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# A Study on the Correlation Between the Learning Styles and the Achievements of English Majors

**Jing Zhang**

Xi'an Eurasia University , Shaanxi 710065

**Abstract:** In order to formulate appropriate teaching strategies for students with different learning styles, this author uses Reid's Perceived Learning Styles Questionnaire (PLSPQ) to measure learning styles of 363 English majors in a university, adopts SPSS22.0 to analyze data, gets the influencing factors of learning styles of English majors, provides a basis for teachers to develop diversified teaching styles and carry out teaching reform through multiple channels, and puts forward some corresponding countermeasures and suggestions, according to the characteristics and learning needs of learners with different learning styles.

**Keywords:** English majors; learning style; English teaching; Gender differences

## 1. Introduction

In recent years, with the implementation and penetration of the "learner-centered" education concept, teachers should cultivate learners' autonomous learning ability, develop learners' core elements, consider learners' individual differences, guide students to master effective learning strategies, seek appropriate teaching methods, and complete teaching plans and achieve teaching results in the teaching process.

By investigating the perceived learning styles of English majors in a university, this author discusses the overall distribution of their learning styles, that is, whether there are gender differences in their learning styles, and the relationship between their learning styles and their English achievements, so that teachers can make targeted teaching strategies for students with different learning styles and achieve the desired teaching effect.

## 2. Literature Review

In 1954, Herbert Thelen, an American scholar, first proposed the term "learning style". After that, many scholars have further studied and developed it. In 1975, Rita Dunn & Kenneth Dunn of St. John's University defined learning style as "a way for students to concentrate, strive to master and remember new or difficult knowledge and skills, which is affected by many factors such as the surrounding environment, personal emotional characteristics, social needs, physical characteristics and psychological tendencies", and defined perceptual learning style as "visual, auditory and kinesthetic. (71). In 1979, Keefe J. W., the former president of the American Association of Middle School Principals, believed that "learning style is composed of learners' unique cognitive, emotional and physiological behaviors, which reflects how learners perceive information, how they interact with the learning environment and how they respond to it in a relatively stable way" (44). In the early 1980s, David Kolb, an American social psychologist, believed that learning style was a preferred way of perceiving and processing information, described concrete abstract perception methods and describe active contemplative information processing activities. The combination of these two dimensions constitutes a model describing four different learning styles. He divided learning styles into four types: polymerization, divergence, assimilation and adjustment. In 1987, Joy Reid, a professor at the University of Wyoming in the United States, defined learning style as the way learners choose to absorb, understand and preserve new information and master new skills. This way is natural and habitual and will not change due to different learning contents or teaching methods. Based on the research of the Dunns, Joy Reed divided the perceptual learning styles into six types: visual, auditory, tactile, kinesthetic, group and personal. In 1991, Rebecca Oxford, a professor at the University of Maryland in the United States and an internationally renowned language learning expert, believed that each learning style is beneficial to learners. Only when learners find the learning they like can they apply their advantages to their studies or

work. She divided learning styles into five categories related to sensory preference into auditory, visual and kinesthetic or kinesthetic. In 1995, Tan Dingliang, a Chinese scholar, defined learning style as: "Learning style is a continuous and consistent learning style with personality characteristics, which is the sum of learning strategies and learning tendencies" (5). He divided learning styles into visual, kinesthetic and auditory types, and summarized the characteristics of different learning styles.

Therefore, although researchers have different research perspectives and focuses on learning style, they all believe that learning style "is a natural, habitual and stable learning style with personality characteristics adopted by individuals in the learning process, is the sum of learning strategies and learning tendencies, and is embodied in the learning process through certain internal or external behaviors".

Scholars at home and abroad have also done a lot of research on the influencing factors of learning. Through empirical research, they identified many individual differences of learners, including language ability, age, gender, motivation, anxiety, learning concept, learning style, etc. Learning style, as an important factor of individual differences of learners, is the basis of teaching students in accordance with their aptitude in modern teaching. In 1987, Joy Reid (1987) conducted a survey on ESL students and found that they preferred hands-on and experiential learning styles, while the preference for group learning styles was the lowest. Boys were more significantly inclined to visual and hands-on learning styles than girls, and second language learners and native language learners had similar preferences for the environment. In 1992, Rebecca Oxford believed that "although culture is not a single factor, although there are many other influencing factors, culture often plays an important role in learning styles (20)". Her research results are different: gender differences in learning styles are not very obvious, but compared with men, they tend to be hands-on and experiential. In 1993, Robert C. Stebbins, based on Reid's research, studied the individual perceptual learning styles of students from different countries, and found that subjects preferred kinesthetic and tactile learning styles, compared with group learning styles, which had the least significant tendency. In 2012, Peter D. MacIntyre, a professor at Kapton University, believed that there was a certain correlation between learners' learning style differences and gender after research.

