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An Empirical Study on Gender Differences in Language Learning Among Middle School Students

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Abstract: Since the early 1990s, the topic of language and gender research has emerged in the field of teaching and has become an important perspective of language classroom teaching research. Based on middle school education, combined with language achievement and listening and speaking level, this paper objectively analyzes the differences between men and women in language learning, which is divided into four parts: The question is put forward, the research design, the research results and the conclusions and sug gestions. The highlight of this paper is the quantitative analysis of the research method, based on the empirical demonstration to make the relevant demonstration of the research hypothesis, and at the same time to explore the practical needs of teaching, aiming at the timely promotion and application of the research results into practice, to the language teaching workers and learners have a certain inspiration.

Keywords: Middle school students, Language learning, Gender differences, Empirical.

1. Introduction

Nowadays, there are many controversies on language education in the academic circle, and the gender difference in language learning has become a hot topic, including whether there are differences between male and female students in various aspects of language learning, and how to solve these differences. These studies can be roughly divided into three categories: the first is the study on gender differences in language learning ability. Chen Lin, which holds that there are significant gender differences between men and women in many aspects of abilities and cognitive processing; The second is the study on gender differences in language learning strategies, Zhou Mianmian believed that girls were significantly better than boys in the use of memory strategies, while boys were better than girls in the use of cognitive, compensatory, metacognitive and social emotion strategies,The third is the study of gender differences in language learning styles, Wu Dianning believed that women were more likely to show the characteristics of appearance dependency, showing greater advantages in listening and speaking in language learning. Most of the research results confirm the significant differences between male and female students in language learning, but they do not fully discuss the influence of learners' language application ability on language learning level. Secondly, most of the research focuses on teaching in colleges and universities, but is relatively lacking in basic education, and fails to pay more attention to relevant research in primary and secondary schools. Based on middle school education, this paper further focuses on the difference of gender influence on language learning and analyzes the reasons for the correlation between gender and language learning, which has certain teaching practical significance and aims to better help teachers reduce some misunderstandings caused by gender differences in the teaching process.

2. Research Design

The research design of this paper is divided into two stages. The first stage explores the correlation between middle school students' English and Chinese scores and gender. The data are from the China Education Tracking Questionnaire (2014-2015), and the selected dependent variables are respectively middle school students'Chinese scores (Y1) and middle school students' English scores (Y2) . Independent variable is gender (X1) (female code is 1, male code is 0), control variables are teacher attention satisfaction or above (X2), whether to participate in related courses interest class (X2), the Chinese and English scores and independent variable two sets of data were analyzed respectively, using multiple linear regression and mean comparison:

Y language learning achievement = β0+ β1x girl + β2x classroom teacher attention satisfaction and above + β3x whether to participate in related courses interest class +ui

In the second stage, gender differences in the practical application of language are further explored from the level of listening, speaking and English. The data are from the China General Social Survey (2021). The dependent variables selected are good at listening Chinese or above, good at speaking Chinese or above, good at listening English or above, good at speaking English or above, and the independent variable is gender (female code: 1, Male code is 0), because the dependent variable is a dummy variable, probit model is used to explore the level of language learning listening and speaking and gender respectively. The null hypothesis of this study is that there is no significant difference in the language learning ability of male and female middle school students. The alternative hypothesis is that there is a significant difference in the language learning ability of male and female middle school students, and the language learning ability of female students is higher than that of male students.

3. Research Results

In the first stage, regression analysis is made on the scores of middle school students in English and Chinese and their independent variables, girls' satisfaction with the teacher's attention in language class and above, extracurricular language interest classes. The full score of middle school language scores is 120, and independent variables are dummy

variables. The descriptive statistical results are shown in Table 1:

Table 1. Descriptive statistics

Variable names	mean	Standard deviation	Maximum value	inimum value	Sample size
Chinese scores of middle school students	80.05373	21.13776	118	0	3936
English scores of middle school students	66.66226	29.47841	120	0	3935
Girls	0.4158715	0.49292889	1	0	4297
Be satisfied with teacher attention in English class or above	0.4780079	0.4995742	1	0	4297
Be satisfied with or above the teacher's attention in Chinese class	0.4835932	0.4997889	1	0	4297
After-school English interest class	0.1499235	0.3570419	1	0	3922
Extracurricular Chinese interest class	0.0900051	0.2862256	1	0	3922

Next, the regression analysis is carried out on Chinese scores, English scores and independent variables respectively, and three models are established respectively. Model 1 is the gender of the basic independent variable, model 2 introduces the satisfaction of teachers' attention in related classes or above, and model 3 introduces the participation of extracurricular interest classes on the basis of model 2. From Table 2 and 3, it can be seen that in Model 1, gender has a significant positive correlation with both Chinese and English scores (P<0.01), and girls' language scores are higher than boys'. Controlling other factors unchanged, girls' Chinese scores are 10.47 points higher than boys' English scores are 16.13 points higher than boys'. In Model 2, the independent variable of satisfaction with teacher's attention in relevant classes or above is introduced, and it can be found that it also has a significant positive correlation with language achievement (correlation coefficients are 4.54 and 9.84 P<0.01, respectively). The higher the teacher's attention to students in class, the better the students' language learning performance. Gender also has significant positive correlation with Chinese and English scores (correlation coefficients are 10.36 and 15.76 P<0.01, respectively). The independent variable of participating in interest classes of language courses was added into Model 3, which also had a significant positive correlation with the improvement of language scores (correlation coefficients were 6.21 and 14.8 P<0.01, respectively). After all the control variables were analyzed, the relationship between gender and language scores in Model 3 was still significant (correlation coefficients were 10.02 and 15.02 P<0.01, respectively). Has a positive correlation, controlling for other factors unchanged, girls' Chinese score is 10.02 points higher than boys, English score is 15.02 points higher than boys.

