

# Experimental Study of Chinese Non-English Students' Overall Learning Style Preferences

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Two proposed style assessment instruments are employed to explore the learning styles of non-English major college students in the EFL (English as a Foreign Language) context in Chinese universities. It was found that their overall learning preferences in English language learning demonstrate a tendency, so that discovering the students' learning preference will help students develop a more versatile approach to learning.

*Keywords:* learning style preferences, language learning/teaching, individual differences, descriptive analysis

## Introduction

We have all heard people say that they cannot learn something until they have seen it. Other people seem to need only to hear something once or twice before they know it. Some learners feel compelled to memorize and will practice until they have committed new information to memory before they feel comfortable to grasp it. For still others, there is a need to add physical action to the learning process, and it is not enough to see, hear or practice for them. This actually is a learning style, referring to an individual's natural, habitual and preferred way(s) of absorbing, processing and retaining new information and skills (Reid, 1987). Therefore, learning style relates to the general tendency towards a particular learning approach displayed by an individual. Of course, all of us learn in all these ways. We can all benefit from a variety of learning experiences. However, there is clearly some true to the intuition that certain ways of approaching a task are more successful for one person than for another, and that when learners are given some freedom to choose their preferred ways of learning, they will do better than those who find themselves forced to learn in environments where a "learning style" does not suit them.

In considering learning and how to improve student learning, one needs to understand the way(s) in which an individual learns. And professional language educators have an obligation to help students identify learning style preferences; they also should increase the number of learning styles that their students are familiar with. Once students have brought this knowledge into their level of awareness, they are better suited to choose learning strategies that match their learning styles. This initiates student ownership of the educational process. Furthermore, teachers need to be attentive to the multi-modal learning needs of students, and employ methods that are suitable for all of the various learning style preferences. So it is much more important for the teachers to study the students' learning preferences and make elaborate preparations for classroom instruction and activates respectively.

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## Survey

### Research Design

**Learning style assessment instruments.** O'Brien's (1990) learning channel preference checklist (see questionnaire 1) and Reid's (1987) perceptual learning style preference questionnaire (see questionnaire 2) are employed for style assessment instruments in the EFL (English as a Foreign Language) context in Chinese universities.

O'Brien's checklist contains 36 statements, which participants rate on a five-point scale, looking at three sensory learning style preferences: visual, auditory and haptic learning. Reid's questionnaire is based on the concept of six learning style preferences: visual, auditory, kinaesthetic, tactile, individual and group learning. There are 30 statements, which participants rate on a five-point Likert scale: "Strongly agree", "Agree", "Undecided", "Disagree" and "Strongly disagree".

Originally, both of the checklist and questionnaire were designed in a table, and the students were required to put a mark "X" in corresponding to the scale, after that they had to put the decision to numerical value. To make them simple for the participants, the author evaluated the scales:  $SA = 5$ ,  $A = 4$ ,  $U = 3$ ,  $D = 2$ ,  $SD = 1$  and made them into multiple choices for each item.

**Participants.** Two hundred and sixty four-year non-English major undergraduates of grade 2 were drawn randomly from six majors of two universities in Shandong province (school 1 and school 2). All the participants came from different parts of Shandong province, started learning English from junior middle school, and have been studying *New College English* for two years. And the teachers of English had the same academic credentials and nearly the same years' length of service in the universities.

**Procedures.** We took the following measures to improve the validity of this research: (1) the questionnaires were given first to a small class of 40 students, and afterwards, advices were solicited from several professors of English. Both the teachers and students suggested that four items in O'Brien's checklist and six items in Reid's questionnaire were vague to them; and (2) O'Brien's checklist was first given to the subjects and Reid's questionnaire was given to the same participants two weeks later. Their teachers of English mainly administered the questionnaires. Before they were tested, the subjects were told clearly about the purpose of the study. After completing the questionnaires, only 232 valid questionnaires were received (see Tables 1 and 2).

Table 1

*Distribution of Participants of School 1*

Major gender	Science biology	of Information engineering	Electric automation	Science of law	Trade business	and Chinese language	Total
Males	8	10	10	12	9	5	54
Females	15	10	9	9	10	10	63

Table 2

*Distribution of Participants of School 2*

Major gender	Science management	of Information engineering	Industrial engineering	Science of law	Trade business	and Finance	Total
Males	14	11	12	9	10	6	62
Females	8	9	7	12	8	9	53

**Data collection and analysis.** The data were carefully collected and checked. All of them were put into computer and analyzed by the SPSS (Statistical Product and Service Solutions) (13) statistical package for windows.

