role in research of learning styles. Her study opens two important areas for future exploration. The first area concerns the effect that cultural factors have on the shaping of learning style preferences. Studies addressing this issue have produced style patterns of second and foreign language learners from different cultures as well as from geographically adjacent cultures (e.g. Asian learners). In contrast to a wealth of research on cross-cultural style differences, learning style differences within cultural groups are hardly researched. Further information on this aspect is needed. Guild (1994) calls for researchers to look not just at style differences between and among cultural groups, but also at style differences in the degree of variability within cultural groups. The present study builds on Guild's suggestion and applies it in an EFL setting.

The second area in need of investigation concerns the adaptation of learning styles. Reid's study hints at the changes in learning styles that might occur through continued exposure to the host culture on the part of ESL learners. But in the literature, little information has been reported on evidence and causes of possible adaptations and changes of learning styles. The present study addresses this issue, but in an EFL setting.

This chapter also reviews the existing studies involving Chinese EFL learners. Four studies and major findings from them are presented. Methodological weaknesses are pinpointed. Building on this discussion, the strengths of the present study in terms of its overall design in methodology are highlighted. By attempting to examine style differences within Chinese learners and explore style adaptation in the Chinese EFL learning context, this study should be able to bring a greater depth and comprehensiveness to our understanding of learning style preferences of Chinese EFL learners.

To move further, it is the intention of the next chapter to look at the research context of the present study.

## **CHAPTER FOUR**

### **CONTEXTUAL BACKGROUND (1)**

#### **ELT IN CHINA: SOCIAL AND CULTURAL CONTEXTS**

This study is concerned with English teaching and learning in the People's Republic of China specifically. Therefore, it is necessary to provide some background information about the situation of English education in China. Such knowledge is essential to enable an understanding of the distinctive features of the research context. It is also useful to situate the findings and discussion in a later stage.

This background knowledge is introduced in the present and the following chapters. The present chapter provides a description of the social, linguistic and cultural context. The following Chapter Five gives an account of current approaches to and practices in ELT in China.

#### **4.1 ELT in China: A Socioeconomic Perspective**

Socio-economic forces play an important role in the development of English education in China. In one way, closely related to China's drive toward an advance in industry, agriculture, science and technology, and national defense since the early 1980s, the country desires her people to have a sound level of English language proficiency because English is an international language that gives access to worldwide information and advanced technology. This access is seen to pave the way for China to catch up with

developments in science and technology in other parts of the world, and to improve the country's competitiveness in the world economy (Zhao and Campebell, 1995).

In another way, as part of China's economic development, the open-door policy allows the nation to increasingly attract foreign investment and import advanced technology. This happens even faster after China's entry into World Trade Organization in 2000 (Jin and Cortazzi, 2002). The entry of foreign capital and advanced management and technology, together with an increasing number of joint ventures, requires a huge workforce that is equipped with not only technology but also a certain level of English language proficiency in order to maintain management functions and for the personnel in the companies to communicate.

Furthermore, the economic reforms have moved the nation away from a socialist planned economy into a socialist market economy (Li, 1997). In the socialist planned economy, the economy was collective and less competitive. Young students were less motivated by a need to learn a subject, but more impelled by a desire to pass the examinations and get degrees. With the introduction of market elements into the economy, jobs are no longer assigned. The emergence of opportunities for private businesses, the autonomy of recruitment in many industrial and commercial units have contributed to a new pattern of employment. Nowadays, young graduates enter the open job market to compete for jobs. They are employed through 'supply-demand interviews' in which the employers and prospective employees meet and select each other. In this process, better English

proficiency is of paramount importance. Graduates and the schools and universities all recognize this. This societal recognition has increased students' motivation for English study (Li, 1997).

## **4.2 ELT in China: A Socio-Linguistic Review**

This section provides a socio-linguistic review of English language teaching in China. The review constitutes two levels, a macro level review of English in China and a micro level review of English in the Chinese education system.

In China, English is neither a mother tongue nor an official language. It is a foreign language taught widely in schools. It is also a major language through which China communicates with the outside world. The use of English in the society is seen in three main domains, education, international transactions, and mass media.

In the domain of education, English is widely learned and taught. Statistics reveal that over 67 million students learn English in junior secondary and senior high schools (Hu, 2001) and that about two million university students are in tertiary institutions and an overwhelming majority of these students learn English (Wu, 2001). Added to these figures, about 550,000 secondary school teachers of English (Yu, 2001) and approximately 28,000 teachers at the tertiary level (Cortazzi & Jin, 1996b) make a living by teaching English.

The use of English in the domain of international transactions covers areas of diplomacy, commerce and tourism where Chinese speakers of English directly communicate with English speakers. These personnel include professional translators/interpreters in diplomatic organizations, research institutions, companies and joint-ventures, and also include those who work in travel agencies and hotels. Yet, there is not any estimate available about the number of English users in these fields. This is probably due to the fact that these fields are undergoing rapid development, thus, the circumstances are changing fast.

The media is another field where English is used. To the outside world, China publishes an official English language newspaper and a dozen English periodicals. Apart from the publications intended for international consumption, there is one national English newspaper and several local English newspapers and magazines published for domestic readers. In broadcasting, China broadcasts a variety of English programmes on radio and TV intended for a foreign audience within and outside China. English teaching programmes are broadcast on TV and radio regularly for a domestic audience.

At the micro level, English in the education system as well as the education system itself is described as follows. China currently provides nine years of compulsory education which includes six years in the primary school and three years in the junior middle school. A full cycle of formal education consists of three levels. The primary level has six years, while the secondary level has another six years which are divided equally into two stages: three years in the junior middle school and three years in the senior high school. The tertiary level requires four



years to complete. Some specializations need 5-6 years. Generally speaking, it requires 16 years for a student to accomplish a cycle of formal education including primary, secondary and tertiary levels.

Upon finishing the compulsory nine years of primary and junior middle school study, some of the school leavers go on to senior high schools, while others enroll in vocational schools which prepare the students for a wide range of skilled jobs. Senior high schools lead to tertiary institutions, or alternatively to the workplace. Postgraduate programmes admit students from two channels. They take those who proceed to postgraduate studies right after the completion of their undergraduate studies and those who have gained some working experience after undergraduate studies.

Within the formal school system, English is one of the subjects in curriculums. In theory, English teaching is recommended to be introduced at upper primary levels in schools, goes through the secondary level, and continues in the tertiary level. Nevertheless, in reality, English teaching at the primary level is only restricted to some urban schools which have capacity and qualified English teachers (Jin and Cortazzi, 2002; Nunan, 2002). Owing to this disparity in English teaching in primary schools, English is not a subject required in the primary school leaving examinations. On a nationwide scale, English teaching starts in junior middle schools. From this educational level onwards, English is established as a compulsory subject and regulated as a major subject requiring satisfactory results in both examinations for graduation from a secondary school and entering into a university.

English proficiency is also required in admissions for postgraduate studies.

To sum up the preceding description, Figure 4.1 on the following page provides the main stages of schooling and English language teaching in the education system in China.

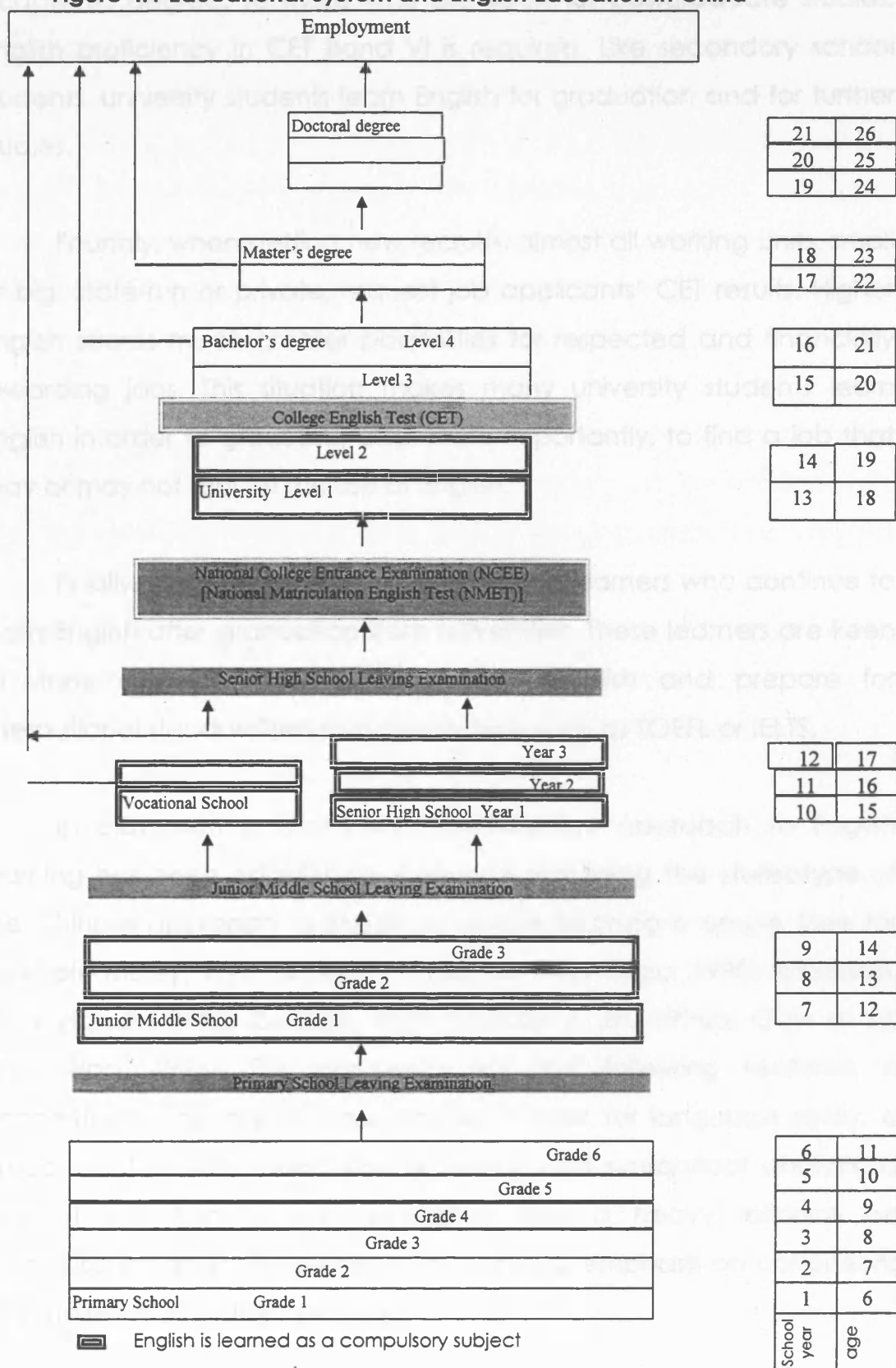
### **4.3 ELT in China: The Sociocultural Context**

To map the sociocultural context with regard to English language teaching, two significant aspects need looking into. One is the importance of preparation for examinations as a motivation to study English and the other is cultural behaviours related to education and to the language classroom.

Most English learners have instrumental reasons for learning English. Firstly, English is a required subject in the secondary school leaving examinations. Secondly, the National Matriculation English Test (NMET) is one of the seven subjects in the National College Entrance Examinations (NCEE). To secondary school learners, it is the pressure of having to sit for the English sections of these two significant examinations that makes them work hard at English.

Thirdly, English is a compulsory subject for tertiary students, too. At the end of the second year in university, students are required to take the College English Test Band IV (hereafter CET Band IV), a nationwide examination. If a student fails to pass it, he or she may not receive an

**Figure 4.1 Educational System and English Education in China**



academic degree. To those who are keen for postgraduate studies, English proficiency in CET Band VI is required. Like secondary school students, university students learn English for graduation and for further studies.

Fourthly, when getting new recruits, almost all working units, small or big, state-run or private, request job applicants' CET results. Higher English scores mean greater possibilities for respected and financially rewarding jobs. This situation makes many university students learn English in order to graduate, and, more importantly, to find a job that may or may not require the use of English.

Finally, there is an increasing number of learners who continue to learn English after graduation from universities. These learners are keen to study or work overseas. They learn English and prepare for international standardized proficiency tests such as TOEFL or IELTS.

In classroom environments, the Chinese approach to English learning has been established. Evidence regarding the stereotype of the Chinese approach to English language learning is ample (See for example Maley, 1983; Scovel, J. 1983; Yu, 1984; Dzau, 1990; Anderson, 1993; Harvey, 1985; Cortazzi, 1999; Cortazzi & Jin, 1996a; Gow et al, 1996; Rao, 1996). This approach has the following features: a concentration on intensive reading as a basis for language study, a preoccupation with meticulous grammar and syntactical analysis, a lack of attention to communicative skills, a heavy reliance on memorization and rote learning, and a strong emphasis on corrections of mistakes, both written and oral.

Many factors potentially influence the formation of the Chinese approach to English teaching and learning. Among them, cultural and contextual factors are frequently highlighted (See for example Cortazzi, 1999; Cortazzi & Jin, 1996a; Gow, et al, 1996; Yu, 1984). In the cultural respect, the characteristics of the Chinese approach to English education portrayed in the previous paragraph have their roots in the traditional Chinese concept of education and are deeply influenced by the traditional ways of Chinese language learning.

In terms of the basic concept of education, by learning, the Chinese approach means an accumulation of knowledge and reading of books. Therefore, in language learning, language is viewed as a subject and learning is the mastery of its grammar and lexicon. Reflected in the classroom, there is the application of the grammar-translation approach with its focus on a close study of grammar, a discussion of word meaning and an in-depth analysis of texts.

The influence of the traditional way of learning the Chinese language is most obvious in two ways. Firstly, ancient Chinese scholars and educators used recitation and memorization in learning classic Chinese. They convinced the later generations to believe that language learning was best accomplished through a mastery of its form which eventually led to understanding and creative use of the target language. Secondly, Chinese language is logographic. In learning it, children in early years must simply memorize the characters one by one. This is why it is a common scene that Chinese kids in kindergartens and elementary schools learn stroke orders of writing characters, copy their teachers' models and write the characters

repeatedly. Repeated writing practice in this early stage is seen as an important part of learning. All these techniques are directly transferred to English learning. In pedagogy, fitting comfortably into this deeply-rooted and widely accepted view is the audio-lingual method, which is still dominant in English classes in China (Penner, 1995).

Apart from the cultural influence, the contextual influence is pervasive. One of the contextual features is that Chinese students do not learn English communicatively because they do not need it for communication. They receive input in English mainly from what they encounter in English classes and what they read from English textbooks. Another contextually-bound feature is the fact that, to Chinese students, motivation to learn English is to pass examinations. As mentioned earlier, these students need to go through the secondary school leaving examination, the NMET (National Matriculation English Test), and the CET. Those who are keen to enter overseas universities need to sit for internationally recognized English tests. Students' examination scores are the only decisive criterion for admissions into schools of different ranks, normal or prestigious. Limited capacity to enroll students into higher education institutions makes college entrance examination very competitive. Facing the severe competition in the significant examinations at varied levels and having the goal of English learning as merely an academic achievement, most students commit a heavy load of vocabulary and finer grammar points to memory and consider memorization an effective approach to increase the chances for success (Maley, 1983).

#### **4.4 Summary**

In this chapter, contextual information on ELT in China has been provided. In the discussion, the following ideas are conveyed:

- Nowadays, China is in a phase of industrial, scientific and commercial expansion. Along with its drive to this goal, the need for English is apparent and the need for development of English teaching is urgent;
- English is learned in China as a foreign language. It is learned through learning activities in classrooms;
- On the national level, English is regarded as a necessary tool to facilitate access to advanced science and technology and as a vehicle to promote relationships in commerce between China and other countries worldwide. On the personal level, English is merely a subject to study for graduation, a qualification for further study, the green light to a respected and lucrative job, and a key to overseas education;
- Cultural and contextual factors have a great impact on learning and teaching of English. Culturally, the traditional Chinese concept of knowledge-orientated teaching is pervasive. Contextually, as English is learned merely for academic achievement, memory-based learning is widely accepted and regarded as an effective technique to ensure success.

In addition to the above account of socio-economic, socio-linguistic and socio-cultural context, a detailed description of current ELT approaches and practices in China is given in the following chapter.



## **CHAPTER FIVE**

### **CONTEXTUAL BACKGROUND (2)**

#### **ELT IN CHINA: CURRENT APPROACHES AND PRACTICES**

This chapter looks into five sub-areas in English teaching in contemporary China. These sub-areas are teaching objectives, teaching methodology, teaching materials, English examination and English teachers. Information provided here depicts and specifies the unique characteristics of each sub-group of learners under investigation. These sub-groups are: learners at secondary school and tertiary levels, English majors and non-English majors, and learners who receive native speaker instruction and who do not receive native speaker instruction. This information is believed to be specifically relevant and useful for the reader to situate the discussion of the findings in the later stage of the thesis.

#### **5.1 Teaching Objectives**

As mentioned earlier in Section 4.3 (pp.68-72), English teaching within the formal education system comprises two levels, secondary and tertiary levels. At the secondary level, English is a required subject throughout both junior middle and senior high stages with 4-5 class hours a week. The purposes of English teaching at these two levels are stated as:

to provide students with basic training in listening, speaking, reading and writing through which the students will have a command of

basic knowledge of English, to activate students' interest in learning English and cultivate in students good learning habits, to provide students with a background in English necessary for future educational aims (for Junior Middle level), to strengthen students reading and writing ability in English in order to establish a firm foundation for further academic study (for Senior High level), to provide students with moral, patriotic, and socialist education and develop students' thinking ability and self-study ability

(China State Education Commission, 1992, 1996)

At the tertiary level, English teaching is divided into two strands, one is for a relatively small number of English majors, the other is for the overwhelming majority of tertiary students who are non-English majors.

English majors study English as a speciality through the four years in university. They have an average of 15 class hours in English every week. After four years of study, they go to various posts that require a good working knowledge of English such as English teachers, professional translators and interpreters, journalists using English as a medium of communication, and personnel dealing with diplomatic service and international business.

The purposes of the English programme for English majors in university are stated as:

to help the learner to develop the ability to use the language effectively for purposes of communication, to form a solid foundation of language skills required for future work, to offer aspects of the culture and society of the English speaking countries in order to help the learner acquire a better understanding of the people, and to develop an awareness of the nature of the target language and the process of language learning

(English Teaching Syllabus for English Majors, 1985, 2000)

To these students, their academic requirements are exacting. The new syllabus issued in 2000 emphasizes the development of students' integrated skills in English language. It also underscores the importance for them to develop knowledge of other areas in addition to their competence in English.

The second strand is the programmes for non-English majors in university. These students take up a subject of study in the field of arts or science. English teaching to these students is officially termed as *College English*. *College English* is divided into two stages: the foundation stage and the speciality reading stage (Yang, 1997). The former covers the first two years in university when English is regarded as a compulsory subject. From the third year onwards, English in the speciality reading stage is an elective.

The goal of *College English* is specified as to help the learner to develop "a relatively high ability in reading, a moderate ability in listening, and an elementary ability in writing and speaking" (*English Teaching Syllabus for Non-English Majors*, 1985). The priority given to reading ability is drawn up from the results of a series of surveys which revealed that most science and engineering students had to read English books and journals in the field of their specializations after graduation (Yang, 1997).

## **5.2 Teaching Methodology**

A good place to start considering English teaching methodology is the classroom. Thus, a description of a typical English class taught by

Chinese teachers of English is given first. This description is a composite review, based on experience in a number of English classes in both secondary school and university and on some informal interviews with several teachers from both secondary and tertiary levels.

The typical English language class described here represents one in secondary school and a non-English major class in university. In a class in either of the two instances, there are an average of 40 students. They sit in rows with individual desks and chairs, facing the front of the classroom where the teacher stands on a raised podium.

A common teaching sequence comprises following steps:

- Students prepare for a new unit by checking English–Chinese dictionaries for unknown words before the class.
- A class starts with a reading aloud of new words, new phrases, and the text.
- The teacher explains the text semantically and grammatically with a lot of examples to support the explanation. The students are required to provide oral responses on comprehension, translation, and grammatical substitution exercises.
- The class goes through the exercises after the main text. Some exercises on translation and grammar are assigned for students to do at home. Homework is required to be handed in for teacher's correction.
- In ending a unit, the teacher usually checks on the new words and newly learnt grammar by giving students some exercises, oral or written, on sentence making, translation or text retelling.

This typical teaching sequence was established as a dominant approach in English teaching in China in the past decades since the 1960s and is still used today (Cortazzi & Jin, 1996a & 1996b; Yao, 1993). The English classroom in China continues to be dominated by a blend of the traditional teacher-centred grammar-translation method and audio-lingual method with their repetition drills. A number of features regarding the Chinese approach are described in the literature.

- The Chinese approach has a preoccupation with syntactical analysis of the texts. Its focus is on knowledge of linguistic content and lexis rather than awareness of language function in use (Hou, 1987; Cortazzi & Jin, 1996b; Yao, 1993).
- The Chinese approach relies heavily on teaching grammar through deductive explanation, on conscious learning by imitation and repetition. Memorization is a basic technique (Yu, 1984; Rao, 1996; Yao, 1993).
- The Chinese approach is book-based and teacher-centred. It depends excessively on a teacher's meticulous exposition of a text. (Scovel, J. 1983; Maley, 1984; Cortazzi & Jin, 1996a and 1996b; Jin and Cortazzi, 2002; Qi, 1999).
- In the Chinese approach, interactive talk on negotiating meanings is largely ignored. When communication between the teacher and students or among students does take place in class, it is generally in the context of question-and-answer exercises where students

rely on reproduction of sentences from the texts or carefully prepared talks (Cortazzi & Jin, 1996a; Cortazzi, 1999).

- In the Chinese approach, oral fluency receives little attention. As a result, the students' oral skills remain under-developed (Anderson, 1993; Cortazzi & Jin, 1996b).

Despite its wide practice, the Chinese approach is challenged nowadays by an approach which emerged from ELT in the West, known as Communicative Language Teaching. Nowadays, the communicative approach to language teaching is no longer unfamiliar to Chinese teachers of English. But grammar teaching is still widely considered important as shown by the popularity of grammar items in teaching materials and examinations (Wang, 1999). Some Chinese EFL educators advocate an 'eclectic' approach that allows for a combination between the 'new' and the 'old' to align the communicative approach to language teaching with the Chinese traditional teaching structures (Cortazzi & Jin, 1996b; Rao, 1998; Wang 1999; Yao, 1993, Yu, 2002).

The scene in the English classroom for tertiary English majors is considerably different. As most language institutions and departments are well-equipped with modern language teaching facilities such as language-labs, overhead transparency projectors and slide projectors, teachers take advantage of these teaching aids. Teaching methodology tends to be different, too. It emphasizes communicative competence. Lessons are taught exclusively in English. Listening and speaking are the focus of attention in the first place with reading and

writing skills to be developed afterwards. Grammar is taught primarily by inductive analogy followed by deductive explanation at a later stage. Generally speaking, English programmes for English majors are characterized by a use of various simulations such as role-plays and student-centred and task-based activities. All these reflect much more reliance on a communicative approach to teaching.

### **5.3 Teaching Materials**

Textbooks are essential in formal ELT in China. They provide input, suggest approaches and methodology, and guide or impose the course of learning. According to Maley (1983), Chinese learners usually "treat the books with reverence, assign them great value and wish to learn by heart what they contain" (p.98).

English textbooks in China are state-sanctioned, compiled by a government-appointed panel of experts on the basis of the curricula set by the government. Unified textbooks for secondary and tertiary non-English majors are used throughout the country. Currently used textbooks were compiled in the 1990s. They offered an innovation in methodology by blending the elements of grammar-translation and audio-lingual methods with communicative approaches. But according to Cortazzi & Jin (1996b), they did not challenge the traditional practice too strongly.

For English majors, textbooks do not have to be China-produced. Together with a few sets of unified textbooks, imported textbooks are

widely used. This is because a lot of contact hours of English majors are taught by native speaking teachers of English. These teachers can decide which textbooks to use from what is available in the market or from their own resources. Generally speaking, in the locally compiled textbooks for either secondary or tertiary level, the formats of presentation are similar. A typical English lesson, or a unit, usually consists of the following parts:

- a short dialogue or two
- a text in 1-2 pages
- a list of new words and phrases with pronunciation given in phonetic script and Chinese translation (English synonyms appear at the back of the textbooks)
- notes on the historical and cultural background of the text when needed
- comprehension questions in the form of either multiple choice or short-answer questions
- exercises in the form of blank-filling for vocabulary and sentence structures, cloze passages for grammar, translation, supplementary reading, and occasionally guided writing

Despite the widely accepted lesson format, new textbooks have been published in recent years. These textbooks focus on all four skills as well as grammar, vocabulary and translation within each unit. They have a great variety of task and exercise types including pair and group work for problem-solving activities. However, such innovations in the field of teaching materials are offset by the continuing role of English tests (Jin and Cortazzi; 2002). These tests indicate a learner's



English proficiency which is seen as a key to enter and graduate from university, and to secure desirable jobs in public and private sectors or in local and foreign companies. The following sub-section focuses on English examinations.

## **5.4 English Examinations**

As a form of assessment, English examinations are especially influential in China. There are two significant English examinations, the National Matriculation English Test (NMET) and the College English Test (CET).

The NMET used to focus on easily assessed grammatical and vocabulary knowledge. Revised formats have been developed and field tested since the late 1980s. Nowadays the NMET includes not only the traditional 'knowledge' component which assesses knowledge of grammar and vocabulary but also a 'use' component which requires students to answer comprehension questions on reading passages to find and correct errors in a composition and to write a short composition in response to a prompt. This added part attempts to make the NMET a proficiency measure, rather than an achievement test (Shih, 1996, Hu, 2002).

The College English Test (CET) provides the basis for evaluating English proficiency of university students. It is divided into six progressive bands, each represented by one volume of the course book and taking one semester to complete. Only two key bands, known as CET

Band IV and CET Band VI, are used as unified test measures on a nationwide scale. CET Band IV and Band VI are designed to test the students who have completed the respective two levels. CET Band IV is a basic requirement for obtaining a Bachelor's degree, whereas CET Band VI is a higher requirement. CET Band VI is on a voluntary basis and provides students with a chance to demonstrate their English competence. Students receive official certificates when they pass the tests. Results of CET Band VI and Band IV are recognized nationwide and considered by many employers in recruitment.

In the initial format of the CET, most of the items were in the form of multiple choice. In order to enhance the validity of the CET and enable the CET to provide a positive impact on classroom teaching, since the mid-1990s, organized efforts have been directed to improve it. The new CET is designed to promote learning guided by contemporary language testing theories (Wu, 2001). The new CET gives due attention to speaking and writing and adopts some subjective items such as 'translation' to test comprehension, 'short answers' to evaluate testees' ability in expressing themselves in written English, and 'dictation' to help to develop the student's ability in taking notes and expressing themselves (Chen & Zhang, 1998).

English majors in university move through the same CET system by taking Band VIII and X. To briefly describe it, the nature of CET Band VIII and X is similar to that of CET Band IV and VI. They share the same philosophy of language assessment, the same general format, and the same purpose of testing. However, differences are found in the level of difficulty, the range of grammatical and lexical items to be tested, and

in the coverage of functional focus which includes cultural awareness associated with language use and literacy interpretation such as understanding of English literature.

## **5.5 English Teachers**

The large body of English teachers in China comprises both Chinese EFL teachers and English native-speaking teachers. Most of the Chinese EFL teachers have learned English within the country through traditional grammar-translation and audiolingual methods in secondary schools and receive pre-service training in teachers' colleges and universities. In university, they not only major in English language but also study courses such as *Language Teaching Methodology*, *Adolescent Psychology*, *Second Language Acquisition*, *Language Testing*, and 1-2 month teaching practice. Some other Chinese EFL teachers are recruited from foreign language institutes or English departments other than teacher training universities. These teachers do not have formal training in pedagogy and teaching methodology, though they are competent in English language skills.

In recent years, teacher education has received increasing attention. Various teacher training programmes have been implemented by institutions throughout the country. The main avenues for in-service training for English teachers are the postgraduate diploma and Master's programmes in Applied Linguistics and TESOL. In addition to the training courses within China, there have been an increasing

number of opportunities for English teachers to pursue Master's and Doctoral degrees overseas.

In the past 20 years, thousands of native speaking English teachers mainly from the United States of America, the United Kingdom, Canada, Australia and New Zealand have been employed (Cortazzi & Jin, 1996b) to teach English majors and non-English majors in university and in teacher training programmes. A small number of them teach in secondary schools. The increasing presence of Western English teachers has made an impact at tertiary institutions in terms of Western teaching approaches and student contact with native speakers (Burnaby & Sun, 1989).

