A Study on the Correlation between English Learning Styles and Learning Strategies of Junior Middle School Students

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Abstract: Researches show that learning style and learning strategy are two very important factors that affect English learning, and their mutual influence plays a role in language learning. Based On Reid's theory of perceptual learning styles and Oxford's theory of language learning strategies, this study uses the questionnaire of perceptual learning styles and language learning strategies to investigate 93 students from two classes of the second grade of a key middle school in Changchun, and interviews 12 of them.This paper explores the correlation between English learning styles and English learning strategies of junior high school students by using quantitative and qualitative methods. The results are as follows: (1) The general characteristics of junior high school students' English learning styles are that they have a variety of secondary learning styles, and only the visual style is their main learning style. (2) Junior high school students are not good at using English learning strategies, their utilization rate is low, and they lack frequently used learning strategies. (3) There are certain correlations between English learning styles and learning strategies of junior high school students, and they are all positive, but most of them are low. According to the results of the study, some suggestions are put forward for teachers and students.
Keywords: junior high school students;English learning style; English learning strategies; correlation

Introduction

In the 1990s, social constructivism took learners as the key research object, and the field of educational research was deeply affected by it.Researches show that the analysis and research on the internal factors of learners are the most prominent, and the learning style and learning strategies have received continuous attention from the academic community.

Since the 1970s, the research on the correlation between foreign language learning styles and learning strategies in China has been limited to undergraduates, and few of them are primary and middle school students, especially junior high school students. Middle school stage is the transition from primary school to high school, which is an indispensable growth chain. Students in this stage are highly plastic during adolescence, and there are a large number of junior high school students in our country. Research on their English learning style and strategies at this time can not only promote and improve the current English teaching, In addition, it will play a vital role in the lifelong learning and all-round development of students in high school and even in the future. Among them, the second year is a critical period and turning point for the development of junior high school students' thinking [1]. The study on the correlation of learning style and learning strategy has certain theoretical and practical significance.

Therefore, this paper investigates the students' perceptual learning styles and preferences for English learning strategies in a key junior middle school in Changchun by means of Reid's Perceptual Learning Styles Questionnaire (PLSPQ) and Oxford's Language Learning Strategies Questionnaire (SILL) (1990), as well as interviews with individual students. At the same time, this study uses SPSS and Microsoft Office Excel to analyze the data.To explore the relationship between learning styles and strategies, trying to find the relationship between the two, to provide reference for teaching and learning, to have a certain inspiration for English teaching, and to provide reference suggestions for it. That is to say, on the one hand, teachers and students should strengthen their understanding of perceptual learning styles, on the other hand, they should strengthen the use of learning styles and the choice of learning strategies. In a word, this study aims to deepen the research on the relationship between English learning strategies and learning styles, help English teachers better understand the individual needs of students, guide them to carry out effective training of English learning strategies, and improve teaching effectiveness.

Literature Review

Learning style is the sum of learners' cognition, information processing and behavior, which is habitual, unique, stable, overall, natural and individual. Learning styles have different classifications, different theoretical bases and different types of formation. Among them, the perceptual learning style formed on the basis of information processing inherently embodies the process of information processing. According to the preference of students' sensory channels, Reid divided them into six types: visual, auditory, tactile, kinesthetic, cooperative and independent. The most effective way of visual learning is visual input.The auditory type prefers auditory input; Tactile to experience input personally; Kinesthetic learners prefer physical participation and input; cooperative learners prefer discussion; independent learners prefer independent thinking [2]. His classification of perceptual learning style coincides with the requirements of the new curriculum standard. It is based on the learning style preferred by learners, and reflects and can mobilize the three characteristics of students: positive, active and effective. This kind of style classification is convenient for teachers to operate and study, so this study adopts it.

Scholars at home and abroad have different definitions of language learning strategies. In this study, English learning strategies are defined as the behaviors, methods and steps adopted to learn English effectively. Learning strategies are classified from different perspectives, which leads to their diversity. Oxford divided it into direct and indirect strategies. The former is divided into three categories: memory, cognition and compensation strategies. The latter is divided into metacognitive, affective and social strategies [3]. The classification of his learning strategies is more detailed, clear and hierarchical. Its diagnostic table has been widely recognized. Therefore, Oxford's taxonomy and his language learning strategy inventory are used in this study.