## Results

**Descriptive analysis of the students' learning style preferences. Results from O'Brien's checklist.** Table 3 shows the means and standard deviations of the three learning style preferences of the two universities assessed by questionnaire 1. We can see that the mean of visual is higher than that of auditory and haptic, therefore, much more students have the preferences for visual learning in the two schools. After comparing with the median 36 of each preference, the frequencies show that there are 88.9% in school 1 and 83.5% in school 2 of the students' means of visual learning surpassed the median, so these figures once more convinced us that the students in the two universities had a very strong preference for visual learning. So they would learn better when they read and saw the information, especially when they were offered the information by handouts or texts, pictures in blackboard. The study also shows 44.4% of students in school 2 and 35% in school 1 prefer auditory learning. About haptic learning style, the students did not show strong preference, but the mean in school 2 ranked higher than that in school 1.

Table 3

*The Three Sensory Preferences in School 1 and School 2 by Questionnaire 1: The Means and Std. Deviations of the Three Learning Style Preferences in School 1/School 2*

	School 1				School 2		
	Visual	Auditory	Haptic		Visual	Auditory	Haptic
<i>N</i>	117	117	117	<i>N</i>	115	115	115
Mean	41.61	35.09	34.12	Mean	40.10	36.22	35.47
Std. deviation	4.537	4.014	5.542	Std. Deviation	3.804	4.175	4.749

According to O'Brien's (1990) way of categorizing and defining the three preferences, we first summed up the visual total, auditory total, haptic total and total of all the three categories, then converted each category to a percentage. The profiles of each preference (mean) in the two schools are shown in Figures 1 and 2, if the value is higher, the subject will have a preference for this category.

From the Figures 1 and 2, we can see clearly the profile of each learning style preference in each university: More students preferred visual learning to the other two, followed by auditory and haptic.

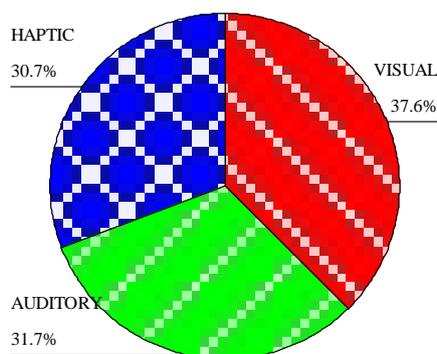


Figure 1. Percentage of three sensory preferences in school 1.

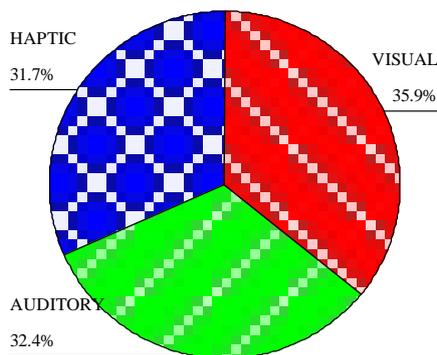


Figure 2. Percentage of three sensory preferences in school 2.

**Results assessed by Reid’s questionnaire.** Tables 4 and 5 show the means and standard deviations of the six learning style preferences in the two universities assessed by questionnaire 2. Comparing the means of each item, we can see that in school 1 and school 2, tactile is the highest, then followed by kinesthetic and individual learning, and the students also preferred visual and auditory learning. These mean that the student had strong preferences for tactile, kinesthetic learning and prefer individual learning to group learning. According to Reid (1987), those who have tactile major learning style preference learn best when they have the opportunity to touch and work with materials. Writing notes or instructions can help them maintain information, and physical involvement in class related to activities may help them understand new information. Those who have kinesthetic major learning style preference learn best by experience, by being involved physically in classroom experiences, like role-play. And those who have individual learning style preference learn best when they work alone.