The influencing factors of learning have also received great attention from domestic researchers. In 2008, Professor Han Meizhu of Shanxi Normal University found that "there is no correlation between learning style and English performance, but students' academic performance will be affected by ambiguity tolerance, that is, the higher students' tolerance of ambiguity in English language, the better their English performance." In 2010, Wang Hongxia believed that learning styles were related to students' English learning achievements, and low and high achievers had different preferences for visual learning styles. In 2011, Professor Li Jie of Zhongnan University of Economics and Law believed that "there is a clear positive correlation between the judgemental learning style and some learning strategies. The learning style may first affect the learners' choice of learning strategies and finally affect their academic performance."

To sum up, researchers have conducted a lot of research from multiple perspectives and contents, focusing on the learning styles of college students. From the overall results, domestic English learners do not have very significant learning style tendencies, and they tend to show a variety of learning styles.

# 3. Research Design

By consulting a large number of literature on learning styles, the author understands the theory and research status of learning styles at home and abroad. By using the methods of questionnaire survey, score statistics, classroom observation, etc., the author investigates and analyzes the types and distribution of learning styles of English majors in a university. According to the survey results, the author analyzes the causes of subjects' learning styles, and puts forward suggestions for teaching improvement based on different learning styles, so as to carry out teaching more efficiently.

## 3.1 Research Object

In this study, 363 English major freshmen, sophomores and juniors in a university were selected for a questionnaire survey. The university is a private ordinary undergraduate college, which enrolls three students from all over the country, including liberal arts and science.

## 3.2 Research Methods

This author first looks up the literature on learning styles through libraries, reference rooms, networks, etc., to understand the relevant learning style theories and research status at home and abroad, and analyzes and draws on the research results of researchers. What's more, Reid's Perceived Learning Style Questionnaire (PLSPQ) was used to conduct a questionnaire survey.

The questionnaire is designed with 30 English questions at random. Because all the subjects are English majors and can understand the content of the questionnaire well, the Chinese explanation and English questionnaire are used.

The questionnaire consists of two parts. The first part is a random 30 questions involved in six perceptual learning styles. Each learning style has five questions: visual (6, 10, 12, 24, 29), auditory (1, 7, 9, 17, 20), tactile (11, 14, 16, 22, 25), kinesthetic (2, 8, 15, 19, 26), group (3, 4, 5, 21, 23), and individual (13, 18, 27, 28, 30). The questionnaire adopts the Likert five-point scoring method, which represents from 1-5: completely disagree, disagree, uncertain, agree, fully agree, and the subjects are supposed to check according to their actual situation. Finally, the author calculates the total score of each style's corresponding topic, and multiplies the total score by two to get a score that is the type of the subject's perceived learning style.

The second part is mainly the investigation of the personal background information on the subjects, including name, age and grade.

### 3.3 Data Statistics

According to Reid's research, a subject's final score of 38-50 is the subject's main perceptual learning style, 25-37 is the secondary perceptual learning style, and 0-24 is the negligible perceptual learning style. In order to ensure the consistency and stability of the questionnaire, the author calculated Cronbach α Coefficient to test the reliability and validity of the questionnaire. The higher Cronbach α, the coefficient between 0.00 and 1.00, the higher the reliability of the questionnaire. The reliability of Reid's perceptual learning style questionnaire is 0.9 (generally, a value greater than 0.7 is considered to be highly reliable), so the reliability of the questionnaire is high.

The survey began in early September 2021. With the help of academic tutors, the questionnaire star was used to distribute the questionnaire. Students are required to complete the work within the time of class meeting. In order to ensure the efficiency of the questionnaire, the academic tutor explained it before the students fill in the questionnaire, gave the students 5-10 minutes to fill it out, and the academic tutor returned it to the research group. A total of 363 questionnaires were distributed this time, and 327 valid questionnaires were obtained after sorting out, with an effective rate of 90.08%.

## 4. Research Results and Analysis

Based on the above survey, this author discusses the learning styles of English major freshmen, the gender influencing factors of learning styles, and the relationship between learning styles and academic achievements.

### 4.1 Types of Learning Styles of English Majors

According to the survey data of English majors' learning styles, most English majors have a variety of learning styles. Among the six learning styles of visual, auditory, tactile, kinesthetic, group and individual, the number of visual, auditory and kinesthetic students is the largest, with the average of 65.13, 63.78 and 63.59 respectively. The number of group type is the least, with an average of 59.00. This result is consistent with that of Rita Dunn & Kenneth Dunn (1978). The author also found that the average scores of visual, auditory, tactile and kinesthetic types do not differ significantly, which shows that English majors tend to have the same preference for the four learning styles.