There are many separate studies on learning style and strategy at home and abroad, but few studies on the relationship between them.In foreign studies on the two, 0xford and Erman found that preference for perceived style and strategy.There is a significant correlation. [4]   Cohen pointed out that the relationship between learning strategies and styles is that the former cannot be separated from the latter, and is more influenced and restricted by the latter [5]. Wakamoto found that extroversion was positively correlated with functional operation and social affective strategy. Carson and Longhini found that learning styles determine strategies, with the former being relatively stable and the latter changing at any time[6].

Domestic scholars such as Zheng Liping , Li Yan , Guo Zhengfeng et al studied the relationship between the two . Discovery of field independence and dependent determinism students choose learning strategies[7]. It came to the conclusion that the investigated students have not formed a major learning style, carefully organized, intuitive and visual, is preferred by students, while introversion and auditory are not.In addition, the mean value of metacognitive strategies of college students was high, and the other five strategies (memory, cognition, emotion, compensation and social strategies) also reached the medium frequency of use. Among them, the use of emotional, social and compensatory strategies is high, the use of cognitive strategies is low, and the use of memory strategies is low. Finally, there is a correlation between learning style and learning strategy department[8]. Guo Zhengfeng and Fan Yixue investigated the usage tendency and correlation of them among middle school students. The results showed that students often used compensatory strategies, cognitive strategies, metacognitive strategies, and social strategies, but less used emotion strategy [9].

In a word, most of the studies on learning styles and learning strategies are mainly based on undergraduates, and few of them involve junior high school students and the relationship between English learning styles and English learning strategies. And the research method only involves a single method of questionnaire survey. Junior high school is the basic stage of English learning. Understanding students' learning styles and helping them use language learning strategies suitable for their own learning styles can improve students' English learning efficiency and lay a foundation for better English learning in the future. Therefore, it is necessary to take junior high school students as the research object, comprehensively use the questionnaire method and interview method, through the study of their individual differences, in order to obtain more in-depth information, so as to study the relationship between English learning style and learning strategy relationship to more fully explore and research.

 Method
In this study, 99 students from two ordinary classes in the second grade of a key middle school in Changchun, namely, 50 students from the eighth class and 49 students from the twenty-third class , were selected as the research objects. The students of the two classes are between 14 and 15 years old. They are taught by the same teacher. They use the same teaching materials and teaching AIDS. The overall English level is comparable. The reason for choosing junior two students as the object is that they have been in school for more than a year, have basically adapted to middle school life, and the pressure of learning in the senior high school entrance examination is not as great as that of junior three students. From the background, we know that they all have at least six years of learning English in school, and some even have 14 years of learning English. At this stage, they may have formed their own English learning methods, styles and strategies. The PLSPQ devised by Reid in 1984 and the SILL developed by Oxford in 1990 were used as the research instruments.Take the class as the unit, and conduct the test collectively. 99questionnaires were actually sent out and 95 were recovered, with a recovery rate of about 96%, of which 93 were valid. After that, 12 students were randomly selected to conduct semi-structured interviews.Descriptive statistical analysis and Pearson correlation

analysis were conducted on the collected data by using Excel and SPSS, and the interview results of 12 students were studied and analyzed in detail, as follows.

Results and Discussion
The overall situation of junior middle school students' English learning style
This study mainly uses descriptive statistical methods to process the data of the questionnaire on perceptual learning styles, and obtains the mean and standard deviation of the six independent variables, from which we can see which English perceptual learning style is most preferred by junior high school students, which is least preferred, and what is the overall situation. The specific statistical results are shown in the following table:

Style Type	Number of Subjects	Minimum	Maximum	Average	Standard	Deviation Order
Visual type	93	20	50	38.05	6.20	1
Auditory type	93	18	50	37.90	6.42	2
Tactile type	93	26	50	36.86	4.73	3
Independent type	93	24	50	35.63	5.41	4
Kinesthetic type	93	24	48	35.53	5.40	5
Cooperative type	93	22	50	33.71	5.19	6

Table 1: Descriptive Statistics of Perceptual Learning Styles of Junior Middle School Students

Table 1 describes the overall distribution of English perceptual learning styles of junior high school students surveyed in this study. According to Reid's statistical table, the main learning style is 38-50 points, the secondary learning style is 25-37 points, and the insignificant learning style is 0-24 points. The descriptive statistics of perceptual learning styles in this study showed that the junior high school students showed a variety of secondary learning styles, and visual learning style was the only major learning style of most junior high school students, which was similar to the previous Reid , Melton and Wang Chuming . Their study concludes that Chinese learners are characterized by a variety of major learning styles. The different results may be due to the fact that the subjects of their survey are all college students, while junior high school students are relatively young and their learning styles are still in the process of formation. Mastering English is a complex process, including mastering listening, speaking, reading, writing, translation and other skills, which requires learners to coordinate with a variety of senses, so learners should learn to use a variety of learning methods and methods to learn English, and form a variety of main learning styles in order to learn English well.