Table 4

*The Six Learning Style Preferences in School 1 by Questionnaire 2: The Means and Std. Deviations of the Three Learning Style Preferences in School 1*

	Visual	Auditory	Kinesthetic	Tactile	Group	Individual
N	117	117	117	117	117	117
Mean	17.49	16.72	18.07	19.64	14.62	17.66
Std. deviation	1.878	2.330	2.747	2.203	3.446	3.122

Table 5

*The Six Learning Style Preferences in School 2 by Questionnaire 2: The Means and Std. Deviations of the Three Learning Style Preferences in School 2*

	Visual	Auditory	Kinesthetic	Tactile	Group	Individual
N	115	115	115	115	115	115
Mean	17.10	17.17	17.88	18.84	14.37	17.19
Std. deviation	2.140	2.520	3.035	2.327	3.294	3.176

By comparing these means of the preferences with the median 15 of each preference, we can see that the students in the two universities had strong preferences for tactile (94.9%/81.7%), kinesthetic (72.6%/69.7%), individual (69.2%/65.2%), visual and auditory learning and a negative attitude towards group learning (28.2%/27.8%). Though the means of visual and auditory learning preferences were not the highest in

numerical values, still many students (69.4%/67%) preferred visual learning and (52.1%/65.2%) auditory learning in the two universities.

## Discussion

### Students' Overall Learning Style Preferences

The means and standard deviations of the three learning style preferences in the two universities assessed by O'Brien's checklist show visual in the two universities ranked higher than auditory and haptic, therefore, much more students had the preferences for visual learning in the two schools. And the frequencies study show that 88.9% in school 1 and 83.5% in school 2, the students' means of visual learning surpassed 36 (the median of each category), so the students in the two universities have a very strong preference for visual learning, then followed by auditory learning preference.

The data, collected from Reid's questionnaire, show the mean of tactile learning ranked the highest, and then followed by kinesthetic, individual learning, and the students also preferred visual and auditory learning. Frequency studies show that 94.9% of the students in school 1 and 81.75% students in school 2 had strong preference for tactile learning, 72.6% and 69.7% of the students in each university preferred kinesthetic learning. Though the means of visual and auditory learning preferences are not the highest in numerical values compared with other categories in the two universities, there were still many students (69.4%/67%) preferring visual learning and (52.1%/65.2%) auditory learning.

So the two questionnaires have explored the college students' learning style preferences: They demonstrated a strong tendency for visual, tactile, kinesthetic and individual learning style preferences.

Chinese students prefer visual learning probably due to our mode of traditional way of teaching. From elementary school to university, in most cases, the teachers dominate the classroom, giving presentations and writing a lot of key information on the blackboard, and the students are required to write down everything that the teachers have said or written in classes for reviewing later. Secondly, possibly it is due to the pictorial nature of our written language. Lee (1976) stated that Asian cultures emphasized the visual mode for learning their largely iconographic language systems. This learning style preference can not be changed easily. Those who prefer visual learning style learn well from seeing words in books, on the chalkboard and in workbooks.

Chinese college students also demonstrated tactile and kinesthetic learning preferences. According to Reid (1987), those who have tactile major learning style preference learn best when they have the opportunity to do "hands-on" experiments with materials related to language learning tasks. As suggested by Melton (1990), "hand-on" holiday activities, such as decorating a Christmas tree or carving a Halloween pumpkin, could provide avenues for effective oral or written skills instruction. Writing notes or instructions can help them remember information, and physical involvement in class related to activities may help them understand new information.

Frequency studies of questionnaire 2 also show that 69.2% of the students in school 1 and 65.2% in school 2 preferred individual learning. In the first questionnaire, one open question is asked: How college English teaching should be performed? Nearly 85% of the students complained about their teachers' ways of teaching, such as boring, tough, especially dissatisfied with teachers' presentation—too tediously long, and more than 70% expected to learn autonomously. This response gives us insight into the overwhelming preference for individual learning among the students.

### Factors Affecting Learning Style Preferences

**Cultural background.** Some researches suggested that learning style may be strongly influenced by culture. Hofstede (1986) described different cognitive abilities that may be related to cultural values. Reid (1987) found native language background is a factor in students' perceptual learning style preferences. Chinese students are introverted and reflective (RAO, 2003), and most of them are unwilling to express their opinions. Oxford, Hollaway, and Horton-Murillo (1992) also presented many examples of cultural influences on learning styles, and noted 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 unconsciously adopted by many participants in the culture.