The survey data shows that the standard deviation of visual, tactile and auditory learning styles is 5.14, 5.32 and 5.63 respectively, with no significant difference in their lower values. In other words, the preference of English majors for these three learning styles is relatively small. In the three learning styles of group, kinesthetic and individual, the standard deviation is 7.76, 6.04 and 7.71 respectively, with significant difference in the lower value, indicating that English majors have a large difference in these three learning styles, showing a variety of learning styles.

In addition, the author also found that English majors prefer to use visual induction such as textbooks, blackboards and multimedia courseware to obtain information, followed by auditory induction such as recording, lectures and classroom activities to acquire knowledge, and kinesthetic activities such as participating in various classroom activities, role plays and group competitions to process information. Most English majors do not like peer cooperation, collaborative learning and other group learning styles, as shown in the table below:

Table 1 Statistics of English Majors' Learning Styles

| | Sample total | Sample of Style type | Minimum | Maximum | Mean | Standard Deviation |
|---|---|---|---|---|---|---|
| Visual | 327 | 176 | 44 | 85 | 65.13 | 5.14 |
| Auditory | 327 | 162 | 41 | 81 | 63.78 | 5.32 |
| Tactile | 327 | 152 | 47 | 85 | 63.10 | 5.63 |
| Kinesthetic | 327 | 152 | 44 | 85 | 63.59 | 6.04 |
| Individual | 327 | 166 | 30 | 85 | 62.18 | 7.71 |
| Group | 327 | 139 | 34 | 85 | 59.00 | 7.76 |

## 4.2 Gender Differences in Learning Styles of English Majors

According to the literature review, researchers believe that learning styles are affected by many factors, including gender. Because English majors are not gender balanced, with more girls than boys, and most classes have less than a quarter of boys. It is necessary to investigate the correlation between gender and learning styles. The data shows that in visual learning style, the average value of boys is 65.49, P=0.78. The mean value of female students is 64.93, P=0.05. As is known, only when the P value is less than 0.05 can they be related. Therefore, this data shows that the correlation between visual learning style and gender is not significant. In the auditory learning style, the average value of boys is 63.38, P=0.65. The mean value of girls is 62.43, P=0.05, indicating that the correlation between auditory learning style and gender is not significant. In tactile learning style, the average value of boys is 64.47, P=0.04. The mean value of girls is 63.19, P value is 0.05, which indicates that tactile learning style is significantly related to gender, and boys are more inclined to tactile learning style than girls. The data of kinesthetic type, individual type and group type also showed no significant correlation with gender. Therefore, tactile learners need to be personally involved to understand things. For them, the better way to learn is to take notes in class, practice with paper and pen repeatedly, and do some physical reaction activities, games and role plays. Tactile learners need to help them develop a correct way of thinking and the habit of taking notes. Because they like activities and participation, they often cannot be respected and understood, so they need to be encouraged and accepted. Good thinking habits and note-taking can help them better remember, digest and understand the learning content, as follows.

Table 2 Test of Significance of Learning Styles and Gender Differences

| Learning Styles | Gender | Samples | Mean | Standard Deviation | P Value |
|---|---|---|---|---|---|
| Visual | Male | 84 | 65.49 | 6.61 | 0.784467 |
| | Female | 327 | 64.93 | 5.91 | 0.050141 |
| Auditory | Male | 84 | 63.38 | 6.17 | 0.645141 |
| | Female | 327 | 62.43 | 6.06 | 0.052243 |
| Tactile | Male | 84 | 64.47 | 6.02 | 0.040785 |
| | Female | 327 | 63.19 | 6.18 | 0.053726 |
| Kinesthetic | Male | 84 | 65.23 | 6.44 | 0.415528 |
| | Female | 327 | 63.48 | 6.50 | 0.403521 |
| Individual | Male | 84 | 62.11 | 7.34 | 0.971300 |
| | Female | 327 | 62.19 | 8.07 | 0.962341 |
| Group | Male | 84 | 60.08 | 7.80 | 0.515811 |
| | Female | 327 | 58.39 | 7.70 | 0.509821 |

As mentioned above, except for tactile learning styles, there is no significant gender correlation between visual, auditory, kinesthetic, group and personal learning styles and learners. However, from the above table, it can be seen that the mean values of these five perceptual learning styles are also different.