According to the average value in the table, the visual learning style (average value = 38.05) is the highest, indicating that it is the most popular learning style for junior high school students, auditory learning style (average value = 37.90) is also preferred by students, followed by tactile learning style (mean value = 36.86). Students with independent learning style (mean = 35.63) and kinesthetic learning style (mean = 35.53) did not like it very much, while students with cooperative learning styleMean = 33.71) was the least preferred learning style. This finding is similar to that of Reid (1987), that is, students with English as a second language are mainly visual, auditory, kinesthetic and tactile learning styles, followed by individual learning styles, and the least common learning style is cooperative learning. The results presented in this study are closely related to the traditional teacher-led teaching model. For many years, English teaching in our country has been using the teacher's explanation.The traditional method of students listening, reviewing exercises after class, and finally taking various examinations results in students with higher visual, auditory, and tactile styles and lower kinesthetic and cooperative styles.

According to the analysis of standard deviation data, the difference of tactile type (4.73) is the smallest, the difference of auditory type (6.42) is the largest, and the difference of visual type (6.20) is also larger. The study with higher standard deviation shows that the distribution of learners in these two learning styles is more diverse. The data also indicated that the standard deviation showed little difference between cooperative (5.19), kinesthetic (5.40), and independent (5.41) learners. That is to say, their perceptual learning style preferences are more consistent in these learning styles.

English Learning Strategies Used by Junior Middle School Students
This part mainly uses the data collected from the language learning strategy questionnaire to explore the English learning strategies of junior high school students and to see how they use them. The statistical results are shown in the following table:

Strategy Type	Number of	Minimum	Maximum	Average	Standard	Deviation Order

	Subjects					
Compensation strategy	93	2.00	8.83	3.82	.89	1
Cognitive strategy	93	1.79	4.93	3.39	.69	2
Social Strategy	93	1.50	5.00	3.21	.78	3
Metacognitive strategy	93	1.11	4.67	3.17	.79	4
Memory strategy	93	1.44	5.00	3.10	.74	5
Emotional strategy	93	1.00	6.17	2.90	.92	6

Table 2： Descriptive Statistics of English Learning Strategies of Junior Middle School Students

Table 2 describes the use of English learning strategies of junior high school students investigated in this study. The ranking of the mean values from high to low in the table is: compensation strategies (3.82), cognitive strategies (3.39), social strategies (3.21), metacognitive strategies (3.17), memory strategies (3.10) and affective strategies (2.90). According to the method proposed by Oxford Learning Strategy Questionnaire, the average frequency of strategy use is always, with an average of 4.5-5.0; Often, the value is 3.5-4.4; Sometimes, the value is 2.5-3.4; Rarely, 1.5-2.4; Never, between 1.0 and 1.4. It can be seen from the table that the subjects did not use many strategies, and there were no frequently used English learning strategies. The average value of compensation strategies is 3.82, which is between 3.5 and 4.4. It is the highest among several types of strategies, indicating that junior high school students use more compensation strategies in English learning. This result is consistent with the results of [9] and [11]. The reason for the high frequency of using compensation strategies is that most junior high school students do not have a solid foundation in English, have not yet constructed a solid English knowledge system, and often encounter difficulties in the process of learning, so they often use compensation strategies such as bold guessing, association, inference and note-taking to solve English learning problems. The middle school students interviewed (S7, S8, S12) also indicated that they often used compensation strategies, such as asking others questions, searching on the Internet, drawing mind maps, etc.
According to the table, among the six learning strategies, except for the compensation strategy, the average values of the other five strategies are all between 2.5 and 3.4. This indicates that students do not use the strategies frequently in English learning and they are not good at using these strategies. The average value of affective strategies is only 2.90, with the lowest frequency of use, which is consistent with the survey results of 100 junior high school students by Guo Zhengfeng and Fan Yixue [11]. This result shows that junior high school students are not good at controlling their emotions. When facing difficulties in English learning, they are easy to lose confidence and give up. They are not good at resolving and getting rid of anxiety and tension in learning through self-encouragement, and some even feel bored or even depressed. There are many reasons for this situation. Parents, teachers and schools should find out the reasons and help them learn to use emotional strategies to adjust in time so as not to cause serious adverse consequences.