A considerable amount has been written on the discrepancies between teaching approaches by Chinese and Western English teachers (See for example Harvey, 1985; Maley, 1983; Penner, 1995; Burnaby & Sun, 1989; Rao, 1996). In general, the major differences between the local and expatriate teachers of English with regard to their teaching are summarized as follows:

- Chinese EFL teachers regard knowledge transmission as a central goal. They generally prefer teacher-centred activities and use a lecture as a predominant teaching mode. Western teachers are more concerned with the development of language skills in self-expression in real life. They organize their teaching in a more flexible way, favoring task-based and student-centred activities.

- Chinese EFL teachers often elaborate the texts with meticulous detail. They are oriented towards accuracy in discrete grammar points and syntactical analysis. In a different manner, Western teachers place a primary emphasis on active oral communication. They are more fluency-oriented.
- Chinese EFL teachers take an authoritative role in the class. They tend to initiate and control all that happens in the class. Western teachers usually facilitate interactions in the class. Students are provided with ample occasions to take initiative in tackling tasks and engaging in interactive activities.
- Chinese EFL teachers are often insecure about their oral competence. Owing to this insecurity, they are concerned that they may be unable to answer spontaneous questions in the target language arising from interactions in the classroom. Western teachers are seen as an authority in teaching 'true' English (Cortazzi & Jin, 1996b). One advantage of their teaching is that they usually bring to the class a wide range of real English use, from which students gain cultural and socio-linguistic competence.
- In classes taught by Chinese EFL teachers, perceptual channels are strongly visual. Most teachers depend mainly on books and handouts to teach and tend to put a great deal of information on the chalkboard. Western teachers use more 'kinesthetic and global styles of teaching' (Oxford et al, 1992). Their

teaching tends to elicit maximum oral responses, involving spontaneous and creative ideas and motions in class.

## **5.6 Summary**

In this chapter, an account of current EFL teaching at both secondary and tertiary levels in the Chinese context is provided. Various English programmes are depicted. As these English programmes will be frequently referred to in a later stage when the results are discussed, some key features that distinguish one English programme from another in the formal education system are reiterated in Table 5.1 on the following page.

It should be noted that owing to China's immense population and geographical size, the scale of English education is almost too extensive to be portrayed. There are significant discrepancies between large and small cities, among urban areas, rural towns and countryside, between coastal and inland areas, between the north and south, and between non-prestigious and prestigious schools and universities. Given these differences, any attempt to generalize about ELT in China should be made with caution.

Table 5.1  
English Programmes in the Formal Schools in China

	Junior Secondary School	Senior High School	College English (non-English major)	College English (English major)
<b>syllabus</b>	Junior Middle School English Teaching Syllabus (1995)	Senior High School English Teaching Syllabus (1993)	College English Syllabus for Students of Non-English Majors (1991)	College English Syllabus for English Majors (Revised) (2000)
<b>status</b>	a required course	a required course	a required course	a speciality course
<b>focus</b>	basic phonetics, listening, speaking, reading, writing and grammar	basic abilities in listening, speaking, reading and writing	sufficient reading ability, certain listening and translation ability and elementary writing and speaking ability	overall skills, linguistic and communicative
<b>sub-course to learn</b>	no sub-courses	no sub-courses	listening comprehension, intensive reading, extensive reading, grammar	listening comprehension, oral English, intensive reading, extensive reading, English writing
<b>class size</b>	large, usually over 40 students	large, around 40 students	large, around 40 students	small, around 20 students
<b>contact hour</b>	3-4 hours per week	4-5 hours per week	4-5 hours per week	around 15 hours per week
<b>teaching materials</b>	China produced, unified textbooks	China produced, unified textbooks	China produced, unified textbooks	China produced, unified textbooks and foreign produced textbooks
<b>teaching method</b>	a predominant use of traditional grammar-translation and audio-lingual methods	a predominant use of traditional grammar-translation and audio-lingual methods	a predominant use of traditional grammar-translation and audio-lingual methods	a reconciled use of communicative approach with grammar-translation and audio-lingual methods
<b>teacher</b>	taught by Chinese EFL teachers, rarely taught by western teachers	taught by Chinese EFL teachers, occasionally taught by western teachers	taught by Chinese EFL teachers, occasionally taught by western teachers	about one-third of the contact hours are taken by western teachers, the rest are taught by Chinese EFL teachers
<b>evaluation</b>	local graduation test	local graduation test	standardized CET Band IV & VI	standardized CET Band VIII & X (English Major)

## **CHAPTER SIX**

### **METHODOLOGY AND PROCEDURES**

This chapter contains a description of how the present study is conducted and how the data are analyzed. The chapter first discusses the specifications of the research design and rationale for it. It goes on to describe the subjects, the instrument, the procedures, and the methods for data analysis. Since the present study employs a mixed research design, involving both quantitative and qualitative approaches, information on the subjects, instrument, procedures and data analysis are presented separately in two sections: 'The Questionnaire Survey', and 'The Retrospective Writing Activity'. This chapter ends with an evaluation of the research methodology used in the study.

#### **6.1 Research Design**

This section provides a description of the research design and a discussion of the rationale for the design.

##### **6.1.1 Description of the Research Design**

The present study is a cross-sectional survey. According to Babbie (1973), a cross-sectional survey is "the most frequently used study design" (p.65) and it "can be used not only for purposes of description but also for the determination of relationships between variables"



(p.62). These functions well fit the purposes of the present study. In this study, the researcher wished, firstly, to describe the characteristics of Chinese EFL learners' learning style preferences (the descriptive purpose) and, secondly, to examine the relationships between learner variables and learning style preferences (the explanatory purpose).

This survey employed a mixed-method design, involving both quantitative and qualitative approaches. The quantitative part was a questionnaire survey and the qualitative component was a retrospective writing activity. A discussion of the use of these two methods is given below.

A questionnaire survey is perhaps the most common method of data collection in survey research into second language acquisition and is mostly used to collect data on phenomena which are not easily observed (Johnson, 1992). Since learning style preferences are internal and mentalistic processes, a questionnaire survey is considered to be suitable. A questionnaire method provides the advantages of saving time and expense. It also has the advantage of convenience, because it is comparatively easy to administer, easy to replicate, and its data are uniformly organized and, therefore, ready for statistical analysis. Oxford (1996) suggests the use of questionnaires as being among the most efficient and comprehensive ways of research into learning styles and strategies. In the literature of research into learning styles, it is found that the questionnaire method is the most popular means for collecting data to investigate patterns of learning style preferences (see Oxford and Anderson, 1995).

The method of retrospective writing activity was used to collect qualitative data. Researchers in studies of second language acquisition have long employed participants' writing reflections on their language learning, primarily through the use of diaries and journals (Bailey and Nunan, 1996; Bailey and Ochsner, 1983; Oxford, 1996). These self-reports provide rich source of retrospective information on how learners view their experiences of specific aspects of the language learning processes. Recently, however, researchers have begun to employ another written form of data collection, termed by Cohen (1998) and Oxford (1996) as 'recollective study', 'retrospective study', or sometimes called "learning history" (Oxford and Green, 1996).

Recollective studies, according to Cohen (1998) and Oxford (1996), involve thinking back to some prior language learning experience and attempting to construct what it was like. They can take a variety of forms, depending on the preferences of the subjects or the researchers. The information could be in the form of written narratives, essays, poems, and posters (Oxford and Green, 1996; Oxford, et al, 1992). In the present study, the retrospective study was used in a way that participants were guided by two open-ended questions to reflect upon their learning experiences and to write up their reflections in response to the questions.

According to Cohen (1998) and Oxford (1996), a distinction between recollective studies and diary and journal writing is that the time and focus are different. A recollective account usually refers to a learner's description and interpretation of the past language learning experiences as a whole, whereas diaries and journals usually focus on

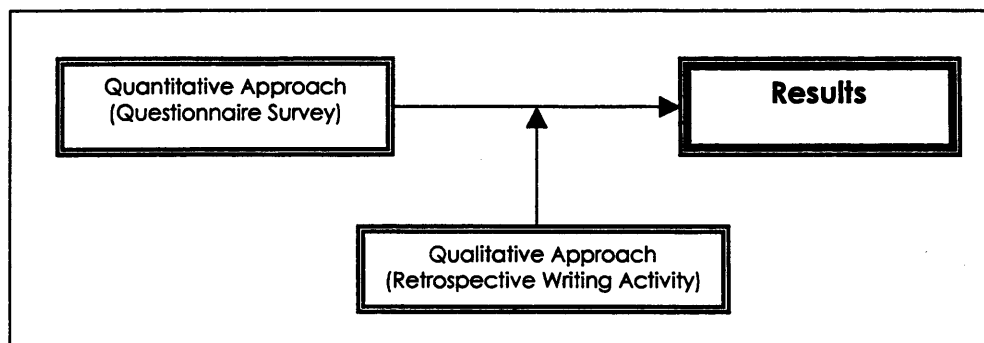
information about specific problems the learner encounters at the time, in the present or immediate past. Because recollective studies allow learners to conduct retrospections on their prior learning experiences, they have advantages. For example, the reflections may be more objective than diary and journal writing and are unlikely to be burdened with too many details. Critics of recollective studies note that "the amount of time which elapses between the mental event and the reporting of event may distort what is actually reported" (see Nunan, 1992). However, Oxford and Green (1996) suggest that a time lag does not necessarily harm the sharpness of reflection but sometimes actually enhances its clarity.

The discussions above has addressed methods of questionnaire survey and retrospective study separately. A description of the mixed use of these two methods in the present study is given below.

In a discussion of the combined use of quantitative and qualitative approaches, Creswell (1994) posits three modes of design: the *two-phase design*, *dominant - less dominant design*, and *mixed-methodology design*. The mixed-method design employed in the present study meets with the second mode which, according to Creswell (1994), is where the researcher presents the study in a dominant approach with one component of the overall study using an alternative approach. In view of the present study, this dominant - less dominant design is represented by a dominant use of a questionnaire survey (the quantitative part) and the questionnaire survey is incorporated with a complementary retrospective writing activity (the qualitative part).

To highlight the feature of the mixed-method design, the researcher calls it an '*unbalanced/sequential design*'. By referring to it as '*unbalanced*', the researcher means the two approaches differ in their roles. The quantitative part plays a dominant role as findings from this part address major research questions. The qualitative findings are used to elaborate and illuminate the results from the quantitative part. By referring to it as '*sequential*', the researcher refers to time. The quantitative design was used before the qualitative one. The mixed design is depicted in Figure 6.1 below. The rationale for it will be discussed in the following sub-section.

Figure 6.1 Research Design



### 6.1.2 Rationale for the Research Design

The use of two or more methods of data collection in a single study reflects a degree of triangulation. According to Denzin (1997), "Triangulation is the preferred line of research in social science" (p.321). He identified five types of triangulation: *data triangulation*, *investigator triangulation*, *theory triangulation*, *methodology triangulation*, and *member-check triangulation*. The mixed-method design in this study is supported by the concept of data triangulation. The need for data

triangulation is based on the assumption that every individual research method carries certain limitations as to the kind of data, variables, and analytical approaches that it permits and that the use of different methods would yield different types of data. Taken together, however, they should provide a more comprehensive understanding of the phenomenon under study (Babbie, 1973; Denzin, 1997).

The two methods used in this study, specifically the questionnaire survey and retrospective writing activity, are considered to be complementary in two ways. Firstly, while Oxford (1996) describes the written questionnaire survey as a set of predetermined statements for respondents to respond, Oxford and Green (1996) describe the retrospective study as a free-range approach which allows greater flexibility of responses. Secondly, Packard (1991) points out that in quantitative work individual and contextual differences are largely ignored. Robson (2002) echoes that questionnaire surveys can be adopted to establish relationships between variables, but they are weak in establishing the reasons for them. A qualitative method can help in developing explanations. A combination of these two methods enabled the researcher to look into not only the overall patterns of learning style preferences and style differences between/among learners but also the explanations of the emerging patterns and differences.

A further reason for the use of combined methods is that it makes it possible that data could be collected by different methods so that questions raised or left unanswered by one method or one data type can be answered by another. In addition, it provides a means to cross-

check consistency of the results so as to minimize the distortions inherent in any single type of data collect.

In the first part of this chapter, a detailed discussion of the research design and the advantages of it have been presented. In line with this design, the methodological issues and procedures involved in conducting the questionnaire survey and retrospective writing activity will be looked into in the following two sections.

## **6.2 The Questionnaire Survey - Methodological Issues and Procedures**

According to Moser and Kalton (1973), methodological problems in a survey fall into three broad groups: from whom to collect data, what methods to use for collecting it, and how to process and analyze it. This section centers on a discussion of these issues.

### **6.2.1 Subjects**

This section first discusses the population to be surveyed. It then moves on to a description of procedures of sampling, the rationale for the procedures, and finally the sample size of the study.

#### **6.2.1.1 Population**

Walker and Burnhill (1997) suggest that defining the population to be surveyed is the first step in obtaining subjects for a study. The present study aimed to survey a sample of students in several secondary

schools and universities in the capital city in China. In line with the research questions, the target population was specified as second-year students in senior high school, second-year undergraduates, and first-year postgraduates in university. The selection of these groups arose from the following concerns.

As described in Section 4.2 (see pp.65-68), in China's formal education system, on a nationwide scale, students start to learn English from year one in junior middle school. The researcher specified the second year senior high school students as the first check point based on the belief that the students were able to identify their own learning style preferences as they had studied English for four years: three years in the junior secondary school and one year in the senior high school. The second group consisted of second year students in university. There was a time span of three years between the first group and the second group. First year postgraduates provided the third group. From sophomores to the first year postgraduates, there was a time span of three years, too. With this three-level design, the researcher hoped to find out whether there was a change of learning style preferences and, if there was, at which point changes took place and what could be the possible reasons for the changes.

#### **6.2.1.2 Sampling**

Usually it is impossible to study the entire group of interest (the population) due to the big size of the population and due to factors such as expense, time and accessibility. Therefore, a common practice is to select a subgroup (a sample).

There are two major types of sampling methods, *probability sampling* and *nonprobability sampling* (Cohen and Manion, 1994). When representativeness is a compulsory requirement for a research study, probability sampling must be obtained. Nonprobability sampling methods are usually used for situations in which probability sampling could not be conducted due to practical constraints or in the situation where precise representativeness is not necessary (Moser and Kalton, 1973). In this study, convenience sampling is employed. It is one of the methods in nonprobability sampling.

Convenience sampling is a practical method because researchers "rely on readily available units" (Fink, 1995 p.23) without involvement of "statistical complexity of a probability sample" (Bailey, 1978 p.81). These advantages are crucial in conducting the present research in the context of China, because computer-facilitated administration systems are far from popular in educational settings. Given this administrative constraint, it is rather difficult to gain access to up-to-date census data about schools and their students. Usually these data are prerequisites for conducting probability sampling in order to obtain a survey sample that is adequately representative of the population.

In this study, the actual procedures of convenience sampling were simple. The researcher sampled several senior high schools and tertiary institutions. The choice of schools and institutions as well as the classes was by virtue of the researcher's contacts with these educational organizations and the teachers who taught the classes.



In order to ensure proportionate numbers of subjects in each learner variable, within the selected pool of schools and institutions, firstly, a selection of classes for students from different educational levels was made. Students from three educational levels, senior high school students, undergraduates, and postgraduates, were included. Secondly, field of specialization was addressed. Students in three areas of study, science, arts and English, were designated. Duration of native speaker instruction was the third concern. The reason for examining this variable was that since the early 1980s the growing presence of native speaking English teachers in China has made a considerable impact on English language teaching approaches (Maley, 1983; Scovel, T. 1983). Related to this, English majors were assumed to have direct exposure to Western teaching approaches as they had much more experiences of being taught by native English speakers. The other two sub-groups of learners, science and arts students, usually had much less opportunity to be taught by native English teachers. This variable comprised students in three sub-groups, too, that is, no native speaker instruction, 1-2 semesters with native speaker instruction, and three and over three semesters with native speaker instruction.

With regard to convenience sampling, two points need highlighting. First, convenience sampling applied in this study was not necessarily to imply that the selection of subjects was simply on the basis of 'the first and the easiest subject to hand'. Rather, it represented an approach that was to select the subjects that involved the least expense and difficulty in gaining access. Stake's (1995) statement in reference to case studies is also relevant to the sampling in the present study: "Our time and access for fieldwork are almost

always limited. If we can, we need to pick cases which are easy to get to and hospitable to our inquiry" (p.4). Second, the researcher was aware that convenience sampling was conducted without much knowledge about whether the sample was representative of the overall population. Having this awareness, the researcher was fully cognizant of the limitations in the generalization of the research findings.

#### **6.2.1.3 Sample Size**

According to Cohen and Manion (1994), sample size "depends on the purpose of the study and nature of the population under scrutiny" (p.89). Backstrom & Hush (1963) make the point that the number of factors involved in the analyzed has an effect on the size of a sample. The more factors involved in the analysis, the larger the sample should be. In the present study, in determining the total number of subjects, the researcher took into consideration the complexity of data as a whole. This complexity involved that, at one level, there were three learner variables to address, educational level, field of specialization, and duration of native speaker instruction. At another level, there were three sub-variables to address in each of the learner variables. When this complexity was taken into account, it was estimated that a sample of around 700 questionnaire respondents would be adequate. This sample size was thought to be large enough to ensure that all variables and sub-variables to be examined would have enough cases for statistical analyses. It was believed that adequate cases in each variable and sub-variable would enhance statistical reliability of the study. Moreover, the estimated sample size

was made by taking account of practical limitations in terms of cost, time, and resources in conducting the study.

In the present study, 718 students participated in the questionnaire survey. Among the 713 questionnaires returned, 31 of them were not usable due to illegible answers and incomplete response sheets. The actual number of valid response sheets for statistical analysis was 682. Table 6.1 provides an overview of questionnaire respondents.

Table 6.1 Overview of Questionnaire Respondents

Variable	Sub-Group	Number of Respondent	Percentage
Educational Level	high school	258	37.8%
	undergraduate	243	35.6%
	postgraduate	181	26.5%
		<hr/> 682	<hr/> 99.9%
Field of specialization	science	258	37.8%
	arts	243	35.6%
	English	181	26.5%
		<hr/> 682	<hr/> 99.9%
Duration of native speaker instruction	no semester	347	50.9%
	1-2 semesters	215	31.5%
	3 & more than 3 semesters	120	17.6%
		<hr/> 682	<hr/> 100%

\*The fact that the percentage is 99.9% is due to rounding.

## 6.2.2 Instrument

This section provides a discussion of some key issues in relation to the questionnaire instrument. Information on the construct, content, piloting and psychometric property of the instrument is provided.

### **6.2.2.1 Construct and Content of the Questionnaire**

The questionnaire used in the study was an adapted version of *Perceptual Learning Style Preferences Survey* by Reid (1987, 1995, 1998). According to Walker and Burnhill (1997), the advantage of adapting an existing instrument is that the theory has been assessed in previous studies and validation has been undertaken and published. Building on previous work of an existing instrument also helps improve the quality of the instrument and allows the researcher to relate the findings of similar studies to one another.

Among the existing instruments, the selection of Reid's (1987) model was based mainly on the following considerations.

- 1) Reid's model was geared to an identification of perceptual modalities. It was straightforward and addressed important elements of perceptual learning styles of language learners. It was practitioner-oriented.
- 2) Her model was intended for language learners specifically and was tested in her initial study with 1,234 ESL learners of diverse cultural and linguistic background.
- 3) Her model has been extensively used by researchers in 22 studies in the past 15 years (see Appendix A for more information). These studies include a number of Doctoral and Master's dissertations and involve nearly 7,000 language learners throughout the world. Few instruments

on examining learning styles have this kind of strong research and development basis.

Although Reid's questionnaire has a sound theoretical basis, it was at the outset devised for ESL learners. As the present study was intended to survey a group of Chinese EFL learners, adaptations and modifications to the questionnaire were necessary in order to make it better fit the respondents. Adaptations and modifications drew on several sources. Of the 36 items in the questionnaire, 30 of them (83%) were derived from other sources, including Reid's *Perceptual Learning Style Preferences Survey* (1987, 1995, 1998), O'Brien's *Learning Channel Preference Checklist* (cited in Reid 1995, p.196), Kinsella's *Perceptual Learning Preferences Survey* (cited in Reid 1995, p.225), Kinsella's *Academic Work Style Survey* (cited in Reid, 1998, p.175), Oxford's *Style Analysis Survey: Assessing Your Own Learning and Working Styles* (cited Reid 1995, p.208). Because these instruments were developed by Western researchers for ESL learners, the statements were either rephrased or rewritten. A small number of the statements, six of them (17%), were devised by the researcher herself. Table 6.2 below provides a summary of the information on the sources of questionnaire statements. (A more detailed account is provided in Appendix E).

Table 6.2 Summary: Sources of Questionnaire Statements

Source	No of Items	Modification
Reid (1987, 1995, 1998)	10	rephrase, rewrite
Kinsella (cited in Reid, 1995)	7	rephrase, rewrite
Self-devised	6	-
Kinsella (cited in Reid, 1998)	5	rephrase
O'Brien (cited in Reid, 1995)	5	rephrase
Oxford (cited in Reid, 1995)	3	rephrase

Built on Reid's model (1987), the present questionnaire contained six learning style scales: auditory, visual, tactile, kinesthetic, group, and individual learning. These learning style scales were each represented by six statements which were randomly arranged. A description of these scales and an example statement from each style scale is given in Table 6.3 below (See Appendix D for a complete questionnaire).

Table 6.3 Explanation of Learning Style Preferences

Learning Style Variable	Explanation	Example Statement
Auditory	Auditory learners prefer to learn from hearing words spoken and from oral explanations. They learn well through lectures and discussions. They benefit from reading aloud and talking things through to others.	I prefer to hear oral explanations about a text rather than to read explanations from a book and a handout. (Statement 11)
Visual	Visual learners prefer to learn through seeing words in books, on chalkboard and in handouts. They like other visual displays such as diagrams and flipcharts. They take notes of lectures and oral instructions for purposes of reading in a later stage.	I remember better by reading and seeing a word rather than by hearing it. (Statement 9)
Tactile	Tactile learners prefer hands-on activities such as handling materials and taking notes.	I like to take notes when I read and listen. (Statement 22)
Kinesthetic	Kinesthetic learners prefer experiential learning. They learn best through actively participating in activities such as field trips, role plays, and presentations.	In class, I prefer such activities as a presentation and a role-play on what has been taught. (Statement 3)
Group	Group learners prefer to study with others. Games, role-plays, and the stimulations they receive from group activities help them learn, understand and remember new information better.	I enjoy doing assignments together with a partner or in a small group. (Statement 2)
Individual	Individual learners prefer independent reading and study. They think better and remember information better when studying alone.	I remember things better when I study by myself. (Statement 34)

According to Walker and Burnhill (1997), when a questionnaire is constructed, be it a newly developed one or an adapted version, it should be pretested by respondents similar to those who will be included in the survey sample. A discussion of the pilot run of the instrument is given in the following subsection.

#### **6.2.2.2 Pilot Studies**

Seliger and Shohamy (1989) make the point that information collected in the pilot phase is of two major types. One type is related to practical aspects of administering the data collection tool such as the time required to administer the instrument and the clarity of the instructions. The other type relates to the reliability and validity of the instrument in order to assure the quality of the instrument.

Piloting the present questionnaire spanned five months from May to September 2000, involving three pilot studies. The two major functions of pilot run as afore-mentioned were fulfilled. With regard to the first function, several practical aspects of administering the questionnaire survey were attended to, including that:

- problematic items and wording were deleted or modified;
- ambiguity in the instructions and items were removed, therefore, clarity of the instructions and statements were improved;
- efficiency of layout was checked and amendments were made so that a more user-friendly format was obtained;
- time required for administering the survey was checked;
- procedures for administering the survey were rehearsed, based on which a guideline for administering the main survey was drafted, revised and finalized (see Appendix F); and

- cost for the main survey was estimated;

Whereas the first function of a pilot study addresses the efficiency and comprehensibility of a questionnaire, the second function addresses consistency and adequacy of the instrument. Aspects related to these issues are reliability and validity. Since "*reliability and validity* are two most important criteria for assessing the quality of the data collection procedures" (Seliger and Shohamy, 1989, p.184), the following sub-section is devoted to a discussion of them.

#### **6.2.2.3 Reliability and Validity of the Questionnaire**

Reliability refers to "the stability or consistency with which we measure something" (Robson, 2002, p.101). A reliable survey instrument is one that is relatively free from "measurement error" (Fink, 1995, p.46). Since the researcher used an adapted version of an existing questionnaire, it is imperative to assess it for reliability before it was used for data collection. There were two reasons to do so. Firstly, Creswell (1994) makes the point that when a researcher modifies an instrument or combines instruments, the original validity and reliability may be distorted. Therefore, it is important to re-establish validity and reliability. Secondly, taking into account that the present questionnaire is the first instrument using the Chinese language to determine learning style preferences, an assessment for its construct reliability is inevitably needed.

In this study, reliability of the existing instrument was evaluated in two ways: internal consistency coefficients and test-retest reliability.



Using the data from the pilot studies, every computation of the internal consistency reliability involved three steps. First, Cronbach's coefficient alpha was checked for internal consistency reliability of the questionnaire as a whole. Second, internal consistency of individual subscales in the questionnaire was computed to determine the extent of homogeneity of each subscale. Third, item-scale correlation was checked to see which individual item contributed the most to the subscale. Sets of indices generated from item analyses were essential for the revision work because they provided precise information on which existing items were most successful or least successful and recommended which items needed deleting or re-examining for clarity. Table 6.4 below presents the results of the reliability assessments from the three pilot studies.

Table 6.4 Results on Reliability Checks in Three Pilot Studies

Subscale	First piloting			Second piloting			Third piloting		
	No. of item	No. of subject	alpha	No. of item	No. of subject	alpha	No. of item	No. of subject	alpha
Auditory	9	57	.68	6	156	.56	6	43	.60
Visual	7	57	.38	6	156	.50	6	43	.56
Kinesthetic	7	57	.43	6	156	.62			
Tactile	7	57	.55	6	156	.61			
Individual	6	57	.58	6	156	.80			
Group	6	57	.70	6	156	.77			
Internal consistency reliability			.64						
Internal consistency reliability							.70		

As seen in Table 6.4, five out of the six subscales, except the *Visual* scale, fall into the acceptable range of a reliable survey. Although the *Visual* construct remained a slightly low alpha, the decision to use the questionnaire as it stood after the third pilot could

be justified. Keefe (1988) makes it clear that reliability is largely dependent on the length of an instrument or the length of a subscale of the instrument. Longer subscales with more similar items provide considerably higher reliabilities. But, the individual subscale in the present questionnaire was short. If the 6-item scale were expanded to 10 or more than 10 items, the average reliability would be increased. Besides the length of an instrument, function is a factor that influences the level of acceptable reliability, too. Reid (1990) raises the point that tests of personality variables such as a self-report survey of perceptual learning styles are different from tests of academic achievement (e.g. spelling). Academic achievement tests can be measured objectively. She states that instruments intended to collect data on personality variables often have only moderate reliabilities, approximately .60. To apply Keefe's (1988) and Reid's (1990) notions to the present questionnaire, the reliability results with an average alpha of over .70 can be considered acceptable.

Apart from internal consistency reliability, test-retest reliability was checked as well. It was used to "examine whether the data collection procedures were stable from one administration to another" (Seliger and Shohamy, 1989, p.186). In this study, the test-retest reliability check was computed at the subscale level. 113 questionnaire respondents out of the 156 participants in the second pilot study completed the same questionnaire a second time. The elapsed time between the two tests was four weeks. Moser and Kalton (1973) describe the dilemma in time-interval for test-retest reliability. They posit that respondents may remember their first answers and give consistent retest answers if the interval is short. But a long interval may increase

the risk of intervening events causing respondents to change their view. In the present study, the 4-week interval was considered long enough to eliminate the memory effect and reasonably short to avoid the effect of changes in views. The two tests resulted in moderate internal consistency reliabilities and satisfactory correlation coefficients. Details of these are provided in Table 6.5 below.

Table 6.5 Test-Retest Reliability and Correlation Coefficient

Subscale	No. of item	Reliability				Correlation		
		Test		Retest (4-week interval)				
		No. of subject	alpha	No. of subject	alpha	r	r	p
Auditory	6	156	.56	113	.55	.718	.515	.000*
Visual	6	156	.50	113	.46	.777	.604	.000*
Kinesthetic	6	156	.62	113	.68	.676	.457	.000*
Tactile	6	156	.61	113	.58	.705	.497	.000*
Individual	6	156	.80	113	.81	.871	.759	.000*
Group	6	156	.77	113	.68	.841	.708	.000*

\* Significant level set at  $p < .05$

Robson (2002) points out "[u]nless a measure is reliable, it cannot be valid. However, while reliability is necessary, it is not sufficient to ensure validity" (p.101). Assessments on the validity of the instrument are presented below.