**Gender.** Males and females frequently learn differently from each other. Hyde and Linn (1986) stated that males are more advantageous of being kinesthetic and tactile than females and the auditory ability of females is higher than that of the males. Males tend to be more kinesthetic and tactile (Dunn & Griggs, 2000), and if they have a third modality strength, it often is visual. Males also need more mobility in a more informal environment than females. They are more non-conforming and peer motivated than their female classmates, who tend to be relatively conforming and either self-, parent-, or teacher- motivated (Dunn & Griggs, 1995). Females, more than males, tend to be auditory, conforming, authority-oriented and better able to sit passively in conventional classroom. They also tend to need significantly more quiet places while learning (Pizzo, R. Dunn, & K. Dunn, 1990) and be more self- and adult- motivated, and conform more than males (Marcus, 1997).

**Intervention of the two questionnaires.** These two questionnaires were both self-reporting, and the students had five choices, which might lead students to succumb to response set (Bonham, 1988). Students who showed multiple major learning style preferences might in fact be predisposed to answer all questions positively. The two questionnaires assessed students' learning preferences from different angles though both are related to sensory channels. When comparing these determining items concerning the same labels "visual" and "auditory" in the two questionnaires, we can see there existed differences: The items in questionnaire 1 were more general and convey much more information from writing notes, concentrating on reading and listening, etc., in class to visualizing pictures and even jokes, etc., in daily life. The categories and contents of it were wider and more plentiful than questionnaire 2. Questionnaire 2 mainly focused on classroom behaviors, but it categorized learning preferences into six types. So they emphasized different aspects of the samples and supplement each other. The samples might have an aversion to the questionnaires, especially when they had to finish the second one. Some students complained about the wording and felt tired or bored, because some sentences conveyed the same ideas to them.

## Implications

### Recommendation

**Identifying learning styles.** O'Brien (1989) discovered that 80% of instruction was delivered in an auditory fashion, even though "less than 10% of the student population showed this as their strongest learning channel" (p. 86). Many of them who have selected language teaching as a profession tend to be comparatively flexible learners who have flourished within the educational system. As students with visual/verbal and auditory learning strengths, they thrive when presented with substantive verbal information whether in a lecture or while reading, and appreciate opportunities to reinforce new materials by processing their own reactions and insights through discussion and writing. Their penchant toward verbal learning can not help but influence our

teaching, and most commonly manifests itself in the form of extensive “teacher talk”, teacher-led class discussions, and challenging reading and writing assignments that require considerable independent analysis, persistence, and initiative. Yet, if students have so little opportunity to participate actively and if they appear to be retaining little of what we informally teach largely through verbal instruction, then it is clear that the classroom instruction is in need of modification.

Teachers should respect the learners' present preferences and encourage their development, while at the same time, creating opportunities for students to experiment with different ways of learning. But an essential component of learning styles theory is the belief that teachers can best help their students by understanding how they learn best or knowing students' preferred learning styles (Ellis, 1989). The instructors are encouraged to use instruments and activities specially designed for EFL learners to identify students' learning styles, which will make them aware of the variety of learning styles and their own perceived strengths and weaknesses. Similarly, teachers can use the survey results to identify strong style patterns in their classes, which they should consider when designing learning tasks.

When teachers help students discover their own learning preferences, then provide constructive feedback about the characteristic advantages and drawbacks of various modality strengths, cognitive styles and work styles, it is possible to help students develop a more versatile approach to learning, not only in the EFL classroom, but also in every subject across the curriculum and in many situations beyond schools.

For teachers, knowledge of their own learning styles is also important. ZHOU (1992) conducted a survey about the Chinese middle school English teachers' learning styles. And the result shows that the samples have authority-oriented learning styles and preferred learning under teacher's instructions. Undoubtedly, they favored a teacher-centered approach in their English classroom. So she asserted that teachers' own learning styles will tremendously influence their own English teaching techniques and their students' learning styles as well.

**Bridging the gap between teaching and learning.** After assisting the students in identifying some of their individual learning strengths, an important role for the teacher will be to provide an environment that facilitates the identification by students of the learning and study strategies that work best for them.