Correlation between English Learning Styles and Learning Strategies of Junior Middle School Students
Pearson correlation coefficient is used to analyze the overall correlation between English learning styles and learning strategies of junior high school students. The statistical results are shown in the following table:

		Memory strategy	Cognitive strategy	Compensation strategy	Metacognitive strategy	Emotional strategy	Social Strategy
Visual type	Pearson correlation	.355**	.272**	.139	.291**	.185	.234*
	Significance (two-tailed)	.000	.008	.185	.005	.075	.024
	Number of cases	93	93	93	93	93	93
Auditory type	Pearson correlation	.267**	.202	.151	.250*	.155	.197
	Significance (two-tailed)	.010	.052	.148	.016	.137	.058
	Number of cases	93	93	93	93	93	93
Tactile type	Pearson correlation	.469**	.173	.331**	.393**	.321**	.262*

	Significance (two-tailed)	.000	.098	.001	.000	.002	.011
	Number of cases	93	93	93	93	93	93
Kinesthetic type	Pearson correlation	**.364****	.187	.344**	**.296****	.266**	.329**
	Significance (two-tailed)	.000	.073	.001	.004	.010	.001
	Number of cases	93	93	93	93	93	93
Cooperative type	Pearson correlation	**.431****	.176	.370**	**.253***	.351**	.185
	Significance (two-tailed)	.000	.091	.000	.015	.001	.076
	Number of cases	93	93	93	93	93	93
Independent type	Pearson correlation	**.389****	**.291****	**.344****	**.400****	**.384****	**.324****
	Significance (two-tailed)	.000	.005	.001	.000	.000	.002
	Number of cases	93	93	93	93	93	93

Table 3: Pearson Correlation Analysis of English Learning Styles
and Learning Strategies of Junior Middle School Students

At the 0.01 level (two-tailed), the correlation is significant. **
At the 0.05 level (two-tailed), the correlation is significant. *

In Pearson correlation coefficient analysis, the correlation coefficient R is $-1 \leq R \leq 1$, that is, the greater the absolute value of R, the higher the correlation. Qin Xiaoqing believed that "the correlation coefficient is statistically significant only when the P value of the correlation coefficient is less than 0.05. When the P value is less than 0.05 and reaches the statistically significant level, the absolute value is generally less than 0.20 in statistics, which is called the lowest correlation and can be ignored; the range between ± 0.20 and ± 0.40 is low correlation;"; ± 0.40-- ± 0.90 were significant correlations; absolute values greater than 0.90 were the highest correlations, but this was rare. According to the criteria, we will analyze and discuss the correlation between English learning styles and English learning strategies of junior high school students in detail [12].

According to the correlation coefficient of the two variables of English learning styles and learning strategies in Table 3, there is a correlation between the English learning styles and learning strategies of the junior high school students surveyed in this study. Six perceptual learning styles, such as visual learning style and auditory learning style, are positively correlated with six learning strategies, such as memory strategy and cognitive strategy. However, the difference of this study is that most of them are low correlation. The specific relevant conditions are as follows: the tactile type is most related to the memory strategy (R = 0.469), which indicates that the tactile type students are most willing to use the memory strategy;Cooperative learners were also willing to use memory strategies (R = 0.431), second only to tactile learners. Independent students like to use metacognitive strategies, and the correlation coefficient between them is also high (R = 0.400); the above three groups of correlation coefficients are higher than 0.40, which is a more significant correlation. The correlation coefficients of cognitive strategies with tactile (R = 0.173), kinesthetic (R = 0.187) and cooperative (R = 0. 176), affective strategies with visual (R = 0.185) and auditory (R = 0. 155), and cognitive strategies with sensory (R; Social strategy is related to auditory style (R = 0.197) and cooperative style (R = 0.185). The above shows that there is almost no relationship between these types of learning styles and these strategies, which can be ignored. The correlation coefficients between the other groups of variables were between 0.2 and 0.4, indicating a low correlation.