In the present study, two validity checks, face validity and content validity, were performed. Face validity was assessed during the pilot run of the first questionnaire draft by some students and external reviewers. Their comments helped eliminate ambiguities and inappropriateness in wording and sentence structures. They also helped obtain clearer instructions and a more user-friendly outlook.

Additionally, in order to secure a good layout, printing of the instrument was under the strict supervision of the researcher herself. It was believed that a high face validity would be useful to promote the student's motivation and interest. Content validity was checked during the pilot run of the questionnaire draft, too. Two native Chinese professors with sufficient experiences in EFL teaching and research in China were approached to assess the content validity of the instrument.

Apart from aforementioned validity assessments, an additional measure taken was blind back-translation. It was undertaken to check whether the translated version in Chinese by the researcher herself was accurate to the original English version. A native Chinese professor in the field of EFL teaching with bilingual competence in Chinese and English and knowledge of the subject matter was approached for this task. He translated the instrument back into English without having seen the original English version. The consensus result was satisfactory.

#### **6.2.2.4 Profile of the Questionnaire**

The questionnaire used in the present study has the advantage of being carefully developed, scrutinized, field-tested, refined and improved through pilot studies. Important information about the instrument including its psychometric qualities is shown in Table 6.6 below.

**Table 6.6 Profile of the Questionnaire in the Study**

Survey of Learning Style Preferences: perceptual and social dimensions	
Theoretical Construct	Reid's model (1987, 1995, 1998)
Target population	Chinese EFL learners (secondary and tertiary levels)
Purpose	identifying learning styles preferences (perceptual and social dimensions)
Subscale	auditory, visual, kinesthetic, tactile, individual, group
Number of items	36 items
Format	self-reported Likert type with five scales
Type of scoring	self-scoring based on individual scores in each subscale
Reliability	Overall: Internal consistency alpha .72 Subscales: ranging from alpha .56 to .82
Validity	formal evaluations on face and content validity
Date of instrument	year 2000
Time for administration	15 minutes

### **6.2.3 Questionnaire Administration**

In this section, procedures for the questionnaire survey are presented first. This is followed by a discussion of the response rate.

#### **6.2.3.1 Procedures of the Questionnaire Survey**

The questionnaire survey was conducted during the autumn semester in 2000. Four high schools and five universities participated in the survey. As early as May 2000, the researcher started to contact the schools and respective faculties in the universities and talk to them about her intended research. After permission was obtained, she met

some teachers in the respective faculties either individually or in small groups to seek their help with data collection. After those teachers were given an explanation of the nature of the research, purpose of it, procedures for carrying it out, and implications for practitioners like themselves, they showed interest and were willing to assist to administer the questionnaire survey with their own students.

To ensure the questionnaire administration was carried out in a standard way, before the survey in October 2000, the researcher met those teachers again. She instructed them individually on how to conduct the survey in detail. Apart from verbal instructions, they were given written guidelines as well. Each of them was given a kit of survey documents which included:

- Instructions (see Appendix F)
- Questionnaires (in Chinese) (see Appendix G)
- Response Sheets (see Appendix H)
- Scoring Forms (see Appendix I)
- Questionnaire Administrator's Comment Sheet (see Appendix J)

In administering the survey, the teachers briefed the subjects about the survey by reading the *Instructions* of the questionnaire. They informed the participants that the survey was not a test for academic purposes and that although they were invited for the survey, they were free to decide whether to participate in it or not.

A total of 718 students in 25 classes answered the questionnaire in their own classrooms in the presence of their respective English

teachers. Owing to scattered research sites in different schools and universities, the present researcher only managed to be present in 14 classes (56%) where she observed the process of the surveys. From the returned Questionnaire Administrator's Comment Sheets, it could be concluded that the administration of the surveys in all classes went well.

During the surveys, after the subjects completed the questionnaires, each of them was given a Scoring Form to find out the results of their own style preferences. When individual results were obtained, a class discussion followed. The discussion sessions were intentionally planned based on the belief that the survey would provide immediate benefit for the respondents by giving them an opportunity to discuss the results themselves.

It appeared that the survey subjects benefited from the discussion sessions on their self-scored results. In most of the follow-up discussions, the participants were enthusiastic about finding out their own preferred ways of learning English. Through discussions, they were aware that there was a diversity in learning style preferences within the class. Those individuals who previously regarded themselves as either good or poor learners realized that varied style preferences made them 'different' learners such as visual learners, tactile learners, or group-oriented learners. They also learned that all types of learners had strengths which other types did not possess fully and all types of learners had weaknesses. Gaining such awareness on the part of learners themselves is part of the value of the research.

Furthermore, when the results of self-score were obtained, the teachers in the respective classes got information on the individual's learning style preferences and also a class profile of style preferences. Inspired by this information, the teachers could develop appropriate teaching strategies. Tailored teaching strategies could meet the needs of the majority of the students and, if necessary, meet the needs of individual students as well.

#### **6.2.3.2 Response Rate**

The response rate of the questionnaire survey was high (99%). This high return rate was not uncommon in view of the specific operation of the present survey. Firstly, the questionnaire survey was conducted by teachers to their respective students during class time. The questionnaires were completed 'on site' and collected straightaway. Secondly, since it was a face-to-face questionnaire survey, purposes of the survey and procedures to do it were clearly explained. This talk made the respondents feel they were professionally approached and their cooperation was important and would be meaningful. Thirdly, the research topic was of interest to the students. English learning in China has been ineffective, so students wanted to take this opportunity to know more about English learning. Fourthly, teachers encouraged their students to complete the questionnaire and promised to give them feedback. The students felt they would benefit from it. Lastly, the questionnaire appeared in a well-designed format. It did not bore the respondents. Rather, it was easy for them to provide answers and did not take them a lot of time to complete it.



### **6.2.3.3 Pertinent Ethical Considerations and Measures**

Ethical issues were given attention in the process of this study in both quantitative and qualitative stages. Some special measurements were taken during the quantitative part. To highlight these measures, an account of the measures taken and ethical considerations underpinning them is given in this section of the thesis.

In the entire study, the following measures were taken to comply with sound ethical principles.

- Permission to access the classes and subjects for the survey was obtained from the schools and institutions before the survey.
- Participants were informed and given a clear explanation of the nature of the study.
- Subjects were requested to participate in the survey on the understanding that they could withdraw at any time. About 1% of the subjects did not return the answer sheets to their respective English teachers. Their decisions were respected.
- In the survey, anonymity was ensured so that the subject's identity was fully protected. Results are presented in terms of group and subgroup statistics.
- The researcher abided by the principle of anonymity in the presentation of qualitative data.

- The principal researcher was responsible for the actions of the research assistants, who were informed of their responsibility for maintaining ethical standards.

Apart from the above-mentioned ethical measures, two other measures were taken. One of them was the self-score of the results and a discussion of the results by the respondents right after each survey. As described in the preceding section, this measure raised the questionnaire respondents' interest in the survey, and through the discussions, they benefited from the surveys in an immediate way.

The other measure was that class profiles of learning style preferences for each of the 25 classes that participated in the survey were provided to the respective teachers. (A sample of them is provided in Appendix B). Each profile outlined the general features of the learning style preferences of a given class. The teachers who received the profiles of their classes expressed the view that the research results returned to them were very useful and helpful for them to plan proper activities to understand and cater for the students' learning styles. What the research can give back to the researched is often ignored, but is given full attention in the present study.

#### **6.2.4 Quantitative Data Analysis**

Following the previous section on questionnaire data collection, this section focuses on the analysis of the questionnaire data. The data were processed by using Statistical Package for Social Science (SPSS) for Windows (version 10) and Microsoft Excel 2000. In the subsequent

subsections, statistical methods employed to analyze the data and the rationale of the methods are provided and discussed.

#### **6.2.4.1 Descriptive Analysis**

To begin with, a descriptive analysis was conducted. Descriptive analysis refers to summarizing the data as well as the results and reporting these results in frequencies, percentage, means (average), and measures of variability (such as standard deviation) (Johnson, 1992). In this study, descriptive analysis was computed to obtain an overall pattern of the six learning styles subscales in order of mean magnitude on the basis of the entire sample as well as learner variables. Descriptive analysis is the first step of any complex analysis.

#### **6.2.4.2 Correlational Analysis**

Once descriptive results are obtained, a researcher can further explore important questions by using correlational techniques to analyze relationships among variables (Woods, et al, 1986)

In the present study, in order to compare means across variables, *Analysis of Variance* (ANOVA) was used. ANOVA results in an *F-value*. An *F-value* by itself reveals whether an overall significant difference exists among the variables under investigation. But it does not provide information as to where the significant difference is if a significant *F-value* is obtained. In order to locate the significant differences, *Scheffe* test, a post hoc test, was chosen. *Scheffe* test is a multiple comparison procedure, but capable of examining two groups at a time. It is a

conservative test which requires larger differences between means in order to achieve the significant level (Seliger and Shohamy, 1989). As the sizes of learner groups and sub-groups in this study are different, this test is appropriate.

In this study, ANOVA and Scheffe test were used to identify significant differences between learning style variables and individual learner variables. In addition to ANOVA, *Multivariate Analysis of Variance* (MANOVA) was conducted to examine more complex relationships. According to Seliger and Shohamy (1989), this multivariate technique was capable of dealing with statistical analysis in terms of multivariate relationships and their contribution to the dependent variables. In this study, MANOVA was performed to investigate interactions between independent learner variables and their effect on dependent learning style variables.

#### **6.2.4.3 Factor Analysis**

While descriptive and correlational analysis consider questionnaire responses as single items or in their predetermined subscales, factor analysis helps the researcher identify common factors that underlie the questionnaire responses (Woods, et al, 1986). Seliger and Shohamy (1989) give a clearer description: in factor analysis, the interactions between and among the variables of data, *independent variables only* (emphasis added by the researcher), are examined in an attempt to find out how many factors can be identified in the data. In this study, the purpose of factor analysis was to explore the factors underlying the data set in order to gain insights about patterns

considering the 36 items in the questionnaire all together. This analysis was regarded to be useful to compensate for potential drawbacks in that the questionnaire items were tested as discrete entities.

This section provides a thorough discussion of methodological issues and procedures in the questionnaire survey. In parallel, the following section is devoted to a discussion of similar issues, but in relation to the retrospective writing activity.

### **6.3 The Retrospective Writing Activity - Methodological Issues and Procedures**

#### **6.3.1 Participants**

A group of 113 questionnaire respondents were invited for the retrospective writing activity. These participants were from five entire classes which were randomly selected from 25 classes that participated in the questionnaire survey. In line with the purpose of the study, the selection took educational level, field of specialization, and duration of native speaker instruction into consideration.

#### **6.3.2 Procedures**

The instrument involved in the retrospective writing activity was two open-ended questions. These questions were used as prompts for retrospections. This activity was designed to explore how Chinese EFL learners viewed their own learning style preferences with reference to their language learning context. The two specific questions were:

- 1) In your opinion, what factors are influential to your most preferred and least preferred learning styles? and
- 2) Have you perceived any changes in your learning style preferences as you progress in your English study across successive educational levels and since you started to receive native speaker instruction?

The retrospective writing task in response to two open-ended questions was assigned as homework. To prevent the respondents from having difficulties in expressing themselves, the writing task was conducted in Chinese, the participants' native language. This homework was collected in the subsequent class time. Among the 107 returned writing papers, three were incomplete. Therefore, they were not used. A total of 104 writing papers were used for data analysis.

### **6.3.3 Qualitative Data Analysis**

In this section, procedures for analyzing the data from the retrospective writing activity are given in detail. Reliability and validity in the process of the data analysis is also discussed.

#### **6.3.3.1 Data Analysis**

The analysis of the qualitative data used a conventional way to explore the common patterns from the respondents' writings. Although there are several computer-assisted programmes for analyzing

qualitative data, they are not considered necessary for this study mainly because data were not too voluminous to handle.

There are several principles for qualitative data analysis. Key stages of it include transcribing, coding, data displaying, categorizing, connecting and drawing conclusions (Miles and Huberman, 1994; Strauss and Corbin, 1998). Following the conventional analysis moves, the present researcher adopted a three-step analysis, starting from segmenting, moving on to translating, and a further move to coding and categorizing.

The first step was to segment raw data. The raw data were repeatedly read. In the process of reading, sentences, paragraphs and events that well-represented the respondents' answers to the questions concerned were marked and highlighted. Irrelevant content was put aside. The marked and highlighted parts were then sorted out into a list of excerpts. This compiled list of excerpts was the condensed data of the respondents' writing work. The second step was to translate the compiled list of excerpts from Chinese into English. The third step was to code and categorize the data in the compiled list of excerpts. As noted by Coffey and Atkinson (1996), the coding process is considered very important. It is a process of organizing and managing the most meaningful bit of data. They characterize this process as one "which enables the researcher to identify meaningful data and set the stage for interpreting and drawing conclusions" (p.27). In this study, the compiled list of condensed data was analyzed and synthesized into categories. In this process, the condensed data were read and re-read repeatedly in order to get at key meanings and generate accurate

categories. Finally, the categories derived from the condensed data were counted and results were presented in form of frequency and percentage.

Table 6.7 below demonstrates part of the condensed data file and part of the definitive group of the list of categories. A complete list is available but cannot be included due to space constraints.

Table 6.7 Sample of Condensed Data and Categories

Respondent Code	Condensed Data	Category (derived from condensed data)
R-US0-1	I am <u>an introvert person</u> . I prefer to read, write, and think alone.	- personality
	We do not learn English for communication. We need to learn grammar in order to <u>do well in exams</u> .	- standardized exam
R-US0-2	We <u>get used to</u> learning through doing translation and listening to a teacher's explanation. We do not know what to do in <u>group work</u> . It is <u>a new style</u> to us.	- prior learning experience
	In a group of 3 or 4 of us, no one knows more than another. We <u>don't learn any knowledge</u> in group work. It is a waste of time.	- knowledge transmission
R-UE3-68	<u>Grammar knowledge</u> is indispensable for laying a good foundation for my future work either as a translator or an interpreter.	- transmission of knowledge
	With our <u>limited aural and oral ability</u> , in group work we only manage simple talk on daily topics	- low aural-oral ability
R-UA1-35	I believe <u>grammar knowledge</u> is fundamental to successful learning. I do a great deal of grammar exercise and memorize vocabularies and grammar rules. I do not find group work useful for these exercises.	- grammar focused learning
	Our <u>English exams</u> are conventional exams. I heard an oral subtest would be included in postgraduate enrollment exams. With this change, I need to adopt a new approach, i.e. to draw on more auditory and group learning styles to improve listening and speaking competence.	- standardized exams

Note: in Respondent Code, 'R-US0-1' represents 'Respondent-Undergraduate/Science major/0 term with native speaker instruction-No.1'; 'R-UE3-3' is for Respondent-Undergraduate/English major/3 terms with native speaker instruction-No.3;



### **6.3.3.1 Reliability and Validity**

A common criticism directed at qualitative analysis is that it fails to adhere to canons of reliability and validity (see for example LeCompte and Goetz, 1982). Creswell (1994) indicates that there could be problems if no measures are taken to guard against flaws in the analysis. As shown in Table 6.7 above, the categories are not on the surface of the data. They are derived from raw data after the researcher has gained insights through repeated reading of and continuous thinking about the data. But whether the categories are fully supported by the data, or whether they are something imposed on the data by the researcher? Validity assessments address such issues. Reliability assessments address the issue whether two or more researchers can obtain similar categories when they are asked to work at the same set of data. Validity and reliability were taken into account in this study.

Intra-rater reliability was assessed by the researcher's re-coding of the condensed data after three weeks had elapsed from the initial categorization of the condensed data. When the first and second categorization results were compared, high agreement was achieved. Apart from intra-rater reliability, inter-rater reliability was examined in three steps. First, as the condensed data file was originally in Chinese, the English version of it was carefully checked by the teachers whose students were invited to participate in the retrospective writing activity. Their checks validated not only the condensed data but also the translated versions of the data.

Second, an experienced EFL teacher was approached to cross check the results of the coding by the researcher. This cross-check served as an 'audit trail' (Creswell, 1994, p.158) of the initial coding and categorization and validated the results. Third, an experienced ESL instructor was asked to act as independent rater. She was provided the list of condensed data and a list of categories and was asked to categorize the condensed data in the way she considered appropriate. The reason why the list of categories was provided was that synchronized category names could facilitate the comparison of two results afterwards. The result of the inter-rater reliability check, in Creswell's words, "internal validity check" (1994, p.158) was satisfactory (82%). In the cases where discrepancies occurred, the independent-coder and the researcher discussed them until a consensus was reached. Two examples of discrepancies and ways of getting them resolved are presented in Table 6.8 below.

Table 6.8 Discrepancy Example in Inter-Rater Reliability Check

Resp. code	Condensed data	Categorization		Final categorization
		Coding 1	Coding 2	
R-UA1-58	I believe in teacher's teaching. They know more knowledge that we do. In class, they should always take a lead. Their leading role is to transmit knowledge to us. If a teacher lets us study through groups learning, we don't learn any knowledge.	- teacher's leading role  - knowledge transmission	- knowledge transmission	- knowledge transmission  (because teacher's leading role is, as expected, to transmit knowledge)
R-UA0-42	Individual learning is what we experienced in the past school years. In class we sit and work individually, listening to teacher's lecture. After class we finish homework independently. I am comfortable with this way of learning. Group learning is something new. In group work, I am often at a loss. We follow what teachers ask us to do. We wait for teacher's further instruction to go on.... I think we are lack of skills to carry on group learning.	- under-prepared for group learning skills	- prior learning experience  - under-prepared for group learning skills	- prior learning experience  - under-prepared for group learning skills  (because these are the two points raised by the respondent)

## **6.4 Evaluation of the Research Design and Summary**

In this study, the employment of a mixed-method research design permitted triangulation at a few levels. Firstly, the use of multiple methods addressed complementary research questions and intended for alternative tasks. After initial exploratory work was conducted by means of a questionnaire survey, the explanatory work was carried out by means of a retrospective writing activity. Secondly, the combined use of questionnaire survey and retrospective writing activity was one of the many ways of data triangulation. This combination was used in "complementary fashion to enhance interpretability" (Robson, 2002, p.371). The retrospective writing activity, as a supplementary tool, allowed the respondents to report their own viewpoints about learning style preferences. These data not only provided an opportunity to cross check the results from the multiple methods, but also provided data of explanations to the results. Consistent results and useful explanations enabled the researcher to make conclusions with confidence.

Thirdly, triangulation was also carried out in the process of data analysis. This was reflected in the application of cross-checking translation versions, the trail auditing of coding results, and triangulating data analysts, including the same researcher repeated analysis at different times and a co-researcher acted as independent coder. Triangulation in these applications could be perceived as "an alternative to traditional criteria like reliability and validity" (Denzin, 1997, p.320) and they helped build the credibility of qualitative data analysis.

While the two methods chosen are complementary and while the triangulation approach enables a relatively reliable and valid data set and sound data analysis procedures, this study, in terms of methodology, is not without problems. For example, that both methods used for data collection ask for self-report data is an obvious limitation. More discussion about limitations is presented in Section 9.5, *Limitations of the Study*, pp.222-223).

This chapter provides a detailed description of the methodology and procedures in the present study. It looks into research design, subject selection, instrument development, data collection from different sources, and data analysis. The description given tries to be explicit, transparent, and sufficiently detailed. It is hoped a clear and detailed description can facilitate the reader to understand the research process, to replicate if desired, and to pinpoint flaws and improve it in future research.

## **CHAPTER SEVEN**

### **RESULTS FROM AND DISCUSSIONS OF THE QUESTIONNAIRE SURVEY**

This chapter presents the results from the questionnaire survey and discussions of the findings. It comprises two sections. In the first section, results from the descriptive and correlational statistics are provided. Thereafter, in the second section, a discussion of the findings is presented.

#### **7.1 Results from the Questionnaire Survey**

This section provides a presentation of the findings emerging from the questionnaire survey. It is organized under three subheadings. The first subsection presents the profile of learning style preferences reported by the survey respondents. The second subsection deals with learning style preferences in relation to learner variables, i.e. educational level, field of specialization and duration of native speaker instruction. The last subsection centers on the results about the interactions between learner variables and their effect on learning style preferences. To facilitate the presentation of the quantitative results, tables and figures are used in conjunction with discussions.

##### **7.1.1 Profile of Learning Style Preferences of Chinese EFL Learners**

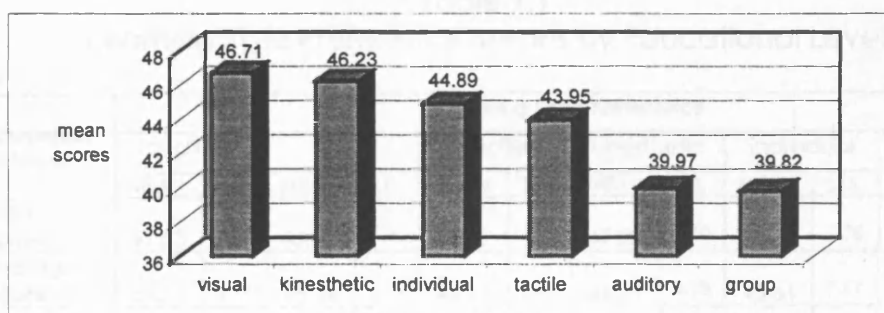
This subsection addresses the first research question:

*What are the perceptual learning style preferences perceived by the sample of Chinese EFL learners?*

The profile of perceptual learning style preferences was obtained by a descriptive analysis of the data. In this analysis, preference means were computed for each of the six learning style variables. These mean scores were in a range from a score of 12, the least preferred learning style, to a score of 60, the most preferred learning style. Following Reid's (1987, 1995) classification, in the present study, mean scores at 46 and above were defined as major styles, between 31 and 45 were minor styles, and at 30 and below were negligible learning styles. According to Reid, major styles are preferred learning styles, minor styles are those in which learners can still function well, and negligible styles mean that the learners may have difficulties in using these styles.

Using these three scales, the result showed that this sample of Chinese learners preferred visual and kinesthetic learning as major styles and perceived the rest, auditory, tactile, individual and group learning as minor styles. They did not register any negligible learning styles, though some individual respondents reported negligible preferences. The general profile of learning style preferences by the sample of 682 Chinese EFL learners is shown in Figure 7.1 below.

Figure 7.1 Profile of Learning Style Preferences of the Entire Sample



Note: mean 46-60 = major learning style preference, mean 31-45 = minor learning style preference  
mean 0-30 = negative learning styles preference

### 7.1.2 Learning Style Preferences and Subgroups of Learners

This subsection deals with answers to the second research question:

*To what extent are the perceptual learning style preferences reported by the sample of Chinese EFL learners related to the learner variables of educational level, field of specialization, and duration of native speaker instruction?*

To seek answers to this question, correlational analyses were performed using one-way ANOVA and Scheffé test. Results of preference mean scores and one-way ANOVA are presented in the following three subsections: learning style preferences with regard to educational level, learning style preferences with regard to field of specialization, and learning style preferences with regard to duration of native speaker instruction.

#### 7.1.2.1 Learning Style Preferences with regard to Educational Level

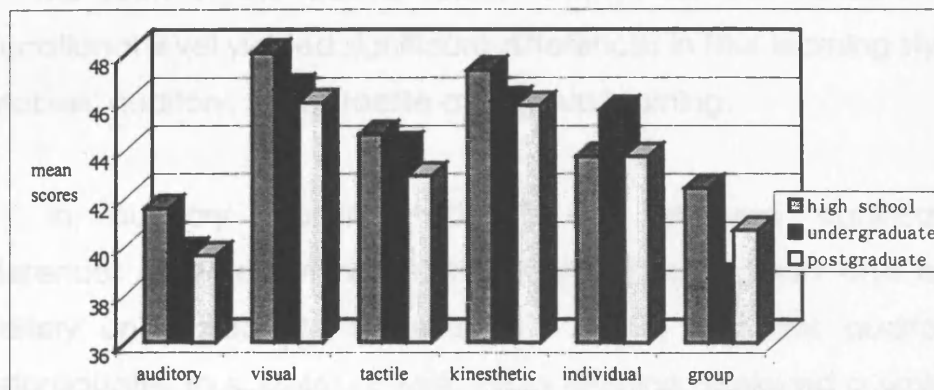
Descriptive data on learning style preference means for the three educational levels are shown in Table 7.1 and Figure 7.2 as follows.

Table 7.1  
Learning Style Preference Means by Educational Level

Education- al Level	Learning Style Preference											
	auditory		visual		tactile		kinesthetic		individual		group	
	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
High school	41.53	6.11	48.00	5.01	44.60	5.10	47.28	6.10	43.68	7.78	42.38	6.77
Undergraduate	39.74	6.14	46.54	4.71	44.13	5.06	46.01	6.18	45.64	7.17	38.71	6.26
Postgraduate	39.10	5.72	45.92	5.59	42.86	5.32	45.80	5.78	43.68	6.84	40.23	5.80

Note: mean 46-60 = major learning style preference; mean 31-45 = minor learning style preference;  
mean 0-30 = negative learning styles preference

Figure 7.2 Preference Means by Educational Level



The results revealed decreases in preferences for auditory, visual, tactile and kinesthetic learning in the three successive educational levels. For the two other learning style variables, in individual learning, undergraduates reported stronger preferences than did the students at the high school and postgraduate levels. In group learning, high school students reported the strongest preferences, whereas undergraduates reported the least preferences. Based on the mean scores, ANOVA results were produced. Scheffé tests were further performed to determine statistical significances. The results are shown in Table 7.2 below.

Table 7.2  
ANOVA for Learning Style Preferences and Educational Level

Learning style	source	df	sum of squares	mean squares	F-ratio	P-value	Scheffé significance
Auditory	Between	2	3.153	1.5765	4.2998	.0139*	high sch/undergrad high sch/postgrad
	Within	679	248.954	.3666			
Visual	Between	2	1.564	1.1132	4.5337	.0111*	high sch/undergrad high sch/postgrad
	Within	679	166.722	.2455			
Tactile	Between	2	1.5961	.7981	3.0242	.0493*	-
	Within	679	179.179	.2639			
Kinesthetic	Between	2	1.3288	.6644	1.8023	.1657	-
	Within	679	260.312	.3686			
Individual	Between	2	4.333	2.1652	4.1362	.0614	-
	Within	679	355.431	.5235			
Group	Between	2	10.331	5.1655	13.097	.0003*	high sch/undergrad high sch/postgrad
	Within	679	267.790	.3944			

Note: \* significant level set at  $p < .05$



As seen in the above table, ANOVA for the variable of educational level yielded significant differences in four learning style variables: auditory, visual, tactile and group learning.

In auditory learning, Scheffé test showed significant differences between more auditory high school learners and less auditory undergraduate students ( $p = .0453$ ) and less auditory postgraduates ( $p = .0246$ ) as well. Visual learning displayed a similar pattern: high school students preferred visual learning significantly more than did undergraduates ( $p = .0459$ ) and did postgraduates ( $p = .0171$ ). In group learning, despite the fact that all the three groups indicated group learning a minor style, Scheffé tests revealed that high school students indicated significantly more preferences than did undergraduate students ( $p = .0001$ ) and did the postgraduate students ( $p = .0388$ ). In tactile leaning, although significant differences in F-ratio were obtained, Scheffé tests did not produce any significance.

#### **7.1.2.2 Learning Style Preferences with regard to Field of Specialization**

Preference means were compared across the three subgroups of subject disciplines, science majors, arts majors, and English majors. The results showed that auditory learning was the least preferred learning styles reported by the students from all the three subject disciplines. Both science and arts majors indicated visual learning as a major style, while English majors preferred it as a minor style. For kinesthetic learning, both arts and English majors preferred it as a major style whereas science majors preferred it as a

minor style. Arts majors registered the highest mean scores in four out of six learning style variables. In other words, they favoured auditory, visual, kinesthetic and group learning more when compared with their science and English counterparts. Unlike arts majors, English majors did not prefer auditory, visual, kinesthetic and group learning. Instead, they had the highest mean score for individual learning. Results of the comparisons are shown in Table 7.3 and Figure 7.3 below.