## 4.3 Correlation Between Learning Styles and Academic Achievements of English Majors

In order to ensure that the scores can objectively reflect the real English level of the subjects and reduce the errors caused by different test questions, this author selected the scores of CET-4 taken by English majors of all grades in the second semester of their first year, which has high reliability and can reflect the real level of students. Generally speaking, when Pearson correlation coefficient is 0-0.09, there is no correlation. When it is 0.1-0.3, it is weak correlation. When it is 0.3-0.5, it is medium correlation. And when it is 0.5-1.0, it is strong correlation (Cohen, 1988; Rumsey, 2011). Pearson correlation analysis shows that: personal perceived learning style is significantly weak positive correlation with English learning achievement. Visual, tactile and kinesthetic learning styles have a significant weak positive correlation with English learning achievement. The correlation coefficients are 0.104, 0.107, 0.174 respectively.

The Pearson correlation coefficient was used to analyze 327 subjects. It was found that the Pearson correlation between these six perceptual learning styles and English scores was less than 0.3, indicating that the correlation was low. The Pearson correlation coefficients of visual, auditory, kinesthetic, individual and group perceptual learning styles and English scores were 0.061, 0.037, 0.089, 0.127 and 0.091 respectively, among which, the personal perceptual learning styles are significantly weakly positively correlated with English scores. Pearson correlation coefficient between auditory perceptual learning style and English achievement is -0.106, which is a significant weak negative correlation.

## 5. Conclusion

This author uses Reid's Perceived Learning Styles Questionnaire (PLSPQ) to investigate the perceived learning styles of English majors in a university. Among the six perceptual learning styles of visual, auditory, tactile, kinesthetic, individual and group, visual, auditory and kinesthetic learning styles account for the largest number, while group learning styles account for the least. This means that students tend to acquire information through visual perception such as textbooks and multimedia, auditory perception such as recording, lectures and classroom activities, and kinesthetic perception such as various classroom activities, role-playing and group competitions, rather than group-based methods such as cooperation with peers and small group cooperation.

In addition to tactile perceptual learning styles, visual, auditory, kinesthetic, individual and group perceptual learning styles have no significant correlation with gender.

Auditory, kinesthetic and individual perceptual learning styles are correlated with students' academic performance, but visual and tactile perceptual learning styles are not significantly correlated with students' academic performance. College education focuses on cultivating students' lifelong learning ability and autonomous learning ability, and developing students' creativity. Group cooperation and mutual assistance is one of the best ways to solve problems.

This author draws the following conclusions through the statistical analysis of literature review and questionnaires:

From the perspective of teachers, first of all, teachers should respect the individual style differences of students' learning in the teaching process. They are able to teach students in accordance with their aptitude, teach students in accordance with their own needs, encourage students to adopt their own perceptual learning styles, so that students can understand that these six learning styles are not good or bad. And many students have more than one learning style, which should encourage students to use diversified learning styles for different learning tasks, and improve the efficiency of learning. For example, students with tactile perceptual learning style like to operate by hand, and teachers can encourage them to learn by doing, learn by doing, and let students practice and operate more. The students of auditory perceptual learning style are good at acquiring knowledge through auditory stimulation. Teachers can let them listen more, and at the same time, they should train them to practice and write, because note-taking helps memory. After listening to hands-on practice, students can retell, so that they can move from short-term memory to long-term memory, and learn with half the effort.

Secondly, in traditional teaching, teachers often use blackboard or PPT, and knowledge is mostly imparted in the form of instillation. In the long run, it is bound to reduce learning initiative and enthusiasm. If teachers design teaching according to different learning styles of students, they will greatly stimulate students' interest in learning, and also greatly improve the teaching effect. For example, for students with tactile perceptual learning style, teachers can use body language and multimedia to make them "immersive", listen to English lectures, English plays, watch English videos, visit exhibitions, etc.

Thirdly, students with different learning styles have different grades. Teachers should pay attention to the following points in the teaching process: organize more group activities in the lower grades to let students discuss and learn by doing. And senior students need to listen to lectures and reports more, and cultivate their thinking logic and independent thinking ability. In addition, there are also some differences between male and female students in perceived learning styles. Male students prefer personal perceived learning styles, which can leave more time for male students to think independently, use appropriate learning strategies, and encourage male and female students to learn from each other and expand their learning styles.

Finally, using a diversified and multi angle comprehensive evaluation method, according to the theory of multiple intelligences of American psychologist Gardner, teachers should pay more attention to process assessment and students' usual performance, such as actively answering questions in class and participating in group discussions. Students' multiple sensory intelligence and combine listening, speaking, reading and writing can be mobilized tocultivate students' multiple perceptual learning styles.

From the perspective of students, on the one hand, with the guidance and help of teachers, teachers should be familiar with and identify the advantages and limitations of their own learning style, make full use of their preferred learning style, and take corresponding strategies to complete the learning tasks; on the other hand, students can seek suggestions from peers and teachers, train and expand their own learning styles, skillfully apply their own learning styles to different learning tasks, and greatly and optimally improve the learning effect.

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