Table 2. Regression results of Chinese achievement and gender of middle school students

	Chinese Achievement of middle school students		
	Model 1	Model 2	Model 3
Girls	10.47351**	10.35794**	10.01794**
	(0.6566034)	(0.6549015)	(0.6451134)
Be satisfied with or above the teacher's attention in Chinese class		4.536057**	4.006252**
		(0.8843829)	(0.8668334)
Extracurricular Chinese interest class			6.212932**
			(1.119643)
cons	75 35369**	74.67223**	74.60666**
	(0.4398159)	(0.458098)	(0.4670645)
Adjusted R2	0.0605	0.0665	0.0708
Obs	3936	3936	3857

Table 3. Regression results of English achievement and gender of middle school students

	English Achievement of middle school students		
	Model 1	Model 2	Model 3
Girls	16.13359**	15.76448**	15.02327**
	(0.9892519)	(0.9023829)	(0.8923267)
Be satisfied with teacher attention in English class or above		9.844096**	8.500117**
		(1.171663)	(1.154705)
After-school English interest class			14.81769**
			(1.244149)
cons	59 42162**	57.82859**	56.45607**
	(0.6091261)	(0.6328774)	(0.6526156)
Adjusted R2	0.0739	0.0900	0.1175
Obs	3935	3935	3858

Note: *p<0.05; * * p < 0.01.

The second stage focuses on exploring the gender differences in specific language application level, the dependent variable for listening to Chinese level is good or above, speaking Chinese level is good or above, listening to English level is good or above and speaking English level is good or above, respectively and independent variable female probit model analysis, female correlation coefficient is significantly positive, in terms of Chinese level ability, Women have a significant positive influence on listening and speaking Chinese level is good or above (coefficient values are 0. 10, 0.12 P<0.05), the significance of listening Chinese level is better or above is slightly weaker than speaking Chinese level is good or above, in terms of English level ability, Females had a significant positive impact on listening and speaking proficiency (coefficient values were 0.17 and 0.20 P<0.01, respectively). The data obtained are shown in Table 4, Table 5, Table 6 and Table 7:

Table 4. Probit model of good listening Chinese and above and gender

	listening Chinese proficiency is good and above
	Model 1
Women	0.0952155*
	(0.0443216)
cons	0.1957222**
	(0.0313179)
Pseudo R2	0.0010
Obs	3271

Table 5. Probit model of good speaking Chinese andabove and gender

	Speak Chinese well or above
	Model 1
Women	0.1241471**
	(0.0468567)
cons	-0.6609869**
	(0.0337)
Pseudo R2	0.0018
Obs	3271

Table 6. Probit models with good listening English and above and gender

	Listening English proficiency isgood and above
	Model 1
Women	0.173832 **
	(0 .0636302)
cons	-1.478917 **
	(0 .0472417)
Pseudo R2	0.0040
Obs	3271

Table 7. Probit models with good speaking English and above and gender

	Speak English well or above
	Model 1
Women	0.2042146**
	(0.0726057)
cons	-1.709068**
	(0.0547891)
Pseudo R2	0.0057
Obs	3271

4. Conclusion and Suggestions

The conclusion of this paper is consistent with some relevant literature. First, there is a significant relationship between the language learning performance of middle school students and gender, and the language learning performance of girls is higher than that of boys. Secondly, in terms of specific language application level, there is a significant gender difference in the listening and speaking ability of middle school students. Females are higher than males in the level of language listening and expression. The study acknowledges the alternative hypothesis that there are significant differences in language learning ability between boys and girls in middle school, with girls' language learning ability being higher than boys'. The above empirical findings have important practical significance to help teachers in language classroom teaching. Therefore, it is believed that there may be many reasons for the gender difference between male and female students. According to the literature, in terms of learning strategies, female students prefer to use compensatory strategies and emotional strategies in language learning, and have significant advantages in memory strategies. In addition, in terms of learning characteristics, female students' appearance dependence may also make them superior in language listening and speaking ability.

This paper puts forward several suggestions based on the research results and literature reference. First, in view of girls' advantages in language ability, teachers should give full play to their language ability in Chinese and English classroom teaching, organize some activities that they are good at such as topic speeches, textbook plays, poetry recitation and so on, so that they can fully show their talents. This will help girls to enhance their confidence and interest in language learning. Secondly, in view of the relative deficiency of male students' language ability, teachers can strengthen the emotional edification in language class, integrate visual stimuli such as visual pictures and appealing music, and use a variety of teaching methods to strengthen visual teaching, such as observing objects, watching slides, making models, and so on, to consciously cultivate the habit of male students' thinking in images. To improve their language thinking ability.

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