Table 7.3  
Learning Style Preference Means by Field of Specialization

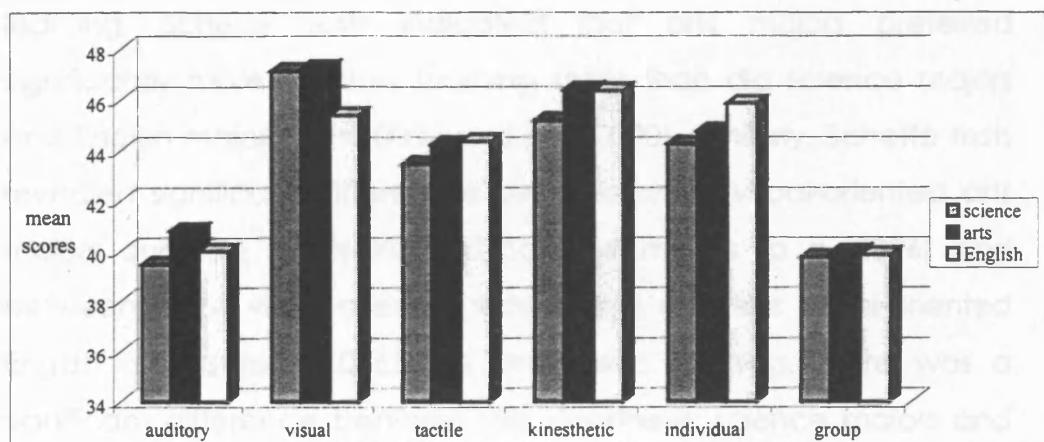
Major Field	Learning Style Preference											
	auditory		visual		tactile		kinesthetic		individual		group	
	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
Science	39.47	5.34	47.14	4.75	43.46	5.20	45.18	5.94	44.26	6.93	39.72	6.14
Arts	40.81	5.21	47.24	5.11	44.24	4.89	46.39	5.87	44.77	7.04	39.92	6.17
English	39.97	5.09	45.38	4.99	44.35	5.41	46.35	6.39	45.85	7.98	39.81	7.04

Note: Mean 46-60 = major learning style preference

Mean 31-45 = minor learning style preference

Mean 0-30 = negative learning styles preference

Figure 7.3 Preference Means by Field of Specification



By comparing the mean scores and employing ANOVA as well as Scheffé tests, this variable produced significant differences in auditory, visual and kinesthetic learning. Table 7.4 provides a summary of ANOVA results.

Table 7.4  
ANOVA for Field of Specialization and Learning Style Preferences

Learning style	source	df	sum of squares	mean squares	F-ratio	P-value	Scheffé significance
Auditory	Between	2	3.219	6.6099	24.1721	.0000*	arts/science arts/English
	Within	679	185.670	.2734			
Visual	Between	2	3.028	1.5145	.1977	.0021*	science/English arts/English
	Within	679	165.919	.2443			
Tactile	Between	2	.763	.3816	.4395	.2377	-
	Within	679	180.012	.2651			
Kinesthetic	Between	2	4.063	2.0319	.5727	.0039*	science/English
	Within	679	247.577	.3646			
Individual	Between	2	1.870	.9350	.7740	.1704	-
	Within	679	357.891	.5271			
Group	Between	2	.036	.0183	.0446	.9563	-
	Within	679	278.084	.4095			

Note: \* significant level set at  $p < .05$

As shown in Table 7.4, a significant relationship between learning styles and field of specialization was found in three learning style variables, auditory, visual, and kinesthetic learning. In auditory learning, Scheffé tests indicated that arts majors preferred significantly more auditory learning styles than did science majors and English majors ( $p = .0000$  and  $p = .0000$ ). Similarly, Scheffé tests revealed significant differences between more visual-oriented arts majors and less visual-oriented Science majors ( $p = .0096$ ) and between more visual-oriented arts majors and less visual-oriented English majors ( $p = .0063$ ). In kinesthetic learning, there was a significant difference between less kinesthetic science majors and more kinesthetic English majors ( $p = .0043$ ).

### 7.1.2.3 Learning Style Preferences with regard to Duration of Native Speaker Instruction

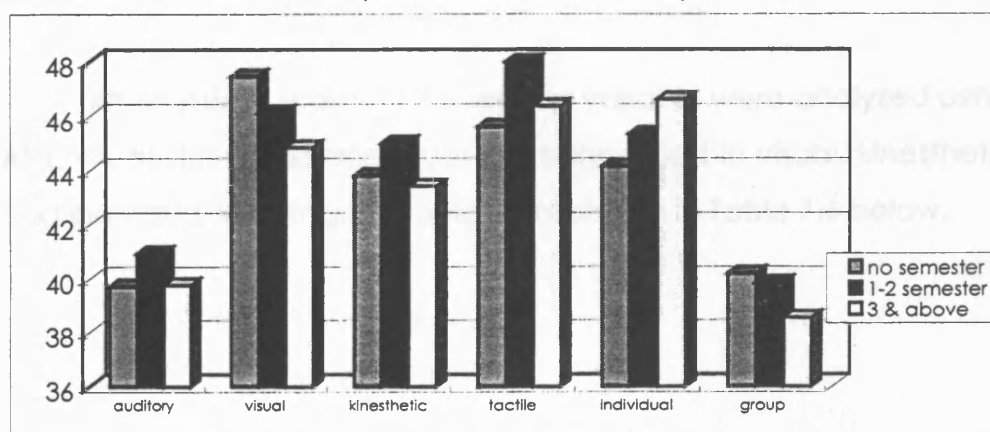
The three subgroups in this variable were: a) students who received no native speaker instruction; b) students who received native speaker instruction for 1-2 semesters; and c) students who received native speaker instruction for three and over three semesters. Mean scores reported by these three subgroups are shown in Table 7.5 and presented graphically in Figure 7.4 below.

Table 7.5 Learning Style Preference Means by Duration of Native Speaker Instruction

Semester with native speak instruction	Learning Style Preference											
	auditory		visual		tactile		kinesthetic		individual		group	
	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
0 semester	39.73	3.60	47.46	2.91	43.83	3.03	45.63	3.50	44.17	4.30	40.20	3.86
1-2 semesters	40.95	3.74	46.14	2.95	45.01	3.20	48.00	3.76	45.36	4.41	39.85	3.60
3 & over 3 semesters	39.77	3.66	44.85	3.19	43.42	3.17	46.37	4.07	46.62	4.31	38.54	4.26

Note: mean 46-60 = major learning style preference; mean 31-45 = minor learning style preference;  
mean 0-30 = negative learning styles preference

Figure 7.4  
Preference Means by Duration of Native Speaker Instruction



A trend in this variable is noticeable. There was a decline in preferences for visual learning over time with native speaker instruction. However, contrary to a declining preference for visual learning, there was an increase in preferences for individual learning over time with native speaker instruction. The subgroup with native speaker instruction for three and over three semesters reported a high preference for individual learning and perceived it as a major style. The other two subgroups reported lower preferences for individual learning, which was considered a minor style. Moreover, in contrast to an increase in preferences for individual learning, there was a decline in preferences for group learning by the three subgroups over time with native speaker instruction. This was reflected by the finding that the students who received no native speaker instruction reported a relatively higher preference mean of 40.20 for group learning when compared with the means of 39.85 and 38.54 by the other two subgroups of students who received native speaker instruction for 1-2 semesters and for over three semesters. The subgroup that had the longest length of time with native speaker instruction not only reported the lowest mean for group learning but also rated it as the least preferred learning style out of the six learning style variables.

When mean scores in this learner variable were analyzed using ANOVA, statistical significances were identified in visual, kinesthetic and individual learning. The results are shown in Table 7.6 below.

**Table 7.6 ANOVA for Learning Style Preferences  
and Duration of Native Speaker Instruction**

Learning style	source	df	sum of squares	Mean squares	F-ratio	P-value	Scheffé significance
Auditory	Between Within	2 679	.0732 51.034	.5367 .4068	1.4512	.2349	-
Visual	Between Within	2 679	5.092 163.855	2.5465 .5234	10.5524	.0000*	0 semester/ over 3 semesters
Tactile	Between Within	2 679	1.315 179.460	.6576 .3648	2.4879	.0838	-
Kinesthetic	Between Within	2 679	3.971 247.669	1.9857 .2643	5.4439	.0045*	1-2 semesters/ over 3 semesters
Individual	Between Within	2 679	4.395 355.365	2.1979 .2413	4.1999	.0154*	0 semester/ over 3 semesters
Group	Between Within	2 679	1.915 276.206	.9575 .3697	2.3539	.0948	-

Note: \* significant level set at  $p < .05$

To find out significant differences, Scheffé tests were conducted. These tests disclosed that students who had no native speaker instruction preferred significantly more visual learning ( $p = .0001$ ) than did the students who had native speaker instruction for over three semesters. The students who received native speaker instruction for 1-2 semesters reported significantly more preferences for kinesthetic learning than did the students who had no native speaker instruction ( $p = .0047$ ). The students who received native speaker instruction for three and over three semesters were significantly more individual-oriented than were the students who received no native speaker instruction ( $p = .0199$ ).

### **7.1.3 Interactions between Learner Variables and Their Effect on Learning Style Preferences**

In parallel to the preceding subsection which deals with relationships between each learner variable and learning style variables, this subsection focuses on interactions between learner variables and their effect on learning style preferences. It provides

answers to the third research question:

*In what way do learner variables of educational level, field of specialization, and duration of native speaker instruction interact with each other in relation to perceptual learning style preferences?*

Findings about the interactions between learner variables and their effect on learning style preferences were obtained using Multivariate Analysis of Variance (MANOVA) and a separate two-way ANOVA for each of the six dependent variables. Results of these analyses are presented under respective subheadings: interactions between educational level and field of specialization, interactions between educational level and duration of native speaker instruction, and interactions between field of specialization and duration of native speaker instruction.

#### **7.1.3.1 Interactions between Educational Level and Field of Specialization**

The number of questionnaire respondents at different educational levels and in different subject disciplines is presented in Table 7.7 below.

Table 7.7 Questionnaire Respondents:  
Variables of Educational Level and Field of Specialization

	High school	Undergraduate	Postgraduate	Total
Science	54	115	85	258
Arts	35	162	46	243
English	44	136	2	181
Total	133	413	133	682

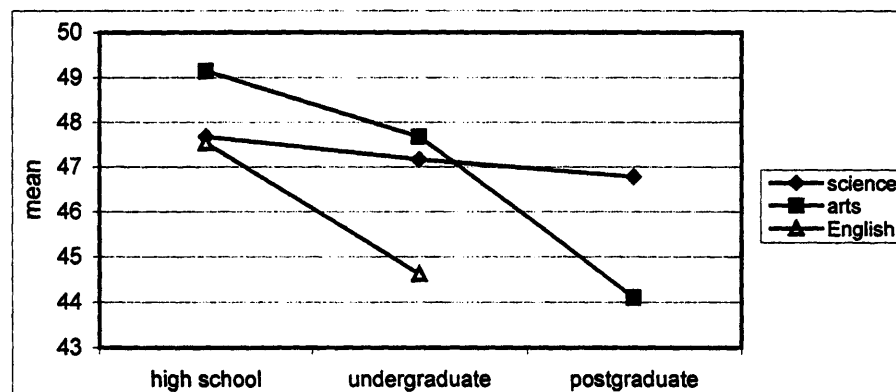
It should be noted that the data set on postgraduates who specialized in English (literature) comprised only two cases. This small

sample was not adequate for comparisons with other subgroups, nor is it eligible for a reliable data analysis. Therefore, this subgroup was not included in data analysis.

The MANOVA for the interaction of educational level and field of specialization produced a significant effect on learning style preferences (Wilks Lambda .9232,  $p=.0005$ ). Based on the ANOVA, a significant effect of the interaction was found in four out of six perceptual learning style variables. In the following discussion, not all of the learning style variables were looked into. Only the variables that revealed significances in MANOVA and ANOVA became the focus.

**Visual learning** The interaction between educational level and field of specialization in preference for visual learning exhibited a significance at the .05 level with an  $F(4.673)=2.821$  and  $p=.0243$ . This significant interaction is shown in Figure 7.5 as follows.

Figure 7.5 Interaction between Educational Level and Field of Specialization for Visual Learning



As shown in Figure 7.5, the preferences for visual learning by learners across the three educational levels and three subject



disciplines decrease in different manners. Science majors' preferences for visual learning decline gradually as they progress from high school to the postgraduate level. Arts majors show the highest preferences for visual learning at the high school level. However, their preferences decline through successive educational levels. English majors, compared with science and arts majors, indicate a strong decline in their preferences for visual learning from high school to the undergraduate level. At the undergraduate level, arts majors prefer visual learning more than science majors do and they prefer visual learning significantly more than their counterparts of English majors do ( $p = .012$ ).

From the undergraduate level to postgraduate level, arts majors demonstrate a decline in their preferences for visual learning. As a consequence, at the postgraduate level, they are significantly less visual oriented in their learning style preferences than their counterparts in science studies are.

**Tactile learning** Results of MANOVA indicated statistical significance in tactile learning styles [ $F(4.673)=3.439$ ,  $p=.0085$ ] with regard to interaction between educational level and field of specialization. This is shown in Figure 7.6 below.

Figure 7.6 Interaction between Educational Level and Field of Specialization for Tactile Learning

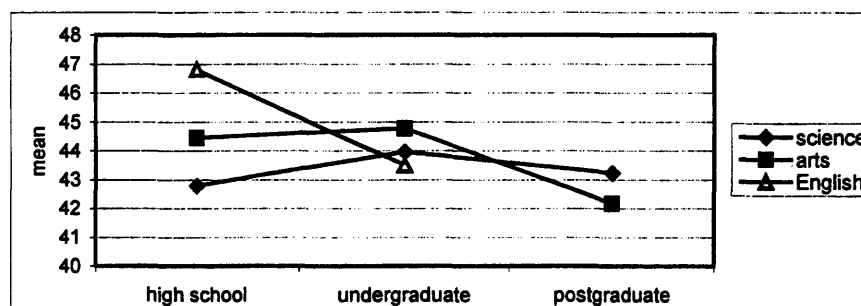


Figure 7.6 demonstrates that, on the one hand, prospective English majors in high school show the most preferences for tactile learning compared with their science and arts counterparts. But these preferences decline sharply. At the undergraduate level, they are the least tactile learners. On the other hand, both science and arts majors exhibit growing preferences for tactile learning from high school towards the undergraduate level. However, from the undergraduate level, both groups show a decline in preferences for tactile learning. Arts majors' preferences for tactile learning decline more sharply than those of science majors.

**Kinesthetic learning** A significant interaction was found in kinesthetic learning with an  $F(4.673)=4.289$ ,  $p=.0019$ . This is shown graphically in Figure 7.7.

Figure 7.7 Interaction between Educational Level and Field of Specialization for Kinesthetic Learning

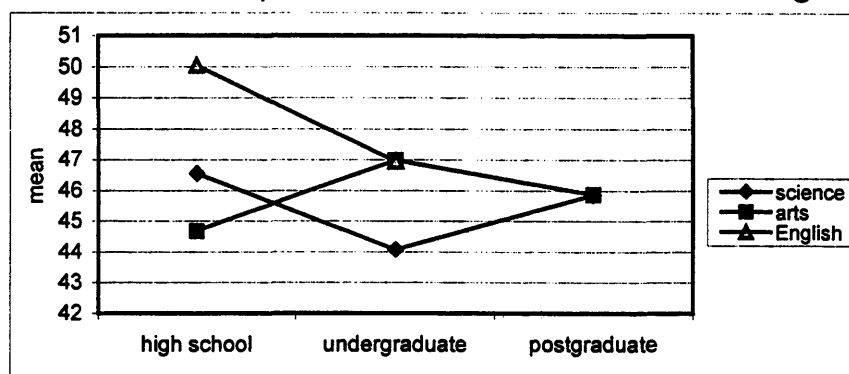
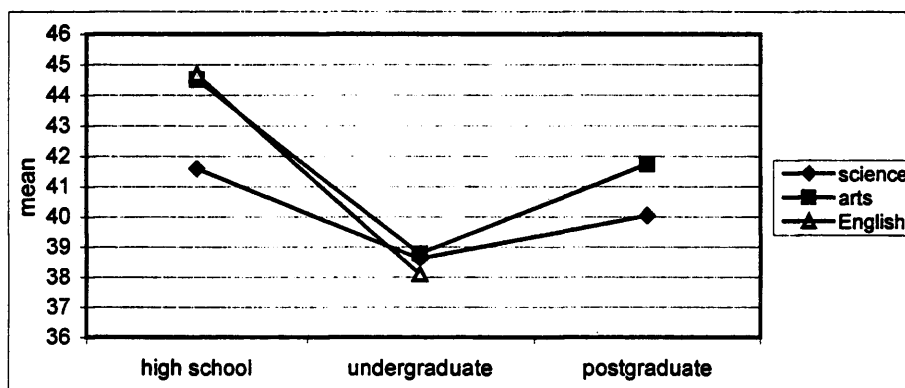


Figure 7.7 demonstrates two incidences where learning style preference means by learners of different educational levels and subject disciplines meet. At the high school level, prospective English majors are the most kinesthetic learners whereas prospective arts majors are the least kinesthetic learners. From the high school

towards the undergraduate level, English majors demonstrate a significant decline in their preferences for kinesthetic learning, whereas arts majors show an increase in their preferences for kinesthetic learning. The means of these two learner groups get closer and eventually meet at the undergraduate level. Furthermore, from the undergraduate level onwards, arts majors show a decline while science majors show a rise in their preferences for kinesthetic learning styles. Learning style preference means of the two subgroups overlap at the postgraduate level.

**Group learning** A significant interaction was found on group learning with an  $F(4.672)=3.149$  and  $p=.014$ . Specifically, the findings suggest that all the three groups exhibit a decline in their preferences for group learning from high school to the undergraduate level. From the undergraduate level onwards, science and arts majors show a slight increase in their preferences for group learning. This is shown in Figure 7.8 below.

Figure 7.8 Interaction between Educational Level and Field of Specialization for Group Learning



### 7.1.3.2 Interactions between Field of Specialization and Duration of Native Speaker Instruction

The number of questionnaire respondents in the variables of field of specialization and duration of native speaker instruction is presented in Table 7.8 below.

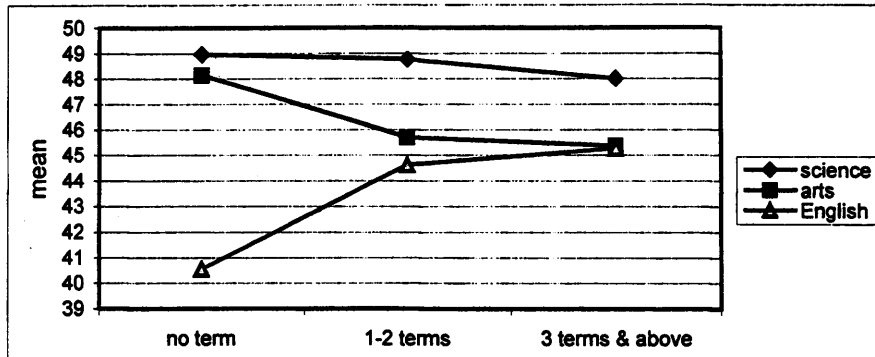
Table 7.8 Questionnaire Respondents: Variables of Field of Specialization and Duration of Native Speaker Instruction

	0 semester	1-2 semesters	3 & over 3 semesters	Total
Science	183	41	34	258
Arts	128	77	38	243
English	36	97	48	181
Total	347	215	120	682

MANOVA on the interaction between field of specialization and duration of native speaker instruction was significant (Wilks Lambda =.9412,  $p=.0181$ ). The analyses revealed a significant effect in visual, kinesthetic and group learning style preferences. These three learning style variables are examined in turn as follows.

**Visual learning** The interaction between field of specialization and duration of native speaker instruction produced a significant effect in visual learning [ $F(4.671)=2.433$ ,  $p=.0463$ ]. Figure 7.9 demonstrates this.

Figure 7.9 Interaction between Field of Specialization and Duration of Native Speaker Instruction for Visual Learning



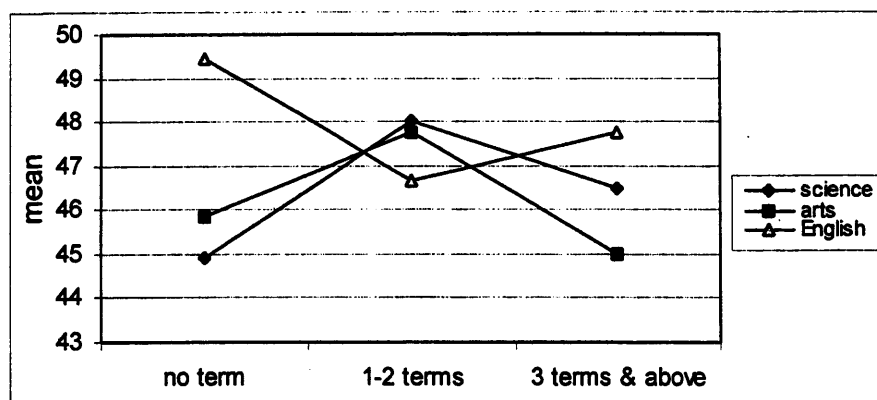
The significant effect is indicated by the fact that, for both science and arts majors, the longer they receive native speaker instruction, the less they prefer visual learning. The decline in preferences for visual learning with science majors is moderate, while the decline with arts majors is sharp. English majors, however, show an increase in preferences for visual learning over time with native speaker instruction. During the first 1-2 semesters with native speaker instruction, the increase in their preferences for visual learning is large and sharp. These preferences keep increasing, but only moderately till they receive native speaker instruction for a longer time.

Another feature demonstrated in Figure 7.9 is that science majors of the three subgroups with different durations of native speaker instruction are the most visual-oriented learners whereas their counterparts in English are the least visual learners.

**Kinesthetic learning** The interaction between field of specialization and duration of native speaker instruction for kinesthetic learning revealed statistical significance [ $F(4.673)=2.634$ ,

$p=.0332$ ]. This is shown in Figure 7.10 below.

Figure 7.10 Interaction between Field of Specialization and Duration of Native Speaker Instruction for Kinesthetic Learning



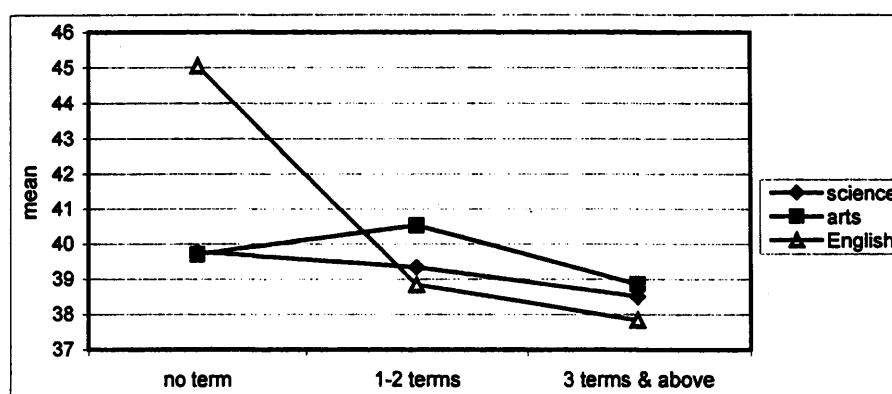
As seen in Figure 7.10, all the subgroups of subject disciplines change in their preferences for kinesthetic learning styles. The subgroups of science and arts majors exhibit a fairly similar pattern in that their preferences for kinesthetic learning increase first and then decline. The science and arts majors who receive native speaker instruction for 1-2 semesters prefer kinesthetic learning more than do their counterparts who receive no native speaker instruction. However, both groups show a decline in preferences for kinesthetic learning as they receive native speaker instruction for a longer period of time.

English majors, on the other hand, demonstrate that, as shown in Figure 7.10, their preferences for kinesthetic learning decline first and then increase slightly. The students who receive no native speaker instruction report the highest preferences for kinesthetic learning. Those who receive native speaker instruction for 1-2 semesters indicate a lower preference than their counterparts who receive no native speaker instruction do. However, the students who

receive native speaker instruction for the longest period of time, in this case, for three and over three semesters show stronger preferences for kinesthetic learning than their counterparts who receive native speakers instruction for a shorter period of time, in this case, for 1-2 semesters.

**Group learning** The interaction between field of specialization and length of time with native speaker's instruction showed a significant effect in group learning [ $F(4.673)=4.048$ ,  $p=.0029$ ]. This significant effect is shown in Figure 7.11 below.

Figure 7.11 Interaction between Field of Specialization and Duration of Native Speaker Instruction for Group Learning



As shown Figure 7.11, there is a sharp decline in preferences for group learning by English majors who receive native speaker instruction for 1-2 semesters. Compared with their counterparts who receive no native speaker instruction, these learners are significantly less group-oriented ( $p=.026$ ). Moreover, these learners' preferences for group learning keep declining as they receive native speaker instruction for a longer period of time. Science and arts majors who have different durations of native speaker instruction do not show significant changes in preferences for group learning.

### 7.1.3.3 Interactions between Educational Level and Duration of Native Speaker Instruction

The number of questionnaire respondents related to learner variables of educational level and duration of native speaker instruction is provided in Table 7.9 below.

Table 7.9 Questionnaire Respondents: Variables of Educational Level and Duration of Native Speaker Instruction

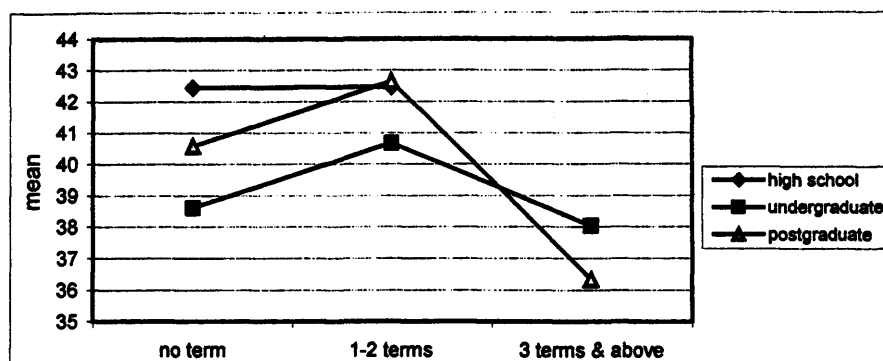
	High school	Undergraduate	Postgraduate	Total
0 semester	101	177	69	347
1-2 semesters	31	151	33	215
3 & over 3 semesters	4	85	31	120
Total	136	413	133	682

It should be noted that since only four respondents at the high school level received native speaker instruction for three and over three semesters, the results of data analysis in this respect are not reflected in the presentations below. This is because the sample size is too small to be eligible for reliable results. Nor is it eligible for making comparisons with other subgroups.

The results of MANOVA on the interaction of these two learner variables produced no statistically significant effect in any learning style variables. However, the researcher would like to give the group learning variable a close examination, not only because it was a variable close to the significant level set at  $p < .05$  [ $F(4.673)=3.325$ ,  $p=.0565$ ], but also because it produced a unique pattern, which is shown in Figure 7.12 below.



Figure 7.12 Interaction between Educational Level and Duration of Native Speaker Instruction for Group Learning



**Group learning** Figure 7.12 shows that the high school students who receive no native speaker instruction and who receive native speaker instruction for 1-2 semesters had similar preferences for group learning. This result suggests that, to high school learners, duration of native speaker instruction has hardly any influence on their perceptual learning style preferences.

Figure 7.12 also shows that undergraduate and postgraduate students who receive native speaker instruction for 1-2 semesters are more group-oriented than are their counterparts who receive no native speaker instruction. The difference between the postgraduates who receive no native speaker instruction and who receive native speaker instruction for 1-2 semesters is statistically significant ( $p = .017$ ). Contrary to the increase in their preferences for group learning, both undergraduates and postgraduates who receive native speaker instruction for three and over three semesters indicate sharp declines in group learning preferences. In these declines, the subgroup of postgraduate students who receive native speaker instruction for over three semesters indicates that they are the least group-oriented learners.

#### **7.1.4 Results from the Factor Analysis**

In order to gain insights into the underlying structure of the questionnaire used in the study and to interpret the interrelations of the learning style variables under investigation, a factor analysis based on the data set of 682 cases was conducted. Although numerous studies using Reid's (1987) instrument have been reported and although these studies have explored relationships between learning style preferences and learner variables such as gender, field of study, language proficiency, and so on, little attention has been directed towards examining the common factors underlying the responses to the questionnaire. The present factor analysis is hoped to provide useful information in this respect.

In conducting the factor analysis, initially, principal axis factoring extracted six factors. This six-factor solution did not yield the conceptual model posited by Reid, nor did it appear to provide an acceptable conceptual learning styles framework. The result of Scree test (See Appendix K) indicated that a five-factor solution or a four-factor solution might be interpretable. Attempts on a five-factor and a four-factor solution were then made. Of all the factor analyses performed, the four-factor solution was most interpretable.