(1) Matching the choice of presentation mode with sensory preference. The compatibility of a teacher's instructional style and the students' learning styles is a significant factor in the success of the learning process (Carrel & Monroe, 1993; Dunn & Griggs, 1995). Conversely, a serious mismatch between the students' learning styles and the teacher's instructional style may have a decidedly negative impact on classroom learning (Felder & Henriques, 1995; Oxford et al., 1991). So the teacher can rate and compare his/her own style preference with individual student's preference to obtain an estimate of the teaching/learning interactions that may need some modification and attention. In addition, the teacher should use multiple modes of presentation, such as visual, verbal and auditory imagery, and at the same time, give the students opportunities to participate in the teaching process. By doing so, they will help ensure that all students will have at least some activities that appeal to them and will be more likely to succeed in these activities;

(2) Matching the instructional materials with cognitive styles. Researches have shown that the quality of learning material is enhanced, if the material is designed to take into account learners' individual learning styles (Riding & Grimley, 1999). It is very important to provide high quality instructional materials to match the students' cognitive styles and fully communicate the richness and complexity of the subject matter. So the creative use of video and audio materials may vary from heavy dependence on media for the structure and contents of the lesson to only limited use of a blackboard to illustrate concepts or grammatical rules. If lessons

can be presented both visually and verbally, more various motivating language activities, such as role-play, classroom presentation, debating, reflective reading and writing are engaged, surely can students learn in ways that best suit their styles and develop their modality strengths;

(3) Fostering learners' self-awareness and adapting their learning preferences moderately. While it is essential that teachers have a practical understanding of learning styles, it is equally important for students to understand their individual learning styles and become aware of the modalities and strategies they avoid or seldom use. The knowledge of one's own learning style is essential in "learning to learn". Many students continue to use inappropriate approaches, with no awareness of the limitations of their habitual style of learning or more productive opinion for completing academic tasks.

It is simply not realistic to expect teachers to provide programs that accommodate the learning style diversity present in their classes, even if they can ascertain the nature and extent of that diversity. So the most realistic approach to the accommodation of the learning styles in teaching programs should involve empowering students through knowledge of their own learning styles to adjust their learning behaviors to the learning programs they encounter. Like Reid (1987) indicated that learning style is a consistent way of functioning that reflects cultural behavior patterns and, like other behaviors influenced by cultural experiences, may be revised as a result of training or changes in learning experiences. Students need to stretch their learning styles, because it has been found that students with greater learning style flexibility are greater achievers (Scarcella & Oxford, 1992).

### **Limitations**

This study is based on two questionnaires, it is possible that the different interpretations of them may influence the research, which do puzzle the participants. For example, for "I learn better in class when I listen to someone", if "someone" refers to "teacher", the student may rate this question positively. But if it refers to the murmuring of his/her classmate, it may elicit a more negative response. For item 22 "When I'm concentrated on reading or writing, the radio bothers me", in one of the handed-in questionnaire, the students responded "It depends on the content of the broadcasting". And there have been unclear items in the questionnaire.

The participants' attitudes toward the questions in the sheets will influence the results. It is impossible for the author to administer the questionnaire all himself. Some teachers helped the author, in some cases, which may affect the students, because they may respond to their teachers' expectation.

The respondents of this research were only confined within the same grade from two universities. Further empirical studies are needed to investigate English learners with various backgrounds.

### **Conclusions**

This research only explored sensory learning style preferences in different classrooms. And there are some other elements, including environmental factors, such as light, sound, design, etc., and emotional elements and social elements may influence learning style preferences (Kinsella, 1995; Dunn & Griggs, 2000). Further research on these will be useful to gain more insights into learning style preferences in individuals.

It is hoped that this research will help the college English teachers and English learners gain awareness of the characteristics of learning style preferences and develop responsibility for effective teaching/learning. Knowledge of these preferences can really aid teachers in class preparation, designing class delivery methods, choosing appropriate technologies and individualized instruction for effective classroom teaching.

Classroom interaction between teachers and students has certain influence on learners' learning style preferences, so further research on the classroom activity is essential and urgent. This empirical research explores the Chinese universities students' overall learning style preferences. Language teaching/learning is, hence, a complex issue, encompassing socio-cultural, linguistic, psycholinguistic, as well curricula and instructional dimensions. A large number of individual characters will contribute to the process. However, just what those characteristics are and exactly how they affect the process is still unknown, which needs to discover.

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