As shown in the table, there is a significant positive correlation between the six learning styles and memory strategies, which is the same as the research results of [13] on the correlation between perceptual learning styles and language learning strategies of senior high school students, and the R value between 0.267 and 0.469 has reached a significant level of 0.01. It shows that junior high school students of all styles will choose to use memory strategies to a certain extent. Among the 12 students interviewed by the author, 8 (S1, S3, S4,S5, S7, S8, S11, S12) students all mentioned this. It may also be due to the fact that Chinese students do not have a natural environment for using English, and that the importance of memorization has been emphasized in English teaching for many years, and that teachers often dictate words in class and let students recite texts. Therefore, students of all styles often use memory strategies such as word cards, repeated listening, repeated writing, reading aloud, drawing mind maps and so on to help themselves learn

English. Among them, the table shows that the correlation coefficient between memory strategies and cooperative learning style and tactile learning style is higher than 0.40, which indicates that the learners of these two learning styles prefer to use memory strategies in the process of learning, especially the correlation coefficient between memory strategies and tactile learning style is the highest (R = 0.469), which is also the highest in Gao Wei's research results (R = 0.461) [13]. When I interviewed S3, a student with tactile learning style, she also mentioned that she used more memory strategies in the process of English learning, and she would help her memory by writing and drawing.

According to the table, the positive correlation between the six learning styles and metacognitive strategies is also significant, and the R value between 0.250 and 0.400 also reaches the significant level of 0.01, which is similar to the research results of [14] on the correlation between learning styles and vocabulary learning strategies of science and engineering students. The other five learning styles are positively correlated with metacognitive strategies. It shows that students of almost all styles will choose to use metacognitive strategies to some extent.Nowadays, most junior high school students have the consciousness of planning and managing their English learning. Independent learning style is significantly correlated with metacognitive strategies (.400 * *), and tactile learning style is also highly correlated with metacognitive strategies. In the interview, four students mentioned that they would plan their English learning. For example, student S9 said, "I will make a schedule to plan my study before the beginning of each semester and in the middle of each semester."For example, plan how many days to write a workbook or how many pages to write a day. Independent learning style student S11 said: "I will use the weekend time to plan time for myself, specifically what time to do, how long to write this, how long to write that, and then have a goal, move towards the goal bit by bit, otherwise it is easy to fail to complete the task or procrastinate." The above shows that some junior high school students have a certain awareness of managing and planning their English learning, and they are more active in learning than in primary school.

Conclusion

By means of written questionnaire and oral interview, this study investigates the English learning styles and strategies of 99 students from a junior middle school in Changchun. This study raises three questions: (1) What is the general situation of junior high school students' English learning styles? (2) How about their use of English learning strategies? (3) What is the relationship between learning styles and learning strategies? After statistical analysis, the conclusions are as follows:

（1）Junior high school students are characterized by a variety of secondary learning styles,visual style is the only major style among the six styles (above 38 points), and the other five styles are secondary. The types of vision, hearing, touch, independence, kinesthesia and cooperation are arranged from high to low.

（2）The use of English learning strategies of junior middle school students: Junior middle school students are not good at English learning strategies, their utilization rate is low, and they lack the learning strategies they often use. The frequency of use was compensation > cognition > social > metacognition > memory > affective strategies. The most frequently used strategy of junior high school students is only compensation strategy, the other five strategies are used less frequently, and the most disliked strategy is affective strategy.

（3）The correlation analysis shows that there is a positive correlation between English learning styles and English learning strategies of junior high school students, but most of the correlations are low. Tactile and cooperative learning styles are significantly correlated with memory strategies, while independent learning style is significantly correlated with metacognitive strategies, both of which are higher than 0.40. The correlation coefficients below 0.20 are: cognitive strategies and tactile, kinesthetic and cooperative; affective strategies and visual, auditory; social strategies and auditory, cooperative. There is almost no relationship between these learning styles and strategies, which can be ignored. The correlation coefficients between the other groups of variables were between 0.2 and 0.4, and the correlation was low.

From the correlation analysis, it is found that there is a correlation between English learning styles and learning strategies of junior high school students. Learning style determines strategy, so teachers should not only teach according to the overall learning style of the whole class, but also understand how to match the two. On the one hand, we can find and use adaptive learning strategies according to different learning styles. On the other hand, we should guide them to expand their learning styles and use a variety of learning strategies so that students can learn English efficiently. For junior high school students, they should grasp their personal learning styles and corresponding learning strategies in the process of learning, and constantly improve their self-confidence and ability in language learning.

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