In running the analysis for the four-factor solution, both orthogonal and oblique solutions were inspected. As differences between the two solutions were minimal, a varimax rotation was decided and employed to obtain orthogonal factors. This solution was justified by the following features: 1) all the factors were with Eigen values greater than 1.9 (accepted criterion is above 1.0); 2) it

accounted for 51.8% of the variance in the data set; and 3) all 36 items in the questionnaire were included. Results of the four-factor solution are provided in Table 7.10 below. Only the factors with loadings equal to and greater than .30 are shown.

Table 7.10 Factory-Analysis: Four-Factor Solution

Item No. (Reid's scale)	Factor Loadings			
	Factor 1 Individual-Visual	Factor 2 Group-Haptic	Factor 3 Productive-Haptic	Factor 4 Explicit-Explanation
6 (I)	.524			
9 (V)	.497			
14 (I)	.435			
18 (I)	.326			
21 (I)	.469			
22 (T)	.528			
24 (T)	.524			
25 (V)	.576			
27 (I)	.503			
33 (T)	.390			
34 (I)	.622			
35 (T)	.689			
1 (A)		.429		
2 (G)		.416		
11 (A)		.357		
12 (G)		.392		
13 (A)		.300		
19 (G)		.574		
23 (G)		.339		
32 (G)		.661		
36 (G)		.631		
3 (K)			.486	
7 (T)			.392	
10 (K)			.616	
15 (K)			.332	
16 (K)			.338	
20 (T)			.438	
26 (T)			.317	
28 (A)			.651	
29 (A)			.548	
4 (V)				.382
5 (A)				.539
8 (V)				.536
17 (A)				.451
30 (V)				.505
31 (V)				.560

Note: ( ) represents a learning style factor in Reid's model. 'I' for Individual, 'V' for Visual, 'T' for Tactile, 'A' for Auditory, 'G' for Group, and 'K' for Kinesthetic.

As shown in Table 7.10, Factor One consists of twelve statements including all the six individual learning style statements combined with four tactile learning style and two visual learning style statements. Since the four tactile statements focus on making notes, which suggests a close relation to visual learning, and since two visual learning style statements are included, this factor, therefore, is named Individual-Visual Factor. This scale is found to have a good internal reliability ( $\alpha = .71$ ) and no individual statements displayed low consistency reliability scores (Details on the scales of the four-factor solution and their reliability levels are provided in Appendix L).

The second factor is loaded with nine statements. They are six kinesthetic learning style statements, two tactile style and one auditory style statements. These statements focus on preferences for learning through hands-on activities and body involvement. They also focus on measuring preferences for production. With these dual features, this factor is labeled Productive-Haptic Factor. The internal consistency reliability of this factor is satisfactory ( $\alpha = .64$ ). (Details are provided in Appendix L).

The third factor is composed of nine learning style statements, six group learning and three auditory learning statements. The six group learning statements focus on group activities and interaction with others. The three auditory statements are concerned with preferences for learning through listening to others. The combination of these nine statements indicates a link between auditory and group activities. A study by Wintergers et al (2001) suggests that listening to others and participating in role-plays and other group

activities are often found to be an integral part of group activities. The surfaced Factor Three supports Wintergers' (2001) notion. Factor Three is then named Group-Auditory Factor. This scale is found to have a marginal internal consistency reliability ( $\alpha = .59$ ). (Details are provided in Appendix L).

Finally, two auditory and four visual learning statements make up the fourth factor. These six statements address preferences for explicit explanations/instructions. Take Statement 31 as an example: *I understand better by reading written explanations for texts and written directions for tasks than by listening to them.* Although, originally, this statement means to address a preference for visual learning, it turns out to be representative of receiving explanations or instructions. In a similar way, in interpreting the other statements in this scale, the subjects might refer more to understanding and remembering a teacher's explanations and instructions rather than to whether the explanations and instructions are in oral or written form. This factor does not reveal a satisfactory internal reliability. (Details are provided in Appendix L).

As shown above, the result of the factor analysis based on the present data set is a four-factor solution which contains individual-visual, group-auditory, productive-haptic and explicit explanations/instructions factors.

This section presents the results derived from the analyses of the data collected from the questionnaire survey with 682 Chinese EFL learners. A discussion of the findings follows in the next section in which the results reported in this section are further examined.

## **7.2 Discussions of the Results from the Questionnaire Survey**

This section discusses the findings presented in the preceding section. The discussion is backed up by the existing theory and empirical findings from previous studies. As in the previous section, the discussion is organized under three subheadings in response to the three research questions of the present study.

### **7.2.1 Profile of Learning Style Preferences of Chinese EFL Learners**

As shown in Figure 7.1 (p.128), the sample of Chinese EFL learners preferred visual and kinesthetic learning as major learning styles and perceived individual, tactile, auditory and group learning as minor learning styles. Based on the preference means, scores for the six learning style variables are grouped into three pairs: a) mean scores of 46.71 and 46.23; b) mean scores of 44.89 and 43.95; and c) mean scores of 39.97 and 39.82. The first pair comprised two major styles, visual and kinesthetic. They were the most preferred learning styles. The second pair included individual and tactile learning styles. The last pair of auditory and group learning were the least preferred learning styles by the sample of Chinese EFL learners. Several interpretations can be proposed, taking into account the learning environment and cultural context of the study.

Firstly, visual learning was reported as a major learning style. This is within expectations because visual learning through ideographic Chinese characters is much emphasized throughout school years. More specifically, the pictorial nature of the Chinese script presents some linguistic and pedagogical differences in

learning to read. Reflected in classrooms, conventional Chinese literacy practices involve writing characters repeatedly by following a strict stroke order and taking care of the overall structure and visual balance of different characters (Cortazzi, 1999). Nowadays in schools, this repeated writing practice is generally aided by the use of games, songs, and matching and discrimination activities. This practice indicates that for Chinese "there is a preference for visual and lexical processing..., compared with the emphasis on phonological processing of alphabetic reading in European languages" (Cortazzi, 1999, p.7). Other than this, the school system in China emphasizes text-based methodology such as having translation and grammar exercises. This practice tends to make students respond well to visual learning approaches.

Secondly, kinesthetic learning ranked next to visual learning as a major style. In fact, kinesthetic learning and teaching is not a typical practice in English language classes in the Chinese context. The strong preference for kinesthetic learning reported by the respondents might be attributed to the deeply-rooted and pervasive influence of Chinese approaches to literacy practices as mentioned in the foregoing paragraph. These practices get the learner involved in the totality of the language learning experience. It can be inferred that Chinese learners prefer that their Chinese literacy practices be carried over to learning English. This finding corresponds to the findings by Widdows and Voller (1991) that EFL students do not like English classes in which they merely sit passively, reading and translating.

Thirdly, the Chinese EFL learners in this study suggested a fairly

strong tendency to adhere to individual learning. In contrast, they ranked group learning as the least preferred learning style. This finding can be explained by the influence of the learner's learning environment. Gregorc (1979) aptly maintains that the learner's distinctive behaviours that construct his/her learning styles are indicators of how the learner learns, perceives, interacts with and responds to the learning environment. Gregorc's notion could apply in the context of this study. In China, English is taught as an academic subject like mathematics and physics. The use of English is not necessarily a priority in the evaluation of learning and teaching the target language. In such a learning environment, individual learning is encouraged because formal learning and teaching is theory- and rule-based and it requires serious individual thinking and restructuring. As English is part of the formal education, its learning and teaching are evaluated in the same way as other academic subjects, thus, it is natural for its learners to regard English learning as a kind of competition among themselves. Given this situation, it is not surprising to find that the subjects in the present study endorsed individual learning and disfavoured group learning as a mode of learning.

Finally, learning environment may be a contributor to the finding about auditory learning. In an ESL environment, learners have to develop their aural-oral skills for real-life communication in English. But in the present study, the subjects are learning English in China where aural and oral English in daily communication is not needed. This is probably the reason why the subjects responded unenthusiastically to auditory learning.



Since the present survey is not the only study that identifies a learning style profile of Chinese EFL learners, an attempt to compare the learning style profile emerging from this study with those from the previous studies is made and discussed as follows.

Three other studies with Chinese EFL learners are located. Subsequently, an examination of Chinese EFL learners' learning style profiles was made based on four studies by Melton (1990), Su (1995), Zhang (2001) and the present study. The compatibility of the four studies lay in two basic requirements, 1) an availability of data on a profile of learning style preference and 2) an employment of similar instruments. Of the four studies, both Melton and Zhang adopted Reid's (1987) instrument. The present study used an adapted version of Reid's instrument. Su's research used another instrument, which contained seven learning style variables rather than the six variables suggested by Reid. In Su's instrument, five variables out of the seven overlapped with those in Reid's construct. The two additional variables were oral and written styles. Su's instrument did not single out tactile style as a specific variable. In general, as the two instruments by Reid and Su were similar in construct, there is a sound base on which results of these four studies can be compared. Table 7.11 gives a comparison of the profiles which emerged from the four studies.

Table 7.11 Learning Style Preference Profiles by Four Studies

	Auditory		Visual		Tactile		Kinesthetic		Individual		Group	
	rank	range	rank	range	rank	range	rank	range	rank	range	rank	range
Melton (1990)	4	minor	5	minor	1	major	2	major	3	major	6	negligible
Su (1995)	4	minor	3	minor			2	major	1	major	5	minor
Zhang (2001)	5	minor	2	major	3	major	1	major	4	minor	6	minor
Present Study	5	minor	1	major	4	minor	2	major	3	minor	6	minor

As shown in Table 7.11, there are some commonalities in the four profiles. First, the present study revealed visual and kinesthetic learning as major styles. This finding confirms that from Zhang's study whose subjects preferred kinesthetic, visual, and tactile styles as major styles. In both Melton's and Su's findings, kinesthetic learning styles were major styles whereas visual learning styles were minor styles. A consistent finding across the four studies is that auditory and group styles rank the last two preference modes of learning. These two style modes were marked as minor styles by all, except in Melton's finding where group learning was in the range of negligible style.

Additionally, in the present study individual learning ranked the third and was in the range of minor learning styles. This result is in line with the findings from Zhang's (2001) study which revealed that individual learning was ranked the fourth and a minor style. This result partially supports the findings by Melton (1990). In Melton's study, individual learning ranked the third, but it was a major style. In Su's study, students reported individual learning styles the most preferred style.

Moreover, apart from some minor discrepancies mentioned above, a major discrepancy was seen in tactile learning. In both Melton's and Zhang's studies, tactile learning was a major style, ranking the first in the former and the third in the latter. In the present study, it ranked the fourth and was a minor rather than a major style.

The differences in the overall preference profiles may have a number of causes. First, the sample in the present study included a

wider range in educational level, comprising students of three educational levels, while the other three studies comprised only students at the tertiary level. Second, the four studies had a different coverage on subject disciplines. For example, Zhang's study includes science majors exclusively, Melton's study have science and English majors, whereas Su's study and the present study include a wider range of subject disciplines. Third, the four studies were conducted within a time span of over ten years. In the past decade English education in China has undergone a tremendous change with a large number of curricular, methodological, and evaluation innovations. Oxford (1990c) points out that although learning style is usually assumed to be relatively stable, this might not always be the case. It can be influenced by the situation, by the person's development level, or by certain kind of 'style training' (p. 41). In a similar vein, Galloway and Labarca (1990) maintain that learning environment shapes a learner's learning styles. In this light, the inconsistency of the profiles surfacing from the four studies can be explained.

## **7.2.2 Differences among Subgroups of Learners**

Discussions in this sub-section are presented under the subheadings of three learner variables: educational level, field of specialization and duration of native speaker instruction.

### **7.2.2.1 Educational Level**

As shown in Figure 7.2 (p. 130), the variable of educational

level revealed a moderate decline in preference for auditory, visual, tactile and kinesthetic learning as learners move ahead from high school to the postgraduate level. In auditory and visual learning, the findings confirmed Melton's (1990) results. In her study, Melton looked into learners at two levels, undergraduate and postgraduate levels. Her postgraduate subjects reported fewer auditory and visual preferences than did the undergraduate students. But this decline in Melton's study was not statistically significant. In the present study, high school learners were significantly stronger auditory and visual learners than undergraduates and postgraduates were.

Furthermore, the declining preference for auditory and visual styles showed in the present study echoes Sy's (1991) research. In her study, Sy surveyed a sample of university students in Taiwan, using Reid's (1987) instrument. She compared learning style preferences across three university levels, freshmen, sophomores and juniors. She found that of the three levels, freshmen were most auditory and visual learners while the juniors were the least. Sy's results can be compared with those from the present study because the research contexts of the two surveys were similar. Firstly, both surveys were with Chinese learners and secondly, both groups of Chinese learners studied English as a foreign language.

In group learning, high school students reported the strongest preferences while undergraduates showed the fewest preferences. One possible explanation for the decline could be that the academic environment of college and university is different from that in high school. In a higher academic environment, individual thinking and reasoning is often in higher demand and considered

part of the educational disciplines. Despite the disfavour for group learning by undergraduates, postgraduates, however, reported a stronger group-orientation than did undergraduates. One reason might account for the rise of preferences for group learning. In postgraduate study, English is an elective as EAP and ESP. As English learning at this level is no longer examination-driven, students study English at their own pace and for their own goals.

#### **7.2.2.2 Field of Specialization**

As noted earlier in subsection 7.1.2.2 (p.131-133), a significant relationship between learning styles and field of specialization was found in three learning style variables, auditory, visual and kinesthetic learning. In auditory learning, arts students were significantly stronger than were science and English majors. This finding is expected because for most arts majors, the lecture-mode is a consistent and routine approach in teaching and for learning. Therefore, it is believed that as these learners are accustomed to the mode of learning, they usually feel comfortable with auditory learning.

Still in the auditory domain, English majors showed significantly fewer preferences than did arts students. They also showed fewer preferences for auditory learning than did science majors. This finding is contrary to Call's (1985) assumption. Based on her study, Call (1985) posits that the auditory short-term memory for language learning is limited, but it apparently expands as a learner progresses in his/her language proficiency. She argues that beginning

language learners with relatively lower auditory short-term memory have to rely more on visual information in order to compensate for this weakness.

In the light of Call's notion, our assumption was because English majors had more hours for English study and had the privilege of being taught by native speaking teachers more hours each semester than did their counterparts in science and arts majors, it was reckoned that they had developed better ability to understand the target language through hearing and were at greater ease using auditory learning styles. Built on this reckoning, our hunch was that these learners would show stronger preferences for auditory learning than would the students in other subject disciplines. However, the result emerging from this study did not show the trend.

An explanation considered most probable is that this finding is peculiar to the context. English is a foreign language in China, where one can hardly hear natural native speaker's talk. Nor can one easily find a native speaker for conversation. A learner's aural and oral English input is restricted in classroom and this input is not always authentic. Related to this explanation, another reason could be that listening to language learning tapes might not be motivating or exciting for intermediate and advanced learners. Rather, it could be boring to these learners. A further reason could be possible. A learner needs to be sociable and have very active social learning strategies in order to seek an opportunity to talk with someone in English. These environmental and affective reasons could be plausible to explain why English majors' preferences for auditory mode of learning were not developed, though according

to Call (1985), this was anticipated.

However, a couple of studies affirm Call's notion. For instance, Reid's (1987) study showed that Indonesian students at the intermediate and advanced levels were continuously less inclined to visual styles. Instead, they tended to prefer auditory styles more. The results of Melton's (1990) study showed that the longer the learners studied English, the more they preferred auditory learning. However, there was no evidence for this direction in the present study.

The second area that revealed statistical significance is in visual learning. The result showed that English majors indicated significantly fewer preferences for visual learning than did arts and science students. This finding is consistent with that of Su's (1995) study. Su reported that in his study a majority of the respondents (62.9%) were English and ESP majors "whose style preferences did not include visual learning" (p. 163).

Kinesthetic learning is another area that shows statistical significance. The Scheffé test revealed that English majors showed significantly more preferences for kinesthetic learning than did science majors. With regard to kinesthetic and tactile learning, the finding that science majors registered the lowest preference was unexpected. Science majors often move about and use their hands while doing laboratory projects and experiments. Therefore, it is often believed that such a situation could possibly predispose them to adopt the same learning style preferences when learning English. However, this is not found in the present study.

The finding that English majors show more preferences for kinesthetic and tactile styles is expected. This finding complies with the findings by Reid (1987) and Rossi-le (1989) that ESL and EFL learners needed realistic contexts and interactive behaviours as a basis for language development and they wanted to involve themselves in the totality of the language learning experiment.

### **7.2.2.3 Duration of Native Speaker Instruction**

The findings emerging from this variable seem conflicting. One important finding was that the students who had received native speaker instruction for three and over three semesters showed significantly fewer visual preferences than did those who had received no native speaker instruction. This is the only learning style variable for which students' preferences declined significantly over time with native speaker instruction. Su (1995), with his empirical evidence, found that "visual learning was significantly related to 'book-based learning' and theory-orientedness" (p. 176). If this is true, it would be tenable to believe that the above-mentioned finding suggests that the learners' preferences for traditional text-based learning approaches would decline the longer they receive native speaker instruction. On the other hand, it would be reasonable to infer that the declining preference for the text-based visual learning as they receive native speaker instruction for a longer duration suggests these learners' desire for changes.

But what changes do these Chinese EFL learners desire? Predictably, the learners who have received native speaker



instruction for a longer duration would have more preferences for auditory, kinesthetic and group styles. This is because recent methodologies or approaches emerging from the Western methodology favours activity-focused and learner-centred teaching styles and these are more likely to be found in native speaking teacher's classes. The influence on learning style preference that native speaking teachers have through the use of communicative approach to language teaching was clearly seen in some previous studies. For example, the results from Melton's (1990) study suggested that the longer period students attended classes taught by native speaking teachers, the more they preferred kinesthetic and auditory learning. Similarly, Hyland's (1994) study with Japanese EFL learners yielded "an important finding" (p. 62), that is, learners' preferences for auditory, kinesthetic and group learning all increased over time with native speaker instruction.

However, the trend emerging from Melton's and Hyland's studies is not fully supported by the present study. In the present study, the findings revealed that the students who received native speaker instruction for 1-2 semesters reported more preferences for auditory learning than did the students who received no native speaker instruction, but this finding was not statistically significant. Additionally, the students who received native speaker instruction for 1-2 semesters showed significantly more preferences for kinesthetic learning than did those who received no native speaker instruction. But these learners' preferences for auditory and kinesthetic styles declined when they received native speaker instruction for three and over three semesters. Apart from the rise and decline in preferences for auditory and kinesthetic learning

over time with native speaker instruction, these learners showed the longer they received native speaker instruction, the more they preferred individual learning. More specifically, the students who received native speaker instruction for the longest duration showed significantly more preferences for individual learning than did the students who received no native speaker instruction. Related to such an increase in preferences for individual learning, there was a decline in preferences for group learning. These findings were in conflict with the findings from both Melton's (1990) and Hyland's (1994) studies.

The differences between Melton's survey and the present study in the findings about auditory, kinesthetic and group learning may result from the macro environments of the two studies. Melton's (1990) study was conducted more than a decade ago. At that time, English learning enjoyed an upsurge among Chinese learners owing to an awareness of its importance for international communication and career advancement. Chinese English learners in schools and universities were enthusiastic about using English to communicate face to face with native speakers as there were more such opportunities in China than ever before. In parallel to the enthusiasm for English study, the College English Test (CET), the nationwide standardized examination directed by the National Ministry of Education (formerly the State Education Commission) started in 1988. This examination attempted for a unified measure of English proficiency on a national scale. At that time, the test was taken on a voluntary basis to give the learners a chance to demonstrate their English proficiency. Most students enjoyed learning English without the pressure of the CET.

Ever since the CET was implemented, the influence the 'magic rod' wielded over EFL learning and teaching was tremendous. Nowadays, colleges and universities compete by placing all their efforts to raise their passing rates on the CET because the scores became a prerequisite in several ways. To students, CET scores are considered for scholarship and academic degree awards. To teachers, their bonuses and professional promotions are closely linked to the passing rates of the CET of their students. Moreover, employers often consider the CET score a basic criterion when they recruit new university graduates. Given such enforcement, the percentage of the students who passed the CET increased steadily from some 10% to over 70% within a decade (Wang, 1997).

In view of the changes along with the gradual impact of the English test, the discrepancies in the profiles of learning style preferences are explicable. In the time of Melton's study, the students had the luxury of enjoying English learning without much pressure from standardized English tests. The passing of CET at that time was not compulsory for an academic degree. Without the pressure of the CET, the learners might consider the practice of spoken English and the use of interactive tasks necessary for successful language learning and they tended to prefer auditory, kinesthetic and group learning more. Nowadays, however, the students are more pressurized by the standardized English test, which is decisive not only for graduation but also for enrollments for their further study. These students indicated preferences for auditory, kinesthetic and group learning styles when they were initially exposed to native speaker instruction. But they reported declining preferences for auditory, kinesthetic and group learning when they

received native speaker instruction for a longer period of time. This phenomenon could be related to their concern about a good performance in examinations. With this concern, they seem to feel more secure in conventional classes where "procedures have focused more on test-taking techniques than cultivating students' communicative competence" (Wang, 1999, p. 48).

The preceding discussion of the research findings from both the present and previous studies indicate that while Chinese students are open to newer methodologies and learning styles, which represent a radical departure from the Chinese traditional approach, they still perceive the text-based, theory-oriented and examination-centred learning valid. Taking into account the emphasis on good performance in the standardized examination in China's school and university environment, it should help to explain why those students who received native speaker instruction for a longer duration demonstrated some divergence from the model of Western learning and teaching styles and why they exhibited greater similarity to traditional Chinese learning style preferences.

### **7.2.3 Interactions between Learner Variables and Their Effects on Learning Style Preferences**

Discussions of the findings in this subsection are organized under three subheadings: interactions between educational level and field of specialization, interactions between field of specialization and duration of native speaker instruction, and interactions between educational level and duration of native

speaker instruction.

#### **7.2.3.1 Interactions between Educational Level and Field of Specialization**

The interaction between educational level and field of specialization revealed statistical significances in the area of visual, tactile, kinesthetic and group learning (Wilks Lambda = .9232,  $p = .0005$ ). Findings in visual learning are worth noting. The results showed that visual preferences declined related to the three educational levels and three subject disciplines. This finding is in conflict with the theory of perceptual modality which postulates that as learners become more mature and as they progress towards higher proficiency in the target language, they develop from psychomotor style to visual style and aural style as well (Barbe and Milone, 1981; Keefe, 1987; Price, 1980). In this light, one would expect the learners to become more visual, as more mature and proficient learners have more exposure to the written word in general; therefore, they would be more comfortable learning visually. But this is not the case in the present study.

The result of Chinese learners' declining visual preferences in successive educational levels is also in conflict with the results of some earlier research with both native American English learners and non-American ESL adult learners. Those results indicated that older students and those at higher levels of English proficiency preferred visual mode (Cherry, 1981; Galbraith & James, 1984; Keefe, 1987; Reid, 1987).

In addition, there seems a conflict in the results from the present study. This is, on the one hand, as noted in Section 7.1.1 (p.127-128), the subjects in the present study preferred visual learning and ranked it the top of the six learning style variables. On the other hand, what was discussed in the preceding paragraph was a declining visual preference related to the three educational levels and three subject disciplines. These findings can be explained by the fact that text-based learning and theory-orientedness are the characteristics of the English classroom, where the traditional grammar-translation approach dominates. Taking this into account, it could be inferred that the respondents are probably self-reporting on the modality they are most comfortable with. The declining preference for visual learning could be inferred as a desire to change, or a desire to expand their range of learning style modalities on the part of the subjects.

Kinesthetic learning was identified as a dominant style and in this domain there was a significant relationship between educational level and field of specialization. Both groups of English majors at the high school and undergraduate levels showed stronger preferences for kinesthetic learning than did their counterparts in science and arts majors. This can be explained by the nature of their academic speciality. Generally speaking, language learners often expect learning through interactive use of and direct experience with the target language. This situation leads to a hypothesis that students who are more proficient and fluent in English would probably desire more opportunities to use English in realistic contexts and for direct experience. But the findings emerging from this study did not direct at this tendency. They

indicated otherwise. For example, the findings showed that English majors' preferences for kinesthetic learning declined as they progressed from high school to the undergraduate level. Likewise, science majors' preferences for kinesthetic learning declined from high school to the undergraduate level, too. But, from the undergraduate level, these learners' preferences for kinesthetic learning increased. Contrary to what was reported by science majors, arts majors' preferences for kinesthetic learning increased as they moved ahead from the high school to the undergraduate level. But from the undergraduate level, these learners' preferences for kinesthetic learning declined. On the whole, the preferences for kinesthetic learning shown by the three subgroups are puzzling and need further exploration for possible reasons.

Undergraduates of all the three subject disciplines reported fewer preferences for group learning than did their counterparts in high school. This decline might be explained by the reason that in a higher academic environment of college and university, individual thinking and reasoning is considered part of the educational discipline. In this environment it is natural to see that the learners' group orientation declines, compared with that in high school. What is more interesting with both science and arts majors is that as they proceed into postgraduate studies and as they progress in English proficiency, their preferences for group learning increase. This indicates their desire for group work and for interactions. Also, the desire for group interaction suggests a need for opportunities in aural and oral communication in the target language.

### **7.2.3.2 Interactions between Field of Specialization and Duration of Native Speaker Instruction**

The interaction between field of specialization and duration of native speaker instruction showed statistical significances in visual, kinesthetic and group learning styles. Science and arts majors demonstrated that the longer they received native speaker instruction, the less they preferred visual learning. It seemed likely that the activity-focused and skill-based teaching styles fundamental to current EFL methodology were more characteristic of native speaking teachers' classes, whereas local EFL instructors favoured traditional methods, which used the grammar-translation approach and relied mainly on visual modality. Given this assumption, it is easy to understand why these learners' preferences for visual learning declined as they received native speaker instruction for a longer period of time.

Contrary to a decline in visual learning by science and arts majors, English majors showed an increase in their preferences for visual learning over time with native speaker instruction. This result seems inexplicable in view that English majors particularly need realistic contexts and interactive experience in language use as a basis for their language development in aural-oral skills. However, the increase in their preferences for visual learning can be explained in part in view of another aspect of the nature of their academic speciality. In university, English majors are required to attend a variety of classes by native speaking instructors. Some classes such as *Oral English* and *Listening Comprehension* are meant to develop and enhance communication skills in English, whereas other classes are specialized modules such as *American Cultural Studies*, *Survey*



*of Literature, Introduction to Linguistics, and Educational Psychology.* As Chinese learners usually prefer a text-based approach in learning (see Scovel, J. 1983; Maley, 1984; Cortazzi and Jin, 1996a, 1996b; Jin and Cortazzi, 2002), naturally in taking these courses, they tend to have heavy reliance on the visual mode such as reading for new information and depending on handouts for revision later on. They also prefer taking notes and outlining notes/handouts to reinforce vocabulary, ideas and new information. This may account for the increased preferences for visual learning.

In kinesthetic learning, the subgroups of science and arts majors who received native speaker instruction for 1-2 semesters revealed similar preferences. These preferences were different from that of their counterparts in English studies. To put it more specific, the science and arts majors who received native speaker instruction for 1-2 semesters preferred kinesthetic learning more than did their counterparts who received no native speaker instruction. But with continuous native speaker instruction, these learners' enthusiasm for kinesthetic learning declined. On the other hand, English majors who received native speaker instruction for 1-2 semesters indicated fewer kinesthetic preferences. As they were taught by native speaking teachers for a longer period of time, their preferences for kinesthetic learning increased. The differences in preferences for kinesthetic learning between science and English majors, and between arts majors and English majors may be attributed to the different requirements in the level of English the subgroups of learners have to meet. Both science and arts majors study English in order to reach a certain proficiency so as to pass CET, the compulsory examination. Given that they are test-driven, they focus on vocabulary and

grammar. To them, the ability to read and write is a premium. Since kinesthetic learning emphasizes learning the target language through experimental use, it is natural they do not find kinesthetic learning appealing. Their concern for speaking and listening is limited to the level of proper pronunciation only. This is why they do not maintain kinesthetic learning. To English majors, the situation is considerably different. Their academic requirements are exacting, emphasizing the development of integrated skills in the target language. These learners' increasing preferences for kinesthetic learning may indicate a desire for more realistic and direct experience in English.

Preferences for group learning declined across the three major groups and the three groups with different durations of native speaker instruction. Except for a moderate rise shown by arts majors who received native speaker instruction for 1-2 semesters, group learning showed a trend of decline over time with native speaker instruction. Janda (1987) speculates that "even as we are persuaded that collaboration is an effective practice, we must keep in mind that traditional social and linguistic behaviours are well entrenched in the minds, behaviours, ... of students" (p. 292). Oxford (1990c) echoes that it is probable that culture, in particular previous educational experience, entered into student learning style preferences for group learning. The entrenchment Janda talks about applies to Chinese EFL learners who are from a traditional educational background, where classes are largely teacher-fronted and where teachers transmit knowledge and students record, memorize and recall what is being transmitted. Their previous educational experience not only under- prepares them for peer

group work, but also reinforces their belief that learning is an earnest and serious individual activity and is highly dependent on oneself. For this reason, they seem to struggle to adapt to group mode of learning.

Alternatively, these learners do not feel comfortable in group learning style due to two possible causes. First, to the learners who grow up with traditional teacher-centred and teacher-directed classes, the shift to learner-centred and learner-directed cooperative group learning could appear to be chaotic. As they take learning seriously, they usually respond well to activities when they realize what the purposes are behind them. In a native speaking teacher's class, small group work is more focused on the meaning or ideas rather than on practicing of something that is previously taught. For this reason, learners are likely to misunderstand group interaction as a meaningless play.

Second, learners accustomed to competitive classrooms and individualistic approaches to learning are likely to have a fear that they do not really 'learn' in peer work. They tend to think that others are unjustly relying on them. Such fear stems from the fact that some of the group members are too passive in group work, leaving the more capable members to shoulder most of the workload.

Third, because learners share a common language, group interaction is most likely to shift to the use of learners' first language. This happens especially when learners encounter difficulties in expressing themselves fully and seeking for greater depth of expression in the target language.

It is strongly felt that additional research is needed to explore how students' sociocultural background and past educational experience contributes to the way they approach and adapt to peer-group learning in EFL classrooms.

#### **7.2.3.3 Interactions between Educational Level and Duration of Native Speaker Instruction**

No significant effect in the variables of learning style preferences was found in the interaction between educational level and duration of native speaker instruction. The effect in group learning was approaching the significant level [ $F(4.673)=3.325$ ,  $p=.0565$ ]. Therefore, this style variable is given a closer examination.

High school English learners demonstrated the most preferences for group learning. Their preferences for group learning remained almost unchanged over time with native speaker instruction. This finding confirms the findings of other research, which indicated that younger learners were usually more active and more favourable to peer-learning.

Undergraduates and postgraduates who received native speaker instruction for 1-2 semesters revealed they were more group oriented than were their counterparts who received no native speaker instruction. Contrary to the increasing preferences for group learning by these two subgroups, their counterparts who received native speaker instruction for three and over three semesters exhibited a sharp decline in preferences for group learning. This

finding suggests that the longer learners receive native speaker instruction, the less group oriented they become.

Tentatively, the increase and decline in these learners' preferences for group learning could possibly be explained by at least the following two reasons. Firstly, group learning provides the opportunities for more aural-oral interaction in the target language. But with limited vocabularies, sentence structures and communication skills, learners may feel that group learning offers little variety. That is why it is difficult for them to maintain the enthusiasm. Secondly, in the traditional Chinese text-based classes where a knowledge dissemination model of teaching dominates, the students in higher educational levels are more likely to embrace individual styles because in these levels of study, there is more linguistic knowledge to handle and a greater emphasis on knowledge imparting rather than communicative competence. This may be the reason why the learners are most likely to prefer individual reflection and prefer to rely more on their own resources rather than working in peers.

#### **7.2.4 Discussions of the Results from Factor Analysis**

As presented in Section 7.1.4 (pp.148-151), the result from the factor analysis based on the present data set is a four-scale solution comprising individual-visual, group-auditory, productive-haptic and explicit explanations/instructions factors. This is perhaps a tentative hypothesis. This hypothetical four-factor solution suggests two aspects different from Reid's model of six distinct perceptual

learning style scales. Firstly, it suggests that visual and tactile learning behaviours, such as reading and making notes, are closely linked to the concept of individual learning. Secondly, it suggests that preferences for auditory learning are inextricably interwoven with group learning activities.

Although it might have been probably taken note that the two links point towards a relationship between social preferences (including group and individual learning) and perceptual preferences (including visual, auditory, tactile and kinesthetic learning), this proposed hypothesis does not mean that the four perceptual learning style scales and two social learning styles are not valid and cannot be used as a measure. It might be plausible to state that in an instrument where only perceptual learning styles are measured without including social preferences or other types of preferences, a distinct factor structure of perceptual style dimensions could be developed. This finding and the speculation related to it needs further empirical data for verification.

### **7.3 Summary**

To sum up, both general and specific findings emerging from the questionnaire survey are as follows.

- 1) A general view of the data on learning style preferences of Chinese EFL learners showed that a majority of the questionnaire respondents reported strong preferences for visual and kinesthetic learning. Individual, tactile, auditory, group learning were less preferred. Of the six learning style

modes, visual learning ranked the top followed by kinesthetic, individual, tactile, auditory. Group learning was reported the least preferred learning style.

2) Significant relationships were identified between learner variables and two dominant perceptual learning styles and four minor learning styles as well. Consistent relationships were evidenced in variables of auditory, visual and kinesthetic styles. Details of these significant findings include:

- a) High school learners preferred auditory and visual learning styles significantly more than did undergraduates and postgraduates.
- b) Arts majors preferred auditory learning more significantly than did science and English majors.
- c) Science and arts majors preferred visual learning more significantly than did English majors.
- d) English majors preferred kinesthetic learning more significantly than did science majors.
- e) Students who received no native speaker instruction preferred visual learning more significantly than did the students who received native speaker instruction for three and above three semesters.
- f) Students who received native speaker instruction for 1-2 semesters preferred kinesthetic learning more significantly than did the students who received no native speaker instruction.
- h) Students who received native speaker instruction for three and over three semesters preferred individual learning

more significantly than did the students who received no native speaker instruction.

3) Specific interactions between learner variables and their effect on perceptual learning styles were determined. Interactions between educational level and field of specialization revealed statistical significances in visual, tactile, kinesthetic and group learning; interaction between field of specialization and duration of native speaker instruction disclosed statistical significances in visual, kinesthetic and group learning styles, whereas interaction between educational level and duration of native speaker instruction revealed that the category of group learning yielded a result very close to the statistically significant level. Specific findings include:

- a) Undergraduate arts students reported significantly more preferences for visual learning than did their counterparts in English studies.
- b) Arts majors at the high school level reported significantly more preferences for visual learning than did their counterparts at the undergraduate level.
- c) Undergraduate science and arts majors reported significantly more preferences for group learning than did English majors at the high school level.
- e) University English majors reported significantly more preferences for group learning than did their counterparts at the high school level.
- f) Undergraduate science, arts and English majors reported



significantly more preferences for group learning than did their counterparts at the high school level, respectively.

g) English majors who received no native speaker instruction were significantly more group oriented than were their counterparts who received native speaker instruction for 1-2 semesters.

h) Undergraduates who received native speaker instruction for 1-2 semesters were less group oriented than were their counterparts who received no native speaker instruction.

Apart from the findings related to the research questions, the result from the factor analysis is presented and the four-factor solution emerging from this analysis is discussed.

The findings yielded from the questionnaire survey, especially the learning style variables with statistical significances were examined and discussed in view of the learning environment, the characteristics of the learners themselves, and the nature of their specialities. The discussions were linked to the findings from the previous studies and also linked to the existing theories.

Finally, it should be pointed out that the discussions and interpretations presented in this chapter are tentative. It is the aim of the following chapter to use the data from the qualitative retrospective study to build on the results and interpretations in the present chapter.

## **CHAPTER EIGHT**

### **RESULTS FROM AND DISCUSSIONS OF QUALITATIVE DATA**

In the preceding chapter, results from the quantitative questionnaire survey and a discussion of the findings are presented. The present chapter focuses on qualitative data of this study. The qualitative component of this study was a retrospective writing activity. This activity was intended to elicit data about how Chinese EFL learners viewed their own learning style preferences and how they viewed the changes of learning style preferences.

One hundred seventeen questionnaire respondents were invited to participate the retrospective writing activity. Qualitative data from it were sought to address the fourth research question stated in Section 1.3 (p.8): What are the factors that play a role in the shaping and change of learners' perceptual learning style preferences?

To facilitate retrospections on the part of the respondents, two specific questions were derived from the aforementioned research question. The sub-questions were used as prompts for the retrospective writing task. They are shown below.

- 1) In your opinion, what factors are influential to your most preferred and least preferred learning styles? Please elaborate with examples.

- 2) Have you perceived any changes in your learning style preferences as you progress in your English study, across successive educational levels, and since you started to attend classes by native speaking instructors? Please elaborate with examples.

Results from the retrospective study and a discussion of the findings are reported in respect to the above two questions as follows.

## **8.1 Results about and Discussions of Influential Factors Related to Learning Style Preferences**

In this subsection, findings about influential factors related to learning style preferences are presented first. A discussion of the findings follows.

### **8.1.1 Identified Factors related to Learning Style Preferences**

A total of 104 writing papers were identified. Responses from the writing activity yielded 14 factors. These factors fell into two general categories: *Learner Factors* and *Non-Learner Factors*. The category of *Learner Factors* included five sub-factors, whereas the category of *Non-Learner Factors* included nine sub-factors. Table 8.1 below shows the 14 identified factors in order of frequency of mention.

Table 8.1

## Identified Factors related to Learning Style Preferences

frequency / percentage (N = 104)	Learner Factor		Non-Learner Factor	
	affect-related	ability-related	socio-cultural	environmental
75 72.1%	personality			prior learning experience
66 63.5%				
63 60.6%			knowledge transmission	
62 59.6%			teacher's leading role	
62 59.6%			grammar-focused learning	
57 54.8%	anxiety		individual thinking	standardized exams
56 53.8%				
52 50%			linguistic- accuracy	
49 47.1%				
35 33.7%				
30 28.8%	equal chances for participation	low aural-oral ability		nature of task
23 22.1%		under-prepared for group learning skills		
8 7.7%				
				teacher's competence and teaching styles

As shown in Table 8.1, *Learner Factors* comprise affect-related and ability-related factors. *Non-Learner Factors* involve socio-cultural and environmental factors. An illustration of these two categories is given as follows.

In the category of *Learner Factor*, five sub-factors indicate the learner's affective attitude and ability in relation to learning style

preferences. Table 8.2 below shows the sub-factors in *Learner Factors* in order of frequency of mention and provides a sample remark by the respondents for each of the sub-factors.

Table 8. 2  
Learner Factors Emerging from the Qualitative Data

frequency / percentage (N = 104)	Learner Factor		Sample Remarks (by respondents)
	affect-related	ability-related	
66 63.5%	personality		I think learning style preferences are closely related to personality. I am an introvert. I like to read, write and think by myself. (R-UE2-69)
49 47.1%	anxiety		Some kinesthetic and group activities are high in stress level because individual attention is increased. (R-UA0-36)
35 33.7%		low aural-oral ability	Group learning is related to language use. But our English is too poor to handle language use in different situations. (R-US0-23)
30 28.8%		under-prepared for group learning skills	I am often at a loss in group work. When we have difference opinions, I get confused. I do not know who is right and who is wrong. We wait for the teacher. (R-UE2-80)
23 22.1%	equal chances for participation		It always happen that in group work the better proficient learners take the leadership and are more active. The rest remain inactive. (R-UA0-39)

*Non-Learner Factors* comprise nine sub-factors. Five of these factors, *knowledge transmission* (60.6%), *teacher's leading role* (59.6%), *grammar-focused learning* (59.6%), *individual thinking* (54.8%), and *linguistic-accuracy* (50%), are seen to be related to socio-cultural influence. The remaining four sub-factors are environmental factors. They are context-related factors. Table 8.3 shows the nine sub-factors in

*Non-Learner Factors* and provides a sample remark by the respondents for each of the sub-factors.

Table 8.3  
Non-Learner Factors Emerging from the Qualitative Data

frequency / percentage (N =104)	Non-Learner Factor		Sample Remark (by respondents)
	socio-cultural	environmental	
75 72.1%		prior learning experience	Previous schooling makes me prone to visual and individual study. I get used to and feel comfortable with these learning styles. (R-UA1-58)
63 60.6%	knowledge transmission		In group work, we only work. It has fun sometimes. But we do not receive knowledge from it. We do not learn. (R-UE2-85)
62 59.6%	teacher's leading role		Group work is always conducted without teacher's presence. Without a teacher's guidance, I see little academic value of it. (R-UA0-49)
62 59.6%	grammar-focused learning		It is important to have a good mastery of grammar. Text-analysis and translation help us a lot in learning English grammar. (R-US0-82)
57 54.8%	individual thinking		Learning requests individual thinking. Group work is distracting. I'd rather be alone, especially before exams. (R-UA0-63)
56 53.8%		standardized exams	I pay a great deal of attention to grammar points in order to pass exams. I am more visual- and text-oriented. (R-US0-21)
52 50%	linguistic-accuracy		Our goal is to master linguistic knowledge in order to gain linguistic accuracy in the exams. To this end, I rely primarily on visual and tactile learning. (R-UA0-64)
49 47.1%		nature of task	The nature of a task determines style orientation. Many activities in our textbooks are not for working with a partner or in groups. (R-UE2-88)
8 7.7%		teacher's competence and teaching styles	Most of our teachers are not fluent English user. To keep themselves on a safer side, their teaching is visual and text oriented. (R-UA1-51)

## **8.1.2 Discussions of Identified Factors**

A discussion of the 14 identified factors is presented in the following two subsections.

### **8.1.2.1 Discussions of *Learner Factors***

Of the five sub-factors in the category of *Learner Factor*, three of them are affect-related. The other two are ability-related. They are looked into individually as follows.

#### **8.1.2.1 (a) *Personality***

The frequency of '*personality*' is the highest (63.5%) in the category of *Learner Factors*. The respondents held the view that personality was related to learning style preferences. Some respondents attributed their preferences for kinesthetic and group learning to their extroverted nature and believed that extroverted people were inclined to be sociable and active in participating in classroom activities. Some others maintained that introverted students were usually quiet and tend to be solitary in nature, thus, they were prone to relying on their own resources.

Two excerpts are provided below<sup>1</sup>.

Some students are extroverted in nature. They are outspoken and sociable. In language learning, these students are equipped to learn

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<sup>1</sup> All excerpts quoted in this chapter are translated from Chinese.

experientially through the spoken medium. They favour aural-oral and group learning. The introverted students tend to be passive in aural-oral and group activities. They are shy and reticent. Generally, they have a learning style preference for individual learning. (R-PA1-91)

A respondent gave an explanation about his conflict with his native speaking instructor.

The teacher himself likes to act and move around the class. He also wants us to demonstrate certain actions in class. I have difficulties adapting to these activities because I am an introvert. (R-UE3-89)

The accounts in the above excerpts reaffirm Ellis' assertion that "the learner's personality... resulted in a general preference to learn in particular ways rather than others" (Ellis, 1989, p.250).

Despite more than half of the respondents voicing their belief in line with Ellis' above-mentioned claim, there was a divergence. Several respondents maintained that it was not personality but some environmental factors that acted on learning styles. One of them wrote:

I am an extrovert by nature. I prefer learning through group activities. During my first semester at college, I spent a lot of time practicing pronunciation and oral English. I enjoyed learning through interactive activities. But I almost failed the test at the end of that semester because most of the questions in the test were grammatical questions. From that time on, I had to sit quietly to learn, to memorize grammar rules and to do a lot of reading and writing exercises. Now I prefer



visual-oriented and individual-based activities more than aural-oral activities. (R-UA0-40)

Another respondent wrote to illustrate in this way.

By nature, I like kinesthetic and group learning in which language ability is acquired through language use. Considering that exams are directed at discrete grammar points, I would say learning through visual and tactile modes and through individual thinking is more effective. (R-US1-24)

The experience recounted by these respondents suggests that there is a conflict between the learning styles which they prefer originally and which they actually adopt. This finding lends support to the assumption that a learner's learning style reflects both culture and nurture (Ellis, 1989; Reid, 1995, 1998). However, the dissonant opinions about the effect that personality has on learning style preferences give rise to a call for further research on the potential link between personality and learning styles preferences.

#### **8.1.2.1(b) Anxiety**

'Anxiety' is perceived as a factor that has an effect on learning style preferences by slightly under half of the respondents (47.1%). Reflected in their writing, anxiety in these learners is 'speech anxiety', which results from their poor aural-oral competence in English and fear of mistakes, derision and negative evaluation. A couple of respondents' remarks are given below.

I do not like public performance even in a group of three to four classmates. In class I get nervous when I know the teacher is going to call up for answers to her questions. I am afraid I may disappoint the teacher or I may answer wrongly and become a laughing stock. I think individual learning is tension-free. (R-UE2-86)

I tend to be nervous when speaking English in a peer group. I feel less stressed when I speak English to the teacher. When I perform well, the teacher encourages me. When I perform badly, the teacher corrects the errors. The peers usually react differently. When I do well, they say I show off. But when I do poorly, they laugh at me. I prefer individual learning. (R-US1-34)

The 'speech anxiety' stated by the respondents could be context-specific in the present study. As mentioned earlier in Section 4.2 (pp.65-67), in China English is learned as a foreign language. Without a natural language environment where varied input, visual and aural, are accessible, the role 'speech anxiety' plays in the formation of learning style preferences is self-evident.

#### **8.1.2.1(c) *Equal Chances for Participation***

The factor, '*equal chances for participation*', is marked by 24 respondents (22.1%). These respondents spelled out their concern that kinesthetic and group activities tended to favour the advanced, extroverted, self-confident, or articulate learners, leaving the rest of the group members who might be introverted or reflective learners inactive. For this reason, they maintained that they would rather study on their own. The excerpt below reflects such a concern.

Those good students who can talk better in English and who are faster in thinking and speaking have much more chances to talk and take part in kinesthetic and group activities. I cannot talk as fluently as they do. So I usually keep quiet. So I don't have as much chance as they have to practice English in class. (R-UE3-89)

#### **8.1.2.1(d) Low Aural-Oral Ability**

In the category of *Learner Factors*, three sub-factors are affect-related. The remaining two sub-factors are ability-related. They are factors '*low aural-oral ability*' and '*under-prepared for group learning skills*'.

The factor '*low aural-oral ability*' is marked by 35 (33.7%) respondents. These respondents held the view that because their aural-oral ability was low, group learning was merely for elementary oral exercise. The oral exercises were confined to simple topics in daily life. Without employing new structures and without using new vocabularies, they felt their oral production ability improved minimally. As a result, they concluded that group learning was boring and lacked any sort of challenge. The excerpt below illustrates the point.

Since we have rather limited vocabularies, teachers always give us topics such as 'My family', 'An accident', 'My favorite teacher', and so on. It is boring to talk about them repeatedly. (R-UE2-70)

#### **8.1.2.1(e) Under-Prepared for Group Learning Skills**

The subfactor '*under-prepared for group learning skills*' is mentioned by 30 respondents (28.8%). Like the previous sub-factor, this factor is directed towards group learning. A respondent gave the following description.

... In group work, I am often at a loss. We follow what teachers ask us to do. We wait for teacher's further instruction to go on. In most cases each of us in the group takes turns to talk a little. Then we don't know what to do next. I think we are lack of skills to carry on group learning.

(R-UA0-42)

Comments related to the ability-related factors indicate a marked dissatisfaction with group learning. These data suggest that restricted proficiency and group learning skills might be correlated with learning style preferences.

#### **8.1.2.2 Discussions of Non-Learner Factors**

The category of *Non-Learner Factor* includes two sub-themes: socio-cultural and environmental factors. Sociocultural factors include five sub-factors. They are '*knowledge transmission*', marked by 63 respondents (60.6%), '*teacher's leading role*' and '*grammar-focused learning*', both marked by 62 respondents (59.6%), '*individual thinking*', marked by 57 respondents (54.8%), and '*linguistic accuracy*', marked by half of the respondents (50%). The following excerpts from the

respondents' writings help demonstrate how these cultural factors take root in many Chinese learners and how these factors have an impact on the learners' learning styles preferences.

#### **8.1.2.2 (f) *Knowledge Transmission***

This sub-factor reflects Chinese learners' understanding of what learning means. Instead of viewing language learning as a process for using knowledge, these learners regarded it as an accumulation of knowledge on grammar, lexicon and rules. Here is one respondent's remark.

We learn English grammar since we started learning English in secondary school. In class, the teacher taught a text in a meticulous way. No stones were unturned in studying a text. I relied heavily on visual and tactile modes because I read a lot and did a lot of translation. I liked to take notes and highlighted important points. I also liked the teacher's keynotes on the chalkboard. (R-UA1-45)

Another respondent offers similar comments:

... I wonder what I can learn from these activities [kinesthetic and group activities]. Teachers say I learn to speak English through these activities. I do speak some English. But what do I take home? I don't learn grammar. I have no notes in my books. I learn no knowledge... Our academic knowledge would not be increased in the way it would be if we read more texts and listen to lectures. (R-UA1-37)

### **8.1.2.2 (g) Teacher's Leading Role**

'Teacher's leading role' is an interesting factor to note. One respondent made his comments on the downside of group work in class. His comments focused on the change of a teacher's role.

When I am confused by something, the different opinions in group members get me more confused. Sometimes in group work, I change my mind and agree with others. But in the end, what I thought before is right... I am in school to learn from an authoritative teacher. In a peer group no one knows more about the subject matter than any one else.

(R-US0-21)

In a similar vein, a respondent described her experience:

... sometimes my English teacher gives us tasks and makes us divided into groups. She then leans on the table to observe and sometimes does her own stuff. She does not teach us anything! But She is supposed to teach.

(R-UA0-41)

As shown in the above two excerpts, in recounting their own experiences, the respondents convey their view that a teacher in class should assume a role of passing on knowledge rather than otherwise. The remarks also indicate that these learners feel uprooted as their classes stray away from the expected authoritarian teaching styles.

#### **8.1.2.2 (h) Grammar-Focused Learning**

The factor '*grammar-focused learning*' receives a high frequency of mention (59.6%). Remarks below represent the viewpoints of the respondents.

I believe grammatical knowledge is indispensable for laying a good foundation for my future studies. So I do a lot of grammar exercises such as combining simple sentences into compound sentences, changing sentences from one type to another. These exercises depend on tactile and individual learning styles. I find auditory and group learning of limited help in my study. (R-US0-25)

Grammar is fundamental for successful learning. In order to have a good mastery of grammatical knowledge, we need to be theory-oriented. Since our attention is on formal grammar description and linguistic accuracy, we are inclined to visual and individual learning through reading and writing. (R-US1-32)

The above-mentioned inclination reported by the respondents corroborates the findings of Su (1995). Su's study demonstrated that visual learning was related to "book-based learning and theory-orientedness" (p.176).

#### **8.1.2.2 (i) Linguistic Accuracy**

Grammar-focused learning aims at linguistic accuracy. As a result, the factor '*linguistic accuracy*' is marked by half of the respondents. This result lends support to the finding that in a formal learning setting, linguistic accuracy is often a major concern and

students are more visual-oriented (Ellis, 1992; Reid, 1987; Su, 1995). Here is an excerpt by one respondent.

In our English study, accuracy is the main concern. We do lots of grammar exercises, for example, multiple choices on tense and articles 'the' and 'a'. These questions often appear in exams. As they are tested, we have to make sure we can provide correct answers.

(R-US1-9)

#### **8.1.2.2 (j) *Individual Thinking***

The factor '*individual thinking*' is marked by 54.8% of the respondents. Such a finding could be explained in view the learning context. In the formal education environment in China where text-based learning and theory-oriented teaching are pervasive, individual thinking and restructuring is encouraged. To some extent, the requirement of individual thinking and reasoning is part of the school discipline. The present finding of individual thinking as a factor that influences the learner's learning style preferences is in line with the findings of Su (1995). His data produced a significant relationship between the value of formal education and individual learning.

#### **8.1.2.2 (k) *Prior Learning Experience***

The other sub-theme under *Non-Learner Factor* comprises four environmental factors. These factors are context-related. Of the four sub-factors, '*prior learning experience*' ranks the highest in frequency. This finding confirms the assertion of a few researchers that learning



styles are influenced by such factors as subject matter, context, age, and prior experience (Oxford et al, 1992; Reid, 1987, Willing, 1988).

As mentioned earlier, the type of instruction that Chinese learners receive is form-focused and authority-centred. In this environment, learners have experienced continuous academic success and have flourished independently and analytically. As a consequence, they have developed primarily visual and individual learning styles through consistent lectures, whole-class discussion and individual seat work. Their previous educational experiences may cause them to expect and require similar experiences in English learning.

The following excerpts highlight this viewpoint.

In our previous school years, we were taught by the traditional approach. I have got used to it and I am comfortable with it.  
(R-US0-21)

We are taught to learn with thinking. The old saying goes: 'Learning without thought brings ensnarement'. Our English learning requires analytical and independent ability to tackle reading and writing tasks. Consequently, we are not equipped to learn experientially through aural-oral and group mediums.  
(R-PS1-90)

To us, individualized classroom tasks such as listening to a grammar presentation, taking-notes and practicing a new structure are like a routine. We are comfortable with them. I think individual learning style is ingrained and affirmed by years of learning experiences. Any new method, for example, group learning, makes us behave in an unaccustomed way.  
(R-UA0-44)

#### **8.1.2.2 (l) *Standardized Examination***

The sub-factor '*standardized examination*' received a high percentage of mention (53.8%), too. Two respondents' excerpts are given below.

In order to pass the exams that test our linguistic ability only, we are engaged primarily in reading and writing exercises. Before exams, we do a lot of diagnosing papers. We rely on visual, analytical and individual learning. Kinesthetic and group learning does not fit the exam-oriented educational environment. (R-UE2-69)

The grammar-based exam is one of the determinant factors that influence our learning style preferences. We learn in order to pass the exams. I remember in high school time I always got the highest scores in class. But my aural-oral English was poor. After entering the university, I thought I could spend some time in improving my oral English. I was wrong. The CET Band IV was even more challenging. After passing the CET Band IV, I challenged CET Band VI. Now I am a postgraduate, I am no longer pressed by any standardized English exams. I think it is high time for me to improve my oral English. To improve oral English, I think I need to adopt a new approach. The experiential approach will draw upon kinesthetic, auditory and group learning styles rather than visual and individual learning. (by R-PS0-94)

#### **8.1.2.2 (m) *Nature of Task***

*Nature of task* is another interesting factor to note. It is closely related to group learning activities. An example by a respondent is illustrative.

Sometimes we are asked to work with a partner or in groups to complete a cloze passage by filling in the blanks. In my opinion, this kind of exercise could be easily and efficiently completed by individual work. In group work, we often let the most able member complete the task quickly while the rest of us wait for the correct answers. (by R-UA0-50)

Another example brings alive a common scene when group learning is less fulfilling due to the nature of task.

... once we were given a topic 'an accident' and were asked to work in groups to share our individual stories. In group, each of us talked little and we soon finished our turns. .... I knew we cheated because we put the least effort and made do with the least possible talk. But, who listened when one of us talks? (R-UA0-39)

The excerpt by respondent R-UA0-50 describes a task that requires analytical ability rather than negotiation of meaning from multiple perspectives. The task in the second example described by respondent R-UA0-39 is intentionally open-ended to encourage group-members' participation. But this open-ended task requires neither listening focus from other group members nor a concrete product assigned as an outcome.

Another respondent relates a group work experience pertinent to the nature of a task.

... Occasionally group work works! For example, in a conversation class by an American teacher last week, the topic was 'prejudice'. The prompt given by the teacher was that a Chinese university girl-student

fell in love with a foreigner working in China. But the courtship was not approved by the girl's parents. The teacher made us discuss in group about what potential prejudices it could occur in such a case and our opinions on them. Both the group work and follow-up class presentation turned out an interesting experience. Several assumptions arose: the foreigner was black, he was poor, or he had lower academic degree than the girl did.... It was a good task because it lent itself to the 'meeting of minds'. It not only allowed each student to contribute in the process but also stimulated a specific and viable final product.

(by R-UA1-38)

The above three excerpts elaborate how the nature of a task can affect the learner's learning style preferences.

#### **8.1.2.2 (n) *Teacher's Competence and Teaching Styles***

The factor '*teacher's competence and teaching styles*' is mentioned by only eight respondents (7.7%). This result does not fit in with the assertion of Cornett (1983) who claims that a teacher's style could have a great impact on students' learning styles preferences. The following excerpt may be illustrative.

I don't think we are affected by any teacher's particular style. If a teacher relies predominantly on a single teaching mode, for example, only to lecture based on texts, I do not like it. Some foreign teachers use group work all the time, I don't like it, either. Teachers' styles do not affect our learning styles.

(R-PA1-92)

## **8.2 Results about and Discussions of Changes in Learning Style Preferences**

In parallel to the preceding subsection which looks into responses to the first sub-question in the retrospective writing activity, this section presents and discusses the findings yielded from the subjects' responses to the second sub-question in the writing activity. This second question was intended to explore if there were any changes taken place in the learners' learning style preferences as they progressed in their English study through successive educational levels and with duration of native speaker instruction. In the following sections, results of this exploration are presented first and followed by a discussion of the findings.

### **8.2.1 Perceived Changes in Learning Style Preferences**

Among the 104 respondents responding to the second sub-question, 38 of them (36.6%) indicated that there were no changes in their learning style preferences. However, the remaining 66 respondents (63.5%) reported they experienced changes in their learning style preferences. Data reporting the change of learning styles were analyzed and categorized. Results suggested that there were five common areas of the changes. The findings are presented in Table 8.4 below.

Table 8.4 Perceived Changes of Learning Style Preferences

No.	Self-Perceived Change	Frequency (n = 66)	Percentage
1	becoming less group-oriented and more individual learning as moving towards higher educational level	55	75.1%
2	becoming more auditory-oriented as English proficiency improves	42	63.6%
3	becoming more individual-oriented after receiving native speaker instruction for one or two semesters	41	39.4%
4	becoming less auditory-oriented as English proficiency improves	34	32.7%
5	becoming less kinesthetic after entering university from high school	34	32.7%

Using excerpts of the respondents, a scrutiny of the results in the above table and a discussion of the results are provided below.

### 8.2.2 Discussions of Changes in Learning style Preferences

Ranked at the top of the list is the undergraduates' tendency towards individual learning. This result concurs with the findings from the questionnaire survey. The following excerpts may help to understand the reasons for the changes.

Studying in a college is very competitive. In this environment, diligence of working long hours individually is a highly regarded virtue. Individual learning is by all means encouraged. (R-UE3-87)

In university, we learn by teacher's lectures and by completing reading and writing assignments that require considerable individual

work on restructuring and analysing. Learning in this advanced level is a solitary, highly personal and creative act. I prefer to be left on my own resources rather than to engage in group work. (R-PS1-100)

Seeking peers' cooperation was something we preferred to do in secondary schools. In a highly competitive university context, sharing and constructing knowledge with peers rarely happens. (R-UA0-61)

It is evident that the reasons given by the respondents also account for the changes into fewer preferences for kinesthetic learning after studying in a university. This change is reported by 34 respondents (32.7%) in their writings.

A second area of the change perceived by 42 respondents (63.6%) is a stronger inclination towards auditory learning along with improvement of English. The following excerpt provides an example:

I used to prefer learning through visual stimulation. After gaining some proficiency, I tended to become auditory-oriented. I rely more on auditory input and feel I remember better when I hear English spoken. (R-UE2-84)

A respondent recounts her own learning experience as follows:

At the beginning stage, learning through listening was almost impossible. So we depended on visual stimulations. For example, I didn't know what 'learn' was on hearing it. I needed to see the word and spell the word on paper or in my mind. So was the way we learned English sentences. We examined the sentence patterns by dissembling them into parts. Along with an improvement in English

level, I changed. I came to prefer to hear English rather than to read English. I remember better the auditory input than the visual input. I like to speak English with others more. (R-UA1-66)

This result is in line with the findings from other studies which indicate that more proficient learners demonstrate a lower tendency towards visual learning than do lower proficient learners (Reid, 1987; Melton, 1990; Djiwandono, 1999).

However, a seemingly contradictory result emerges. Approximately one-third of the respondents (34%) reported a declining preference for auditory learning as they progressed in English study and made improvement in English proficiency. A closer examination of these data reveals the complexity.

These learners stated that, to a certain extent, they had experienced a kind of slump in their aural-oral English. This setback caused them to become less and less auditory-oriented and return to embrace visual and individual learning. An account by a respondent may be useful to illustrate the point.

In the second year of my undergraduate study, I was more auditory-oriented. It worked well and I was quite at ease with auditory stimulation. After a semester or so, I found my English slump in aural-oral ability. I hardly made progress. Even worse, I felt my reading and writing ability began to sag. I attributed such a return to my heavy reliance on learning through interactive activities. These activities helped to enhance abilities for listening, speaking and responding correctly in communication. But our communication was at a very



elementary level. We only managed with some simple sentences and vocabularies. I always talked the same thing to different partners in group activities. In such learning, I didn't think I kept progressing. I believe reading and writing activities is much different. In them, we are able to come across a lot of new and useful expressions and structures. That is more advanced learning. Now I am less and less auditory-oriented. (R-US0-19)

It is obvious from the excerpt above that the learner is concerned about achievement in linguistic knowledge. This concern reflects the fact that when entering into the third and fourth years in university, students are required to do more reading and writing in ESP and EAP and so on. This might account for their declining auditory-orientation.

Another area of the changes reported by 41 respondents (39.4%) is their growing preference for individual learning after receiving native speaker's instruction for one to two semesters. The respondents elaborated the reasons as follows.

Native speaking teachers' classes provide opportunities for experiential learning such as kinesthetic and group learning. We were unaccustomed to these activities. (R-UE2-86)

In the native speaking teacher's class, the teacher does not teach us any knowledge. He lets us talk in groups. His class is fun and lively. But in group work, we only talk with limited English. We don't learn new grammar. We don't have a deeper level of learning. (R-US1-60)

This finding is congruent with the finding from the quantitative data. In understanding such a change, the previous discussion on a declining tendency towards auditory learning as learners progress in English proficiency seems pertinent.

### 8.3 Summary

The retrospective writing activity addressed two areas of concern: factors influential to learning style preferences and changes in learners' learning style preferences.

The exploration of the factors that influence the shaping of learning style preferences yielded a total of 14 factors. These factors were classified into *Learner Factors* and *Non-Learner Factors*. The five factors in *Learner Factors* were sub-classified into affect-related and ability-related factors, whereas the nine factors in *Non-Learner Factor* were sub-classified into socio-cultural and environmental factors.

The most influential factors reported were socio-cultural factors. They included factors: *knowledge transmission, teacher's leading role, grammar-focused learning, linguistic accuracy, and individual thinking*. All these factors received high frequency of mention. This finding confirms the postulation in the theory of learning styles that culture affects the learner's learning style preferences (Hofstede, 1986; Oxford, et al, 1992; Oxford Anderson, 1995; Reid, 1987; Willing, 1988).

Oxford et al (1992), based on their study, argue that culture is not the single determinant in learning styles and many other factors intervene. In the present study, environmental factors appear evident, too. In this area, the sub-factor '*prior learning experience*' received the highest frequency level (72.1%). Moreover, the sub-factor *standardized examination* also received a high frequency level (53.8%). Still more, nearly half of the respondents (47.1%) marked '*nature of task*' as an influential factor. The frequency levels of these factors could be perceived as an indication that these factors played an important role in the shaping of a learner's learning style preferences.

The results of identified factors also gave insights into the role of several other factors in relation to learning style preferences. In particular, affective factors such as '*personality*' (63.5%), '*anxiety*' (47.1%) provided insights into the role that a learner's psychological condition played on the shaping of learning style preferences. To date, only a few research studies have investigated the correlation between learners' learning styles and their levels of foreign language anxiety (Bailey et al, 1999; Zhang, 2001). Likewise, the role that '*anxiety*' plays in learning style preferences has received scant attention. The findings from the present study in this aspect merit further exploration.

The mention of ability-related factors, '*low aural-oral ability*' (33.7%) and '*under-prepared for group learning skills*' (28.8%), suggested that a learner's possession of certain ability and skills played a role in their preferences on specific learning styles rather than others. Further explorations from both quantitative and qualitative dimensions are needed.

Learning style alterations in five common areas were identified. These findings corroborated those from the questionnaire survey. In addition, it is noticeable that group learning appeared in an overwhelming majority of the respondents' comments about the change of learning style preferences. In general, reported changes indicated that while a preference shift towards more interactive and communicative group learning was present, the inclination towards more traditional individual learning was more evident.

## **CHAPTER NINE**

### **SUMMARY, IMPLICATIONS AND RECOMMENDATIONS**

The purpose of this final chapter is to summarize the results presented in the previous chapters, to discuss the implications of the findings, to delineate the limitations of the study, and to state recommendations for research in future. This chapter starts by a brief review of the purposes and design of the research. It goes on to summarize the findings of the study. This is followed by a discussion of the general contributions of the study, implications of the findings, and limitations of the study. It finally proposes suggestions for future research.

#### **9.1 Review of the Research Purposes and Research Design**

This research originates from an interest in knowing more about how Chinese EFL learners learn English in their home environment. It looks at the area of individual differences and focuses on learning style preferences for individuals in-taking knowledge (auditory, visual, kinesthetic, tactile) as well as about how learners prefer to learn (individually, in groups). The aim of the study was to identify language learning styles of Chinese EFL learners and determine possible relationships and interactions between learner variables and learning style preferences. Factors that influence the shaping and change of style preferences were also explored.

This study was a cross-sectional survey. It adopted a combined-method approach, involving a quantitative questionnaire survey and a qualitative retrospective writing activity. In this research design, the former enabled the study to reveal straightforward patterns of learning style preferences of the respondents, and the latter elicited useful information on the roles of learners' cultural and environmental contexts that played in the shaping and changes of learning style preferences. Results of this study are summarized in the following section.

## **9.2 Summary of the Findings**

A summary of the major findings from the quantitative questionnaire survey and the qualitative retrospective study is presented in the two subsections below.

### **9.2.1 Summary of the Findings from the Questionnaire Survey**

Quantitative data from the study were explored by descriptive analysis to obtain mean differences for learning style preferences, by correlational analysis to identify relationships between and among variables, and by factor analysis to explore the common factors that underlie the data reported by the group of learners. From these methods of analysis, findings were brought out in three aspects. They are listed as follows.

## 1) Profile of learning style preferences of the sample

An overall view of the data revealed that this sample of Chinese EFL learners strongly preferred visual and kinesthetic learning styles and they reported moderate preferences for the remaining four styles. Of the six perceptual learning style modes, visual learning ranked top followed by kinesthetic, individual, tactile and auditory learning in sequence. Group learning was the least preferred learning style by Chinese EFL learners. The profile emerging from the study partially confirmed those from earlier studies into Chinese EFL learners by Melton (1990), Su (1995) and Zhang (2001). Consistent findings across the four profiles were, first, kinesthetic learning was a major learning style, and secondly, group learning was the least preferred learning style by Chinese learners. These findings answer the first research question.

## 2) Changes of learning style preferences

Correlational analysis revealed that adult learners' learning style preferences change over time.

In examining the relationships between learner variables and learning style variables, significant differences were identified mainly in areas of auditory, visual, kinesthetic, individual and group learning. Most of these findings indicated learning style differences between and among subgroups of a specific learner variable under investigation. Major findings included:

- ▶ that there was a continuous decrease in preferences for auditory and visual learning as learners went through successive educational levels;
- ▶ that there were significant differences for group learning between more group-oriented high school learners and less group-oriented undergraduates and less group-oriented postgraduates;
- ▶ that in visual and individual learning, there were significant differences between learners who received no native speaker instruction and learners who received native speaker instruction for more than three semesters; and
- ▶ that learners who received native speaker instruction for 1-2 semesters showed significantly more preferences for kinesthetic learning than did those who received no native speaker instruction.

These findings provide answers to the second research question.

Correlational analysis provides a tool to explore interactions between learner variables and their effect on learning style preferences. Statistical significances were identified and most of these significant differences indicated changes in learning style preferences, in particular in visual and group learning. Major findings were, for example:

- ▶ that arts majors' preferences for visual learning declined as they went through successive educational levels; and



► that, for group learning, undergraduate science, arts and English majors showed significantly more preferences than their counterparts in high schools; undergraduates who received native speaker instruction for 1-2 semesters were less group-oriented than those who received no native speaker instructions; and English majors who received no native speaker instruction were more group-oriented than their counterparts who received native speaker instructions for 1-2 semesters.

These findings provide answers to the third research question.

The correlations emerging from the statistical analysis do not imply causal relationships between the learner variables and learning style variables under analysis. Explanations to these correlations emerge from the respondents' answers to the questions in the retrospective writing activity. Data from this activity provided much useful information which helped clarify the identified correlations. I return to this issue in the following subsection.

### 3) A tentative hypothesis for perceptual learning styles

The factor analysis based on the present data set produced a four-scale solution for perceptual and social learning style dimensions. This finding suggested a linkage between visual and tactile learning and their close link with individual learning. This solution also indicated a link between auditory and group learning.

### **9.2.2 Summary of the Findings from the Retrospective Writing Activity**

A good understanding of the findings from the quantitative questionnaire survey was made possible by synthesizing the qualitative data from the retrospective writing activity. These data helped to unravel several factors that influenced the shaping and change of learning style preferences. Three major findings are listed below.

- 1) Social and cultural impact is a major contributor to the shaping of learner's learning style preferences.

Findings suggested that a majority of these learners tended to favor individual learning and reject group learning. This finding reflected the impact of the learner's cultural beliefs. For example, knowledge-based learning involved learning of theories and rules which, to some extent, required individual thinking, reasoning and restructuring. This accounted for the learners' preferences for individual learning. Another example was that a teacher was always regarded as a knowledgeable person and expected to generate and transfer knowledge. Therefore, she/he was always considered to be in the centre of a class and a person from whom students learn. This gave an explanation as to why the learners resisted group learning. Moreover, the strong preferences for visual learning were reported as closely related to grammar-focused learning and linguistic accuracy. These two aspects were in the heart of evaluation of English learning and teaching in an EFL setting.

- 2) Educational environment is a major factor that shapes and changes learners' priority in learning style preferences.

These learners' consistent preferences for individual learning not only reflected how cultural values interacted with learners' learning style preferences, but also indicated how learners learned from and interacted with the environment. One typical feature of an EFL environment in China was that learners did not have to develop listening and speaking skills to cope with daily life and academic work. The primary attention that learners gave to reading and writing rather than listening and speaking could explain why they preferred individual and visual learning rather than auditory and group learning. Some learners, as they stated, understood the importance of learning English in a communicative way, but the English curriculum that fitted to an examination-oriented educational system did not provide many opportunities for them to learn communicatively.

Prior learning experience was another environmental factor. These EFL learners have been educated for years in classes where instruction is delivered in a teacher-fronted mode in which a teacher transmits knowledge and students record, memorize and later recall the knowledge. Because these learners seldom experienced anything more than a traditional teaching approach, they tended to take it for granted and thought that it was the most comfortable, the easiest, and best way to learn. This might make them resist new types of teaching approaches.

While learning environment was reported to shape the learner's learning styles, it was also reported to determine the changes in the learner's learning style preferences. In the qualitative data, learners' descriptions of adapting their learning style preferences to environment were sufficient. A typical example was that the learner's enthusiasm for auditory learning faded fast due to its limited value for improving examination scores. But when the immediate environment changed, for example, after the key examination such as CET was taken and when English was no longer a compulsory subject but became an elective at the postgraduate level, the learners tended to turn to auditory learning in order to enhance improvement for the underdeveloped aural-oral skills.

- 3) Some affective and ability-related factors also play a role in learners' learning style preferences.

Affective and ability-related factors were reported to play a role in the shaping and change of learner's learning style preferences. 'Personality', mentioned in high frequency by the respondents, was apparently a key factor to determine if learner tended to like or dislike group learning. Ability-related factors such as '*low aural-oral competence*' and '*under-preparedness for group learning*' were also reported as reasons for learners' dispreferences for group learning and auditory learning. Some learners suggested the potential to embrace group and auditory learning in an advanced level of English study when they would have a larger linguistic repertoire, including vocabulary and sentence structures, and when they would have more skills for communication.

### **9.3 General Contributions of the Study**

There are three main contributions to research from this study.

- 1) Findings from this study provide an awareness of individual variations within a cultural group of learners. These findings highlight that it is not enough to only know cultural differences in learning style preferences. Apart from culture-related style differences, there are many within-group differences. This awareness is important in that it draws attention to the dangers of stereotyping learners in a given culture. At the same time, it stresses the need of providing diverse instruction to individuals within cultural groups.
- 2) Findings from this study provide an awareness of style changes in adult learners. A multiplicity of factors including social-cultural influence, learners' affective and ability conditions and environmental factors interacted with one another and were identified to account for the changes. Environmental factors were found to place major demands upon learners for adaptations in learning style preferences. They included adaptations related to instrumental motivation, affective orientation, and other factors.
- 3) Findings from this study have generated several fundamental concerns in relation to certain modes of learning, especially for group learning. These concerns lead to a number of

pedagogical implications, specifically for implementing group learning in an EFL setting.

## **9.4 Implications of the Findings**

The findings from this study have some important implications. These implications are synthesized in this section incorporating three perspectives: theory, practice and methodology.

### **9.4.1 Theoretical Implications**

Theoretical implications of this study are related primarily to the findings about adaptations of learning styles. Findings revealed that changes and adaptations in learning styles did occur in adult learners. These changes took place to allow learners to adapt to their learning environment and permit the survival of the learners in the environment. This perspective is considered to be important in the theory of learning styles.

If adult learning styles are adaptable and modifiable and if adaptations, as suggested in the findings of this study, take place to align with the immediate and surrounding environment, educators should try to understand their learners' preferred ways of learning by not only exploring the learners' cultural beliefs but also investigating their specific learning environment. Knowledge of these two aspects will enable educators to diminish the likelihood of stereotyping learners by their cultural background. Numerous factors influencing the shaping

and change of learning style preferences were identified in this study. The tentative classification of these factors into *learner factors* and *non-learner factors* is insightful to understand the causes and direction of the changes.

Another theoretical implication could be drawn from the findings. The four-scale solution emerging from the factor analysis suggested possible relationships between group and auditory learning and between visual and individual learning. In other words, it suggested a link between social learning preferences (group and individual learning) and perceptual learning preferences (auditory, visual, kinesthetic and tactile learning). Since this solution is preliminary and is based on one dataset, a claim of valid interpretation would be hasty and weak. If empirical findings from further studies in similar contexts are found to be consistent with it, this tentative hypothesis may be seen to be confirmative and to provide a better understanding of the interrelations of the style variables in the present instrument.

#### **9.4.2 Practical Implications**

A number of educational implications could be drawn from the findings. These implications are mainly concerned with how learners and teachers could use the findings to promote learning and teaching efficiency.

Firstly, since the findings indicated strong preferences for visual and kinesthetic learning, teachers and material writers could plan and

include instructional activities that require visual and experiential involvement. For example, teachers may let students have multi-media presentations on certain issues based on previous research and discussions. Teachers may also encourage students to conduct field trips to real places and to hold interviews with real people and then to write follow-up reports about these activities. In this way, the traditional lecture-mode class would be enriched by the addition of the kinesthetic and tactile approaches.

Secondly, comparisons of the differences in learning style preferences among learners at varied educational levels and in different subject disciplines are instructive. These comparisons provide teachers with information about how different learners prefer to learn. For example, according to the research results, undergraduate arts students prefer more intensive visual input than their counterparts majoring in English do. With this knowledge, teachers could purposefully provide undergraduate arts students with opportunities to implement this most preferred style first and then let them experiment with other styles. In so doing, teachers could help students utilize their most preferred learning styles fully and strengthen their weaker learning styles as well.

Thirdly, the respondents did not express a strong preference for group learning. In general, they tended to persist in individual learning. The qualitative data suggested a few fundamental points that could be attributed to these learners' resistance to group learning. The first point was 'nature of task' in group learning activities. This point implied a few concerns on the part of learners. These concerns included



whether a task could offer an opportunity to construct shared understanding and knowledge, had an apparent connection to the ongoing curricula and was at the right linguistic level, and required mental efforts of reasoning and thinking and would be finally assessed. Drawn from these concerns, instructional implications could consider to design tasks in group learning to be genuinely interesting, with explicit objectives tied to lesson goals, to invite multiple responses and further discussions, to be followed by a whole class processing so as to clarify what is learnt and accomplished, and include follow-up assignments to be assessed.

The second point raised was 'underpreparedness for group learning skills'. It is worth pointing out that the underpreparedness for group learning ability in students implies a lack of training and guidance on the part of the teacher. That is, the teacher holds some responsibility for this underpreparedness. For one thing, teachers in China often adopt a teacher-centered approach in which students do not have much chance to work together in groups. This may account for why these learners' ability for learning in groups was underdeveloped. Sometimes, a teacher may change his/her methods to a more learner-centered approach, but students need time to adjust. A pedagogical implication could be that teachers should become aware that it is not sufficient to simply offer opportunities for discussion and problem solving in group mode. For group learning to succeed, teachers need to provide guidance to learners with not only linguistic but also social skills which can facilitate group work and enhance communication. In implementing this mode of learning, teachers should provide adequate instructions on how to go about the

task, give specific time frames and offer positive feedback throughout the process.

The third point voiced by the respondents was concerned with accuracy in language use. Peers in group learning may provide poor models for each other and inadequate knowledge of the language may result in either inappropriate or insufficient feedback. A pedagogical implication, in this case, could be that teachers should have adequate preparation beforehand and try to anticipate potential problems. During group work, teachers should circulate, listen to, offer academic and affective support, and take note of general problems to address to the whole class in a later stage. In addition, teachers need to help students to understand that certain errors are natural when learners are focused on making themselves understood, and that there are appropriate and inappropriate times for and means of correcting errors.

The afore-mentioned three concerns are among a number of reasons why the learners do not prefer group learning. Discussions of the three concerns could serve as tentative guidelines for implementing group learning activities. Implications for implementing group learning are seen to be important because in this study, despite an indication of disfavour for group learning, learners in the retrospective writing activity confirmed the positive role that group learning had in learning English as a foreign language. This finding corroborates other findings about the recognition of the merits and necessity of using group learning to improve Chinese EFL learners'

aural-oral ability (see Li and Wang, 1992; Liang et al, 1998; Ma, 2000; Song, 2000; Wu, 2001).

A final practical implication is that assessing learning styles is not to label and group students into pigeonholes. Rather it provides avenues to foster intellectual growth on the part of learners. Chinese EFL learners are generally interested in the metacognitive level of learning and they are keen to discover their own English learning process (Ma, 1996). The research findings obtained from this study could be shared with the learners involved and learners in a similar context. This should be beneficial to raise the learner's awareness of a broad range of style options, to assist them to understand various styles, and to develop and expand their own learning style repertoires.

#### **9.4.3 Methodological Implications**

Methodologically, three implications could be drawn. First, this study employed MANOVA to identify the interactions of learner variables and their effect on learning styles. The findings from the analysis revealed that this multi-variance technique was much more powerful than the ANOVA technique as the latter could only show the relationships between a single learner variable and learning styles, while the former was able to go beyond that.

Secondly, the present study collected quantitative data through a questionnaire survey and qualitative data by means of a retrospective writing activity. The results from the quantitative analysis are the primary focus. Qualitative data were used to illuminate and

complement the quantitative data. It turned out that the qualitative data were revealing and useful in offering insights into how cultural and contextual factors affected learners' learning style preferences. They also provided access to a more profound view of the learners about how interactions of learner variables acted on style preferences. This information helps greatly in the interpretation and verification of the results from the quantitative data. The methodological implication could be that a combination of quantitative and qualitative research methods is much more effective than a single method.

Thirdly, as this study greatly benefits from the use of a retrospective writing activity, it has implications in that this research method could be used in more research studies. In searching the literature, only a few studies (Oxford, et al, 1992; Kinsella, 1996; Rao, 2002) have been reported using this method. It is highly desirable to see more and wider use of this mode of data collection to further uncover the factors and patterns that affect the shaping and change of learning style preferences.

## **9.5 Limitations of the Present Study**

There are several inherent limitations in the present study.

Firstly, limitations are shown in the method of sampling. One limitation was that the sample of the study was drawn from high schools and universities in one large city in China. With this restricted geographical coverage, it is difficult to generalize the results to all the

students across the country. Secondly, another limitation related to the sample is the categorization of learner variables. The variable of field of specialization seemed too general. A breakdown into separate subcategories would be better. For example, students in science study could be further classified into engineering, economics, and computer science, while arts majors could be further grouped into humanities and business. Thirdly, limitations also existed in the data collection procedures. The findings of the present study were mainly gleaned from the respondents' answers to the questionnaire survey and from the respondents' replies to the retrospective writing task. Both sets were self-reports in which respondents might not necessarily report their preferences and viewpoints accurately. It would be more useful as well as more advantageous if data from other sources, for example, from teachers regarding their perceptions of Chinese EFL learners' learning style preference, could be included. This form of data triangulation would serve to validate the accuracy of the informants' self-reports.

## **9.6 Suggestions for Further Research**

It is proposed that further investigations can be undertaken in the following two domains.

### **9.6.1 Suggested Research at a Macro-Level**

At the macro-level, further studies could address research into learning style preferences in general.

1. The same study could be replicated with even larger samples that involve educational institutions at secondary and tertiary levels in a wider geographical area rather than in only one city. The findings could better present how Chinese learners learn English in China. The same study could also be conducted with tertiary English majors specifically. The findings could uncover how advanced English learners prefer to learn English as a foreign language in China. Likewise, the same study could be conducted with secondary and university students who major in other subjects other than English. By carrying out a series of studies, hopefully, a more comprehensive description of how Chinese EFL learners learn English in their home country could be produced.
2. If possible, studies could also be conducted in an ESL context. The results could be compared with those from the studies undertaken in an EFL setting. With these data, information on cultural and environmental influences on learners' learning style preferences will become available. This information would be useful to construct and refine second/foreign language learning acquisition theories.
3. The present study is a cross-sectional study. In future research, longitudinal data are expected to examine the patterns of changes of learning style preferences in certain learner variables. For example, to reveal the learning style patterns of students who receive native speaker instruction, subjects could be asked to respond to the same questionnaire at the points when they do

not receive any native speaker instruction, after they receive native speaker instruction for one year, and after they receive native speaker instruction for two years. A longitudinal research design would enable sound results about how learners' learning styles preferences change over time and how learners adapt their styles to environmental demands.

4. This study benefited from the employment of a combined-method design. Future research could be expected to adopt such a triangulation approach. More modes of triangulation could be included such as triangulation in data collection, in data analysis, and even at more stages of a research process.
5. If possible, further research efforts could aim at creating a fully integrated profile of Chinese EFL learners in terms of cognitive, affective as well as perceptual styles that govern their second/foreign language learning processes.
6. This study uncovered numerous factors that influenced the shaping and change of learners' learning style preferences. The EFL learning environment could be further studied in order to identify how it interacts with learners' learning style changes and adaptations. Several factors revealed in this study were new. More empirical evidences from future research are necessary to firmly ground the findings of these factors.
7. This study focused on learning styles. As empirical studies have supported the theory of learning styles as a key determiner of

learners' choices of learning strategies, future research may consider to examine relationships between learning styles and learning strategies and interactions of them in an EFL context.

### **9.6.2 Suggested Research at a Micro-Level**

Research at a micro-level could address the following three areas.

8. For the area of field of specialization, further studies could be carried out to address wider and more specific subject disciplines such as linguistics, medicine, engineering, English, economics and arts. Further breakdowns in academic majors could allow teachers and researchers to gain more specific knowledge about variations of learners in different subject disciplines. In the area of duration of native speaker instruction, it is recommended that future studies be carried out with English majors longitudinally. This group of learners have the opportunity to receive native speaker instruction regularly and consistently during their four years in university. A longitudinal study would allow a better understanding of the changes in their learning preferences.
9. The qualitative data obtained from the retrospective writing activity revealed that 'personality' was ranked second in frequency in the 14 factors identified. This finding suggested that 'personality' factor was perceived to be influential in the shaping of learners' learning style preferences. Future studies are needed



to explore the possible relationships between this variable and learning style preferences.

10. Findings of the present study revealed that group learning was the least preferred mode in English learning. However, in the qualitative data, evidence showed that there were both positive and negative attitudes towards group learning. A number of reasons were provided about why group learning was not favoured by the learners. Future research probably could explore this issue further in order to better understand the learners' perceptions and concerns about group learning, and their abilities to conduct group learning.

## **9.7 Closing Remarks**

The present study identifies the range of learning styles preferences that a group of Chinese EFL learners reported. Findings of the study indicate that although learning styles are identifiable, a consistent picture of perceptual learning style preferences of adult learners does not exist. Learners adapt their learning style preferences over time to meet challenges of a changing environment. A number of factors that influence the changes in learners' learning style preferences are identified. On the whole, the aim of the study has been achieved and the findings have provided several useful insights to the subject matter under study.

As this study is exploratory and descriptive in nature, it is hoped that its findings, tentative rather than conclusive, are illuminating and helpful to broaden and deepen our knowledge about the ethnic group of Chinese learners as well as their ways of approaching English study in their home context. It is expected that the findings will be useful for developmental studies into learning styles, both in theory and practice. It is also expected that the findings of this study, together with those obtained from other studies, will serve as a basis for future studies. Consequently, more information can be gained about Chinese EFL learners and their ways of learning English as a foreign language.

# **Special Note**

**Page 229 + 230 missing from  
the original**

## **APPENDIX B**

### **Class Profile Report** (English version)

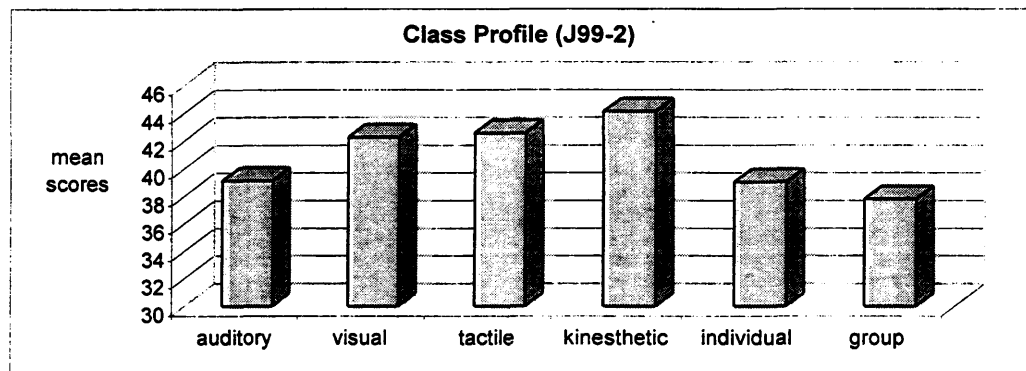
**Class Code:** J99-2  
**Department:** Machinery Engineering  
**University:** University of Technology and Commerce  
**Number of Students:** 42  
**Teacher's Name:** Zhu Zhu<sup>1</sup>  
**Date of Survey:** 27 October 2000

Style	Means
Auditory learning	39.12
Visual learning	42.23
Tactile learning	42.53
Kinesthetic learning	44.11
Individual learning	39.02
Group learning	37.78

Major learning styles: between 46-60

Minor learning styles: between 31-45

Negative learning styles: between 0-30



This graphic presents the learning style preference profile of your class. By using the information in this graphic, you can:

- discover your students' preferred learning styles
- investigate the classroom environment that best suits the learning styles of your students
- be guided by the feedback to address the needs of your students
- find out your own preferred teaching styles at the same time

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<sup>1</sup> Pseudonyms have been used.

## APPENDIX C Internal Consistency of Six Subscales (1<sup>st</sup> Check) and Modifications Made on Questionnaire

SCALE	ITEM NO.	DESCRIPTION	ALPHA if item deleted	MODIFICATION Made in 2 <sup>nd</sup> Pilot
Auditory Scale  Coefficient alpha = .6815	1	I prefer to learn by listening to audio-tapes, lectures, and class discussion.	.6496	rephrased
	5	Between reading textbooks and listening to lectures, I prefer listening to lectures.	.6050	rephrased
	11	I prefer to learn new things by hearing them rather than by reading them in books.	.6478	rewritten
	13	In remembering English words, I find it helpful to say them aloud.	.6549	rephrased
	17	When I read assigned materials, I prefer to read aloud to myself in order to better concentrate and understand.	.6613	rephrased
	19	I learn better if study aloud. For example, to say the things out to myself or to converse with others.	.6339	deleted
	26	In class, I prefer to be a passive learner to the teacher and class discussion.	.7143	deleted
	28	I prefer to learn through listening to lectures and audio-tapes rather than through reading textbooks.	.6191	rewritten
	37	Between listening to lectures related to the texts and reading textbooks, I prefer to attend lectures.	.6622	rephrased and changed into No.19
Visual Scale  Coefficient alpha = .3776	4	I remember better about the words, sentences and passages that I have read than those of them that I have heard.	.3196	rephrased
	8	I understand lectures better if teachers write key terms on the chalkboard.	.3150	rephrased
	9	To learn a new word, I can not remember it only by hearing it. I need to see it.	.3331	rephrased
	25	I benefit better from watching video-tapes related to what is taught in class than listening to the audio-tapes of the same sort.	.4648	deleted
	30	When looking at the person speaking English, I can understand him/her better than I merely listen to audio-tapes.	.3452	rewritten
	31	I understand better by reading instructions than by listening to them.	.2813	rephrased
	40	I prefer to read about a topic than to listen to a lecture about it.	.3088	rephrased and changed into No.25
Kinesthetic Scale  Coefficient alpha = .4343	3	I enjoy the activities such as presentations and role-plays on what has been taught.	.3427	rephrased
	10	I like to learn English through physical involvement. For example, the teacher gets us to demonstrate when teaching "open the door", "pick up the book".	.3715	rephrased
	15	I prefer to learn and practice English in various activities.	.4021	rephrased
	16	In class, I prefer to participate in role-play, class presentation, and various games to improve fluency and pronunciation.	.2165	no change

	29	I learn better when I am really involved in class activities.	.3911	rephrased
	39	I learn and remember better through field trips	.4089	rewritten and changed into No. 26
	41	When learning and practicing, I like to rely on gestures and body actions to get meanings across and to strengthen the memory.	.4554	deleted
Tactile Scale  Coefficient alpha = .5489	7	I enjoy learning new things by hands-on experiences and experiments.	.4461	no change
	20	I enjoy the opportunities of working with hands. For example, to device and make Christmas cards, birthday cards, bookmarks, and so on.	.5198	rephrased
	22	When reading English materials, I like to take notes, to underline or highlight the important parts and sentences.	.5217	rewritten
	24	I enjoy reviewing and outlining class notes after the class and before exams. It helps me to remember then better.	.4249	rephrased
	33	To remember a word, I need to say it out whiling writing it down. It helps memory.	.5037	rewritten
	35	I remember better and concentrate better when I an in hands-on activities.	.4689	deleted
	42	While reading or thinking, I like to let my hands do something such as to take notes, draw graphs, underline or highlight reading materials and worksheets.	.5410	rephrased and changed into No.35
Individual Scale  Coefficient alpha = .6985	2	I enjoying doing assignments together with my classmates.	.5654	rephrased
	12	I like my teachers to give us classroom tasks that need us to work with a partner or in small groups.	.5450	rephrased
	23	In class, I learn better on assigned tasks when I work with a partner or in a group of classmates.	.5042	no change
	32	Given a choice, I would rather choose to study with a partner or in a group than to study alone.	.4164	rephrased
	36	I learn better when I study with a partner or in a group.	.4772	no change
	38	I remember better about the things I have discussed with others than the things I have studies alone.	.5722	rephrased
Group Scale  Coefficient alpha = .5821	6	Most of the time, I like to study by myself, not to study in a group.	.6026	rewritten
	14	I prefer to read for my reading plan by myself rather than with a partner or in a small group.	.6266	rephrased
	18	I learn better when I study alone than when I study with others.	.6335	rephrased
	21	When I study by myself on assignment, I usually concentrate better.	.6574	no change
	27	Before examinations, I prefer to brush through the lessons by myself, rather than to do it with others.	.6767	no change
	34	I usually remember things better if I work by myself.	.6351	rephrased

## **APPENDIX D**

### **Survey of Learning Style Preferences: Perceptual & Social Dimensions**

**Purpose:** This questionnaire is designed to help you to better understand yourself – the ways you prefer to learn.

**Description:** People learn knowledge and gain understanding in different ways. Some people are visual learners. They seek knowledge primarily through ‘reading’ and ‘looking’ by eyes. Some people are auditory learners. They rely on their ears by listening to the teachers, the students, lectures and audio-tapes. Some other people are tactile learners, who benefit from hands-on activities such as taking notes, making models and doing experiments. Some people are fond of learning by experience. They like to participate in such activities as making speech, role-play and games. There are some learners who learn better when they work alone, while others prefer to learn with a partner or in a group.

**Instruction:** The ‘teacher’ in the statement refers to your English teacher, while ‘class’ English class. Please respond to the statements as they apply to your English study. Don’t spend too much time on any item. Indicate your immediate response and move on to the next. Please write your answers on the *Answer Sheet* and hand in your *Answer Sheet* to the teacher upon completion.

**Example:** Item 1: I enjoy doing assignments with a partner or in a small group.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5				

Item	Description	Item
1	I prefer to learn new things by listening to a teacher and students talk about them rather than by reading them from textbooks.	1
2	I enjoy doing assignments with a partner or in a small group.	2
3	In class I prefer such activities as a presentation and a role-play on what has been taught.	3
4	In class I remember better what I have read and seen than what I have heard.	4
5	Between reading a text and listening to a lecture, I prefer listening to a lecture.	5
6	I prefer to study and read alone rather than to study and read with others.	6
7	I enjoy learning through hands-on experiences and experiments.	7
8	I understand a lecture better by reading what the teacher writes on the chalkboard.	8
9	I remember better by reading and seeing a new word rather than by hearing it.	9
10	I enjoy learning English through physical involvement. e.g. a teacher gets us to demonstrate “open the door”, “pick up the book”.	10

11	I prefer hearing oral explanations about a text rather than reading the explanations from a book or a handout.	11
12	I enjoy classroom tasks that need me to work with a partner or in a small group.	12
13	I prefer hearing and saying a new word when trying to remember it.	13
14	I prefer studying by myself on assignments rather than with a partner or in a small group.	14
15	I prefer to learn and practice English through various activities, tasks and projects.	15
16	In class, I prefer to participate in role-play, class presentation and games to improve fluency and pronunciation.	16
17	In class I understand better what I have heard than what I have read and seen.	17
18	I learn better when I study alone than when I study with others.	18
19	I remember better the information that I have discussed with others than the information I have read alone.	19
20	I enjoy hands-on activities, e.g. to device and make Christmas cards and birthday cards, to make wall-papers, and so on.	20
21	When I study by myself, I usually concentrate and learn better.	21
22	I prefer to take notes when I read and listen.	22
23	In class, I learn better on assigned tasks when working with a partner or in a small group.	23
24	I like taking notes in class and read them carefully after the class and before exams.	24
25	I prefer to read about a topic than to listen to a lecture or a class discussion about it	25
26	I prefer to learn something from a field trip rather than from a lecture or from reading a textbook.	26
27	Before examinations, I prefer to review all the lessons by myself rather than to do it with others.	27
28	I prefer to talk to myself when doing assignments and let myself hear it.	28
29	I remember and learn better when I am physically involved in classroom activities.	29
30	I prefer looking at the speaker when listening to his/her talk rather than merely listening to his/her voice.	30
31	I understand better by reading written explanations for texts and written directories for tasks than by listening to them.	31
32	I prefer to study with a partner or in a small group rather than studying alone.	32
33	I remember better by writing a new word several times than hearing or seeing it several times.	33
34	I remember things better when I study by myself.	34
35	When reading or listening, I like to take notes, underline or highlight reading materials, handouts and worksheets.	35
36	I learn better when I study with others.	36

**Thank you for your cooperation.**



## **APPENDIX E**

### **Sources of Questionnaire Statements (English version)**

<b>Modified Statement</b>	<b>Original Statement</b>
<b>Statements Derived from Reid' s Perceptual Learning Style Preferences Survey (1987)</b>	
S.2. I enjoy doing assignments together with a partner or in a small group.	I prefer to study with others. (23)
S.6. I prefer to study and read alone rather than to study with classmates.	I prefer to work by myself. (30)
S.8. I understand a lecture better by reading what a teacher writes on the chalkboard.	I learn better by reading what a teacher writes on the chalkboard. (6)
S.16. In class, I prefer to participate in role-plays, class presentation and games to improve fluency and pronunciation.	I prefer to learn by doing something in class. (2)
S.17. In class I understand what I have heard better than what I have read and seen.	I remember things I have heard in class better than things I have read. (9)
S.20. I enjoy hands-on activities, e.g. to device and make birthday cards and bookmarks and to make wallpaper.	I enjoy learning in class by doing experiments. (15)
S.29. I learn and remember better when I am physically involved in classroom activities.	I learn best in class when I can participate in related activities. (26)
S.31. I learn better by reading written explanations and directions for tasks than by listening to them.	I learn better by reading than by listening to someone. (24)
S.34. I remember things better when I study by myself.	When I study alone, I remember things better. (13)
S.36. I learn better when I study with others.	I learn more when I study with a group. (4)

<b>Statements Derived from Kinesella's Perceptual Learning Style Survey (1993)</b>	
S.4. I remember better what I have read and seen than what I have heard in class.	I learn better by reading about a topic than by listening to a lecture or a class discussion. (2)
S.13. I prefer hearing and saying a new word when trying to remember it.	To remember a new word, I must hear it and say it. (14)
S.19. I remember the information I have discussed with classmates in class better than the information I have read alone.	I remember the information that I have discussed with a partner or in a small group in class than that I have read and write about. (9)
S.24. I like taking notes in class and read them carefully after class and before exams.	I take notes during lectures and discussion and read them carefully several times before a test. (6)
S.25. I prefer to read about a topic than listen to a lecture or a class discussion about it.	I learn more by reading about a topic than by listening to a lecture or a class discussion. (2)
S.26. I prefer to learn something from a field trip rather than from a lecture or from reading a textbook.	I understand and remember more about a subject from a field trip than from a lecture or a textbook. (24)
S.35. When reading or listening, I like to take notes, underline or highlight reading materials, handouts and worksheets.	When I read, I underline or highlight ideas to make the main ideas stand out and not to get distracted. (11)
<b>Statements Derived from O'Brien's Learning Channel Preference Checklist (1990)</b>	
S.5. Between reading textbooks and listening to lectures, I prefer listening to lectures.	I prefer hearing a lecture or a tape rather than reading a textbook. (13)
S.11. I prefer hearing oral explanations about a text rather than reading the explanations from a book or a handout.	I prefer someone to tell me how to do something rather than having to read the directions myself. (12)
S.22. I like to take notes when I read and listen.	I take lots of notes on what I read and hear. (9)
S.28. I prefer to talk to myself when doing assignments and let myself hear it.	I find it helpful to talk myself through my homework assignments. (24)
S.30. I prefer looking at the speaker when listening rather than merely listening to his/her voice.	I easily follow a speaker even though my head is down or I am staring out the window. (15)

<b>Statements Derived from Kinsella's Academic Work Style Survey (1998)</b>	
S.12. I enjoy classroom tasks that need me to work with others.	I enjoy having opportunities to share opinions and experiences, compare answers, and solve problems with a single partner more than with a group. (7)
S.18. I learn better when I study alone than when I study with other classmates.	When I work by myself on assignments (instead of with a partners or a small group), I usually do a better job. (2)
S.21. When I read and study by myself, I usually concentrate and learn better.	When I work myself on assignments, I usually concentrate better and learning more. (4)
S.23. In class I learn better on assigned tasks when working with others.	When I work with a small group in class, I usually learn more and do a better job on the assignment. (9)
S.32. I prefer to study with others rather than to study alone.	I hope we will have regular opportunities in class to work in groups. (17)
<b>Statements Derived from Oxford's Style Analysis Survey (1993)</b>	
S.1. I prefer to learn new things by listening to a teacher and students talk about them rather than by reading them from textbooks.	I prefer to learn by listening to a lecture or a tape rather than by reading. (12)
S.7. I enjoy learning through hands-on experiences and experiments	I enjoy building or making things. (28)
S.14. I prefer to study by myself on assignments rather than to study with others.	I prefer to work or study alone. (11)
<b>Statements Devised by the Researcher</b>	
<p>S.3. In class I prefer such activities as presentations and role-plays on what we have learnt.</p> <p>S.9. I remember better by seeing a new word or by picturing it in my mind rather than just by hearing it.</p> <p>S.10. I enjoy learning English through physical involvement, e.g. a teacher gets us to demonstrate 'open the door' and 'pick up the book'.</p> <p>S.15. I prefer to learn and practice English through various activities, tasks and projects.</p> <p>S.27. Before examinations, I prefer to review all the lessons by myself rather than to do it with others.</p> <p>S.33. I remember better by writing a new word several times than by merely hearing or seeing it several times.</p>	

## **APPENDIX F**

### **Instructions for Administering the Questionnaire Survey** (English version)

Procedures to follow:

- 1) Distribute copies of the Questionnaire and Answer Sheet

When all students receive the Questionnaire and Answer Sheet

- 2) Guide students in completing the background information on the Answer Sheet

When all students complete the background information section

- 3) Read "Direction" on the first page of the Questionnaire, and
- 4) Caution students to mark the Answer Sheet carefully

When all students complete the Questionnaire, proceed with

- 5) Distribute Scoring Form
- 6) Assist students to do self-scoring (by demonstrate on the chalkboard)

when all students complete self-scoring

- 7) Guide a class discussion about learning style preferences and English study
- 8) Collect (only) Answer Sheets at the end of the discussion

<b>During the Administration</b>	<b>After the Administration</b>
<ul style="list-style-type: none"><li>Record on the Administrator's Comment Sheet any problems during the administration.</li></ul>	<ul style="list-style-type: none"><li>Enclose the Response Sheets and the Administrator's Comment Sheet into the provided envelopes and contact the principal researcher for collection.</li></ul>

## APPENDIX G

### 英语学习方式问卷

目的：这份问卷旨在帮助你了解你自己 - 你最喜爱的学习方式。

说明：人们学习新知识的方式有所不同。有些人是视觉学习者，喜欢以眼睛“读”和“看”来获取知识；有些人是听觉学习者，喜欢靠耳朵听，听老师讲，听同学说，听讲座，听录音等等。有些人是触觉学习者，依靠动手来学习，喜欢做笔记，画图表，制做模型，道具，或做试验；有些人是运动学习者，偏好以全身体的投入来学习，比如：以做动作，演讲，表演来学习。有一些人喜欢独自一人学习，而另一些人偏爱结伴或小组学习。

指示：题中的“老师”指英语老师。“课堂”指英语课堂。请你以英语学习为基准据实回答。答案无对错之分。请尽快作答。不必太多思考。请在答案纸上作答。完成后将答案纸交给老师。

示范：题目2 我喜欢和同学一起做老师布置的功课。

非常同意	同意	既不同意也不反对	不同意	非常不同意
5				

题号	内 容	题号
1	我喜欢听老师讲解和同学讨论学习新的知识，不喜欢靠读课本来学习新的东西。	1
2	我喜欢和同学一起做老师布置的功课。	2
3	我喜欢在课堂上以演讲或表演这样的活动来练习所学习的内容。	3
4	在课堂上，我对阅读过的东西比对听老师讲过的东西理解得更好一些。	4
5	就阅读课文讲解和上课听讲解二种方法比较，我更喜欢上课听讲解。	5
6	我喜欢独自看书学习，不喜欢结伴学习。	6
7	我喜欢通过亲手做试验或制做东西来学习。	7
8	阅读老师讲课时的板书能使我把知识学得更好。	8
9	看单词和把它在眼前形象化能使我记得更好。	9
10	我喜欢借身体动作来学习英语。例如：老师教 open the door, pick up the book 时，叫我们用动作来表示。	10
11	我喜欢听老师或同学讲解课文，不喜欢自己去阅读那些讲解。	11
12	我喜欢在课堂上老师多设计一些分小组学习的活动。	12
13	记单词的时候，我喜欢把它读出声来记忆。	13

14	我喜欢独自做功课，而不是和同学一起做功课。	14
15	我喜欢通过多样化的活动来学习和练习英语。	15
16	课堂上，我喜欢亲身参加角色练习，演讲或各种游戏来练习语音和流利。	16
17	课堂上，我对听到东西比对读到的东西理解得好一些。	17
18	我独自学习时的效果比起和其他同学一起学习的效果能好得多。	18
19	和同学一起讨论过的内容我能记得比较好。	19
20	我喜欢动手的作业。例如：制做一些与课堂教学内容相关的东西，如设计和制做圣诞卡，生日卡，设计墙报等等。	20
21	我独自学习的时候精力更集中，效果更好。	21
22	我喜欢在听讲和阅读的时候做笔记。	22
23	课堂上，当有机会和同学结伴或分组做英语练习时，我感到收获比较大。	23
24	我喜欢在课上记笔记以及在课后和考试前阅读这些笔记。	24
25	当学习同样的内容，就阅读和课堂听讲及课堂讨论而言，我更喜欢阅读。	25
26	我对外出实地参观学的东西比从课堂听讲和书本上学的东西理解得更好。	26
27	考试前，我喜欢独自复习功课，而不是和同学一起复习。	27
28	做功课的时候，我喜欢边写边读出声，让自己听到。	28
29	当我亲身投入了课堂活动时，我能学得和记忆得更好。	29
30	如果看着老师讲课，我能比光听老师的声音学的好得多。	30
31	就听口头的讲解和阅读讲解，包括阅读黑板上，讲义上和课本上的讲解相比较，我对书面讲解的理解更好一些。	31
32	若有选择的话，我会选择和同学结伴或组成小组学习，而不是独自学习。	32
33	将一个单词写几遍比光听或光看它几遍更能有效地帮助记忆。	33
34	我觉得单独学习的时候，记忆效果比较好。	34
35	阅读或听课的时候，我喜欢做笔记，在重点地方划线或做标记等等。	35
36	当我和同学结伴练习英语时，收获比较大。	36

α      谢谢你的合作      α

# APPENDIX H

## 英语学习方式问卷 (答案纸)

(以下请圈符合你情况的选择)

1. 目前就读: 高中 / 大学 / 研究生
2. (拟)主修科目: 理工科 / 文科 / 英语
3. 曾否有过外籍英语教师授课: 没有 / 1-2学期 / 3学期以上

	非常同意	同意	既不同意也不反对	不同意	非常不同意
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

	非常同意	同意	既不同意也不反对	不同意	非常不同意
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

## Response Sheet (English version)

1. Educational Level: high school / undergraduate / postgraduate
2. Subject of Study: science / arts / English
3. Length of time with native Speakers' instruction:  
no semester / 1-2 semesters / 3 and over 3 semesters

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	5	4	3	2	1
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	5	4	3	2	1
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

## 计算方法

非常同意	同意	既不同意也不反对	不同意	非常不同意
5	4	3	2	1

听觉学习	题号1 _____	视觉学习	题号4 _____
	5 _____		8 _____
	11 _____		9 _____
	13 _____		25 _____
	17 _____		30 _____
	28 _____		31 _____
总计 _____ x 2		总计 _____ x 2	
动手学习	题号7 _____	运动学习	题号3 _____
	20 _____		10 _____
	22 _____		15 _____
	24 _____		16 _____
	33 _____		26 _____
	35 _____		29 _____
总计 _____ x 2		总计 _____ x 2	
独自学习	题号6 _____	群体学习	题号2 _____
	14 _____		12 _____
	18 _____		19 _____
	21 _____		23 _____
	27 _____		32 _____
	34 _____		36 _____
总计 _____ x 2		总计 _____ x 2	

主要学习方式：积分46-60之间

次要学习方式：积分31-45之间

不喜爱的学习方式：积分0-30之间

说明：积分最高的一组(或许二组)是你的主导学习方式。

## Scoring Form (English version)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

Auditory Learning	No. 1 _____	Visual Learning	No. 4 _____
	5 _____		8 _____
	11 _____		9 _____
	13 _____		25 _____
	17 _____		30 _____
	28 _____		31 _____
Total _____ x 2 _____		Total _____ x 2 _____	
Tactile Learning	No. 7 _____	Kinesthetic Learning	No. 3 _____
	20 _____		10 _____
	22 _____		15 _____
	24 _____		16 _____
	33 _____		26 _____
	35 _____		29 _____
Total _____ x 2 _____		Total _____ x 2 _____	
Individual Learning	No. 6 _____	Group Learning	No. 2 _____
	14 _____		12 _____
	18 _____		19 _____
	21 _____		23 _____
	27 _____		32 _____
	34 _____		36 _____
Total _____ x 2 _____		Total _____ x 2 _____	

Major style preference: between score 46 - 60

Minor Style preference: between score 31 - 45

Negative style preference: between score 0 - 30



## **APPENDIX J**

### **Questionnaire Administrator's Comment Sheet (English version)**

Please record on this sheet and additional page(s), if necessary, your comments, concerns, happenings or problems that arise during the administration of the questionnaire survey.

Class: \_\_\_\_\_

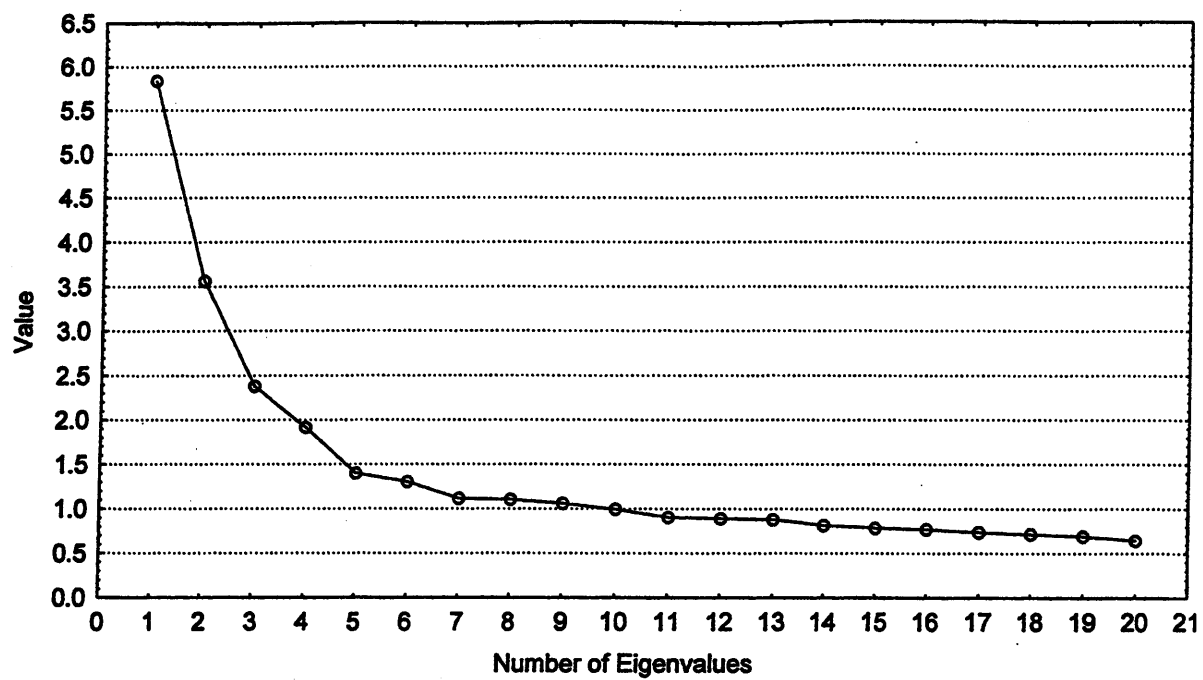
School/University: \_\_\_\_\_

Name of Assistant Researcher: \_\_\_\_\_

#### **Comments:**

## **APPENDIX K**

**Scree Plot**



## APPENDIX L

### Reliability Assessment of Alternative Learning Style Scales

Scale	Means	Standard Deviation	Scale alpha
Individual-Visual			.71
6 (I)	3.133	.955	
9 (V)	4.298	.776	
14 (I)	3.224	1.040	
18 (I)	4.230	.821	
21 (I)	4.284	.779	
22 (T)	3.764	.991	
24 (T)	4.015	.841	
25 (V)	3.443	1.084	
27 (I)	3.570	.990	
33 (T)	3.959	.861	
34 (I)	3.438	.900	
35 (T)	2.944	1.004	
Group-Haptic			.64
1 (A)	4.051	.996	
2 (G)	3.664	.962	
11 (A)	4.089	.766	
12 (G)	3.451	.930	
13 (A)	3.346	.999	
19 (G)	3.779	.999	
23 (G)	3.997	.876	
32 (G)	3.409	1.026	
36 (G)	3.425	.917	
Productive-Haptic			.59
3 (K)	2.953	1.103	
7 (T)	3.611	1.074	
10 (K)	4.018	.905	
15 (K)	3.710	1.003	
16 (K)	3.614	1.022	
20 (T)	3.276	1.004	
26 (T)	3.531	1.034	
28 (A)	3.003	.975	
29 (K)	3.886	1.020	
Explicit Explanation/Instruction			.49
4 (V)	2.968	1.081	
5 (A)	3.216	.990	
8 (V)	3.887	.861	
17 (A)	3.864	.951	
30 (V)	4.010	.858	
31 (V)	2.733	1.